

**ASSESSMENT OF THE EFFECTS OF CONFLICTS REDUCTION
AND ENVIRONMENTAL JUSTICE ON SUSTAINABLE
DEVELOPMENT IN THE NIGER DELTA REGION, NIGERIA**

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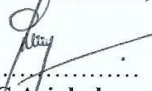
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DEGREE IN AGRICULTURAL EXTENSION.**


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CERTIFICATION

This is to certify that this Research work entitled **Assessment of the Effects Conflicts Reduction and Environmental Justice on Sustainable Development in the Niger Delta Region, Nigeria** was carried out by **Chukuigwe Orokwu** with Registration Number (201449815798) in partial fulfillment of the requirements for the award of degree of Doctor of philosophy (Ph.D) Agricultural Extension in the Department of Agricultural Extension, Federal University of Technology, Owerri, Nigeria.


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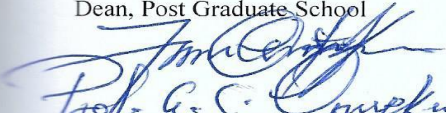
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DEDICATION

This thesis is dedicated to my dear husband Professor (Chief) Eleoke Chukuigwe and my lovely children; Dr. Oma, Okachi, Igwemzinuchi and Ikechi for their support, encouragement and love.

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ABSTRACT

The study assessed the effects of conflicts Reduction and environmental justice on sustainable development in the Niger Delta of Nigeria. The study identified the socioeconomic characteristics of the respondents, ascertained types and levels of conflicts in the study area, identified factors that predispose the respondents to conflicts, identified environmental injustice prevalent in the study area, analysed the factors that are constraints to environmental justice, examined the factors that contributed to sustainability of projects, assessed stakeholders participation in the management of conflicts, evaluated community participation levels on projects and identified factors that are common to both conflicts and environmental justice in the study area. The study was carried out in three out of the nine states of the Niger Delta. Namely: Delta, Bayelsa and Rivers States. Multistage sampling technique was adopted for this study. Data were collected using structured questionnaire from 380 out of 400 respondents giving a response rate of 95%. Data were analysed using descriptive and inferential statistics such as mean, frequency distribution, percentages, probit, Spearman rho correlation and Chow test. The result showed that men (64.7%); the age group 41 to 50 years(31.8%) was predominant. Majority of the respondents (57.6%) were married, average household size was six (6) and 84.2% were unemployed. With regard to occupation, 36.3% were involved in fishing while 42.6% were into farming. The dominant educational attainment was secondary school at 26.1%while the Mean income was ₦24,658. The dominant types of conflict in the area were political (18.9%), environmental (12%), cultism (4.6%). The level of conflict was high, 2.2 out of maximum of 3 points. Some of the factors that predisposed respondents to conflicts were environmental degradation (78.9%), land dispute (62.4%) and cultism (55.5%). Conflicts were resolved mainly through legal process (17.7%), community elders/chiefs (16.6%) and combination of legal process, community Elders/chiefs, community Development committee (18%) while incidences of injustice in the area included land and water pollution (84%), gas flaring (81%), and incidence of Criss-cross maze of oil pipelines on farm lands (68.4%). Constraints to environmental justice included Government policies, community Leadership structure among others, some of the factors the respondents perceived to have contributed to sustainability of development projects were participation from scoping ($\bar{x}=3.31$) and non-complexity of technology ($\bar{x}=3.06$) among others. The result also showed that stakeholders were not active participants in the resolution of conflicts. The level of participation in development projects was low, 1.89 out of maximum of 3 points. Six variables namely, education, income, sex, employment, participation and distance from home to project were common to the three dependent variables of Conflict, Environmental Justice and Sustainable Development. Finally, the results showed an inverse relationship existed between conflicts and environmental justice (-0.72) as well as sustainable development (-0.17) while there was a positive correlation between environmental justice and sustainable development (0.67). From the findings of the study it was therefore recommended that improvement in the variables of education, income, sex, employment, participation and reduction in the distance to the project are likely to reduce conflicts, improve environmental justice and advance sustainable development.

Key Words: Assessment, Effects, Conflict-Reduction, Environmental Justice on Sustainable Development.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The Niger Delta region, situated in the southern part of Nigeria is abundant in natural resources namely land, water, mineral, aquatic and forest resources. These represent veritable sources of Nigeria's income for national social and economic development. Income from petroleum accounts for over 90% of the national income in spite of the dwindling output reduced to barely fifty percent of normal output due to conflicts and sabotage of the oil companies' assets in the Niger Delta. The sabotage and vandalism take the centre stage, some attribute oil pipeline explosions to dilapidated pipeline assets. The dire situation was exacerbated by the crash in international oil prices which saw oil prices fall by more than seventy percent within a period of one year (from \$112.75 per barrel in 2013 to \$63.28 per barrel in 2014 and from \$63.28 per barrel in 2014 to \$37.80 per barrel in 2015 (Central Bank of Nigeria; 2015); \$69.52 per barrel in 2018 and then declined to an average of 55.50 per barrel in 2019 (CBN; 2019).

The festering agitation, sabotage and conflicts derives in part from absence or poor conflict management in the oil resource areas particularly when attention is not paid to distributional and incidental consequences in resources management. Conflicts generally arise from the actual or perceived inadequacies in the distribution of scarce resources especially in the area of environment. According to Mason & Spillman (1996), equitable distribution of scarce resources offers sustainable future for all concerned. This assertion is particularly true in the area of environmental resources. In the absence of equitable distribution of gains from the environmental resources,

conflicts are festered. The choices made on the road to resource distribution bring about conflicts and only minimal development can take place in an atmosphere of conflicts. Akpuru-Aja (2007) defines conflict as a frustration - based attitude or protest against lack of opportunities for development and against lack of recognition and identity. It can be development driven. Yet whether conflict is in the negative or positive, it cannot be left alone. It needs to be tailored towards the support of existing norms and rules of social existence. Either way, an uncontrolled conflict situation may be counterproductive. According to him, understanding the parameters of a conflict is useful. The primary objective is to conceptualize on how to control escalation and map a way forward. He also went further to identify the phases of conflict as (a) early conflict indicators, (b) conflict resistance, (c) explosive or exhaustive conflict and (d) terrorism – a deadliest spiral and the highest level of violence. Esor (2016) posits that they occur in the best of human societies and its index includes mutual image of misunderstanding, hostile utterances, actions and responses that seek to put the interest of the other party in a disadvantaged position.

According to Burton in Esor (2016), conflicts take place when parties are insensitive and irresponsive to early conflict indicators. Observing and responding timely to conflict indicators will enhance understanding of each party's perception which will in turn alter the mind sets of the primary actors in support of well-coordinated and appreciated intelligence on conflict avoidance and prevention. Generally, conflict is not an automatic imposition. While the tendency towards conflict is inherent in human nature and our social existence, it is rather the failure to detect, control, and respond to crisis signals, conflict indicators that often materialise into conflict. He went further to say that, be it civil war, or ethno-religious conflicts or resource control militancy (as in the Niger Delta area of Nigeria), no conflict comes as a surprise really and that in a civil

setting, conflict indicators may take various forms and manifestation such as provocative utterances, communication gap, demonstrations, protests and even peaceful representation.

Transformation Research Group (TRG,1999) defined Environmental conflicts as those conflicts that emanate over the use of natural resources where at least one of the actors is negatively affected by the objective and subjective divergence in positions and/or interest. The Environmental and Conflict Project (ENCOP, 1995) explained that environmental conflicts manifest themselves as political. Social, ethnic, religious or territorial conflicts over resources of national interest or any other type of conflict. They are traditional conflicts induced by the principal importance of degradation in over or more of the following; overuse of renewable resources, overstrain of the environment's sink capacity (pollution) and improvement of the living space. Environmental conflict management refers to all kinds of interventions in a conflict over the use of renewable resources and the degradation of the environment. The aim therefore is to solve the problems as perceived by the actors involved, transform the hostile relationship between the actors into cooperative relationship and enhance environmental sustainability.

Sustainability on the other hand is the ability to continue a defined behavior indefinitely while the World's standard definition of environmental sustainability is sustainable development which implies an oxymoron (Mason and Spillman, 1996). No form of economic growth can be continued indefinitely. Furthermore, all economic growth today is terribly environmentally degrading. According to Brundtland Commission (1987), Sustainable Development is development that meets the needs of the present without compromising the ability of the future generations to meet their own needs

.This definition contains two key concepts; the concept of “needs”, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of “limitations” imposed by the state of technology and social organization on the environment’s ability to meet present and future needs. The principle of the three pillars of sustainability says that for complete sustainability problem to be solved all the three pillars of sustainability must be adhered to. The three pillars are social sustainability, environmental sustainability and economic sustainability of the three the environmental sustainability predominates and no matter how hard we try, the other pillars cannot be made strong because they are dependent on the greater system they live within namely, the environment (Mason and Spillman, 1996).

In spite of the damaging impact of oil exploration and exploitation on the environment and livelihoods of the host communities, scientific data on the overall and long term effects of oil exploitation on the area are only beginning to emerge (Emeseh, 2009; Obi, 2010; Agwu, 2013). Environmentalists and other experts have focused attention on the environmental degradation resulting from oil activities but a major bone of contention is the implication of the environmental impact on the livelihood of the people of the oil bearing communities of the Niger Delta. Madubuko, (2014) stated that since 1956 oil has been extracted from the Niger Delta with destructive consequences on the environment bringing about environmental degradation and destruction of the people’s primary means of livelihood. Land and water were badly polluted and the health of the people affected because of leaks from oil pipelines, gas flaring and acid rains. The importance of environmental sustainability cannot be overemphasized. It is fundamental to the people’s welfare and development. Their existence to a large extent relies on subsistence endeavours, which depend on natural resources. The effective

management of natural resources is the key to attaining sustainable development in all sectors of the global economy.

While there have been direct and indirect poverty reduction strategies designed, and implemented in the Niger Delta region, and while all these schemes have their own validity depending on the environment, the stark reality in the oil bearing areas is that decades of these schemes and programmes have not mitigated the crucial problems of exclusion and human deprivation. These schemes do not seem to have incorporated the essence of environmental justice in the design and implementation of these strategies in the development of the Niger Delta region of Nigeria. Unfortunately, the brunt of environmental degradation and under development seems to be borne by the lowest rung of the population ladder as well as under-enfranchised women that form the bulk of the population (Ejimudo, 2014). Implicitly there is lack of environmental justice.

Environmental justice is multifaceted in concept and uses (Baretta, 2011). The notion of environmental justice was conceived in the United States in the mid-1980s in the context of the struggle for racial equality (Ikeme, 2003). According to Taylor (2000), although it was not labelled as such, environmental justice activism has been an underlying frame in the politics of communities of people of color for more than a century. Since the beginning of modern conservationism, environmental thinkers and nature advocates applied arguments about injustice related to environmental rights in making claims about human-environmental relations, and advocated for environmental policies and action (Taylor, 2000). The Environmental Justice movement is only the latest in a series of environmental mobilizations that employ the notion of injustice, but unlike its predecessors, the environmental justice movement makes the injustice frame explicit. This is because it is the first branch of the environmental movement to examine

human –human and human- nature relations through the lenses of race, class, gender and population demography.

Environmental Justice not only acknowledges the existence of environmental injustice in the forms of humans harming nature, but also recognizes that environmental injustices arises from racial, gender and class discrimination (Taylor, 2000). By the 1980's the environmental justice movement in the United States gained increasing visibility as people of color began to organize environmental campaigns. These included the prevention of pesticides poisoning and opposition of sitting of noxious facilities in their communities. In 1990, the Environmental Protection Agency (EPA) of the United States defined Environmental Justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of Environmental laws, regulations and policies.

Laurent (2011) highlights two important dimensions namely fair treatment and meaningful involvement; pointing respectively to the traditional distinction between distributional and procedural aspects of justice. The EPA provides precise definition of those concepts: Fair treatment means that no single group of people should bear a disproportionate share of the negative environmental consequences arising from industrial, government, or commercial operations or policies. Meaningful involvement means that people must have the opportunity to participate in decisions about activities that may affect their environment and/or health; the public contribution can influence the regulatory agency's decision; the public concerns will be considered in the decision-making process and; the decision makers must seek out and facilitate the involvement of those potentially affected. Currently these procedures are carried out in the form of

field trotting and need assessment as well as stakeholder's town hall meeting. However, the seriousness and depth of these activities calls for questioning. Are the outcomes incorporated and acted upon? Ikeme (2003) categorized environmental justice into preventive, corrective and retributive types. Preventive environmental justice is exhibited in its forward-looking nature. Instances of preventive characteristics of environmental justice occur in international law and national environmental policy. Environmental justice also seeks remedies or corrective actions for environmental injustice. It also has retributive characteristics through the enforcement of environmental fines and penalties as stated in national policy. Environmental justice therefore focuses on the disproportionate sharing of environmental benefits and burdens between different states, institutions, organizations, groups and individuals as the case is with the Niger Delta that had suffered from marginalization and oppression in the face of its centrality to the economic growth and development of Nigeria (Ejumudu,2014). By implication, environmental justice seeks to achieve an accommodation or balance between access to environmental costs or burdens (pollution, unemployment, social and economic dislocation and crime) and environmental benefits (nutrients food, clean air, and water, health care, education, transportation and safe jobs and security). The evolution of the use of environmental justice concept has come up with "Generational environmental justice" which refers to the concept of sustainability including global ecological integrity and global environmental justice; that is the responsibility of the current generations to ensure a healthy and safe environment for future generations. This implies avoiding environmental degradation which brings injustice on future generations for the sake of short term economic gains (Johnson, 2012). What is the state of the art of environmental justice in Nigeria and Niger Delta in particular? Is the concept of environmental justice

explicitly incorporated into national policies, commercial agents and development activities? In all, the effects of conflicts, environmental justice on sustainable development are multidimensional. For example absence of education which is an injustice, impinging on economic deprivation due to lack of qualification. This sets up a whole lot of actions and reactions leading to social conflicts which in itself lead to economic deprivation with its psychological effects and ultimate conflict; all of which are indeterminate. However, by the use of logit and probit analysis and concepts such as “Willingness to accept” a positive or negative association can be established by asking germaine questions. What are the outcomes with the absence of this concept in national development activities or national discourse and in the area of the environmental concerns? Why does the nation still encounter restiveness whether by youth or adult or communities? What could be the problems and attempted solutions? Why do we still have Niger Delta Avengers phenomenon? Do the elements of environmental injustice exist in the Niger Delta?

1.2 Problem Statement

In spite of the immense natural endowment and potential for socio-economic growth and development of Nigeria, the Niger Delta region is beset with unsustainable development activities arising from environmental degradation and conflicts. (ANEIJ, 2004; Madubuko, 2014). The effects of environmental degradation are manifested in physical, social, legal and political environment. It is manifested in soil, water, forests, animals and man. It manifests in conflicts and litigations, youth restiveness, ownership rights and outright posture of war.

These negative outcomes put serious constraints on the achievement of Sustainable Development Goals (SDGs) as enunciated by the United Nations through her agencies

of development. These goals which are seventeen in number with one hundred and sixty-nine targets, borders on no poverty, Zero hunger, good health and well-being, quality education, gender equality, peace, justice and strong institutions amongst others.

Governments at Federal, State and Local levels, international donor agencies and non-governmental organisations (NGOs) have been involved in programmes to ameliorate the situation. Agencies such as the Oil Mineral Producing Area Development Commission (OMPADEC), the Niger Delta Development Commission (NDDC), the ministry of Niger Delta (MND) as well as Fadama and recently the State Expenditure and Employment for Result (SEEFOR) have all been established to tackle the perennial developmental dysfunction in the Niger Delta. The outcome has been anything but salutary. The environment is still being damaged, conflicts are on-going and development activities remain stunted.

Festering armed conflicts which reduced the petroleum output by more than forty percent in 2015 and 2016 largely accounts for current economic recession being experienced by Nigeria (CBN, 2015, 2016).

The effects of these developmental efforts seem to be inadequate because policy framers and executors assume that the recipients of their efforts are uniform and that consequences of the conflicts, development and environmental remediation projects are uniform in the impacted areas; but the truth is that the benefits and costs of these efforts differ widely according to gender, income, age, educational level and residential distances from impact points; while some recipients are well-off as a result, others are worse-off leading to injustices perceived or real. These unsatisfactory recipients value framed as injustice when combined with conflicts together lead to unsustainable development projects. Infrastructural projects such as roads, bridges, educational,

Agricultural projects, craft and leadership development centers are abandoned. The phenomenon of youth restiveness and cultism reign supreme.

However, studies in the United State of America (Taylor, 2000) had recognized the need to explicitly incorporate environmental justice and conflict variables in fashioning out environmental and developmental policies. In order to realize an efficient outcome policy makers are encouraged to explicitly incorporate race, class, gender and population demography. They also showed congruency between injustice/fairness, conflicts and socio-economic attributes of the population such as age, sex, income, education. That is Socio-economic factors that portend unfairness also lead to injustice and conflict disposition. (Wright and Nance, 2012) also argue for prioritizing of vulnerable communities for equity (fairness) to be achieved in environmental policies. These aforementioned socio-economic attributes including stakeholders' participation together relate to fairness/justice as well as the Sustainability of environmental and developmental projects. To these end, in our quests for conflict reduction, environmental justice and sustainable development there is the need to explicitly incorporate these variables especially in the Niger Delta. From the review of literature, it is not obvious that this is being done, therefore this study is aimed at solving this policy gap by providing information on the variables to target in fashioning out an equitable/ fair and efficient environmental and developmental policies that will help to reduce conflicts related to the environment and allow for sustainable development in Niger Delta region of Nigeria.

In furtherance of this research effort the following research question will be posed and attempts made to answer them:

- a) What are the socioeconomic characteristics of the respondents?

- b) What are the types of conflicts experienced in the study area?
- c) What are the factors that lead to conflict in the study area?
- d) How are conflicts resolved?
- e) What are the environmental injustices prevalent in the study area?
- f) What factors constraints the respondents to environmental justice in the study area?
- g) What are the factors that contribute to sustainability of development projects within the study communities?
- h) Are the stakeholders involved in the management of conflicts?
- i) What is the level of stakeholders' participation in development projects within the survey communities?

Answers to these questions give rise to the objectives of this research work.

1.5 Objectives of the Study

The overall objective of the study was to assess the effects of Conflicts Reduction and Environmental Justice on sustainable development in the Niger Delta region of Nigeria.

The specific objectives of the study were to;

- i. identify the socioeconomic characteristics of the respondents in the study area;
- ii. ascertain types and levels of conflicts that exist in the survey area;
- iii. identify factors that predispose the respondents to conflict in the research area;
- iv. determine how conflicts are resolved in the study area;
- v. identify the environmental injustice prevalent in the study area;

- vi. analyse the factors that are constraints to environmental justice in the study area;
- vii. examine the factors that contribute to sustainability of projects in the study area;
- viii. assess stakeholders' participation in the management of conflicts in the study area;
- ix. evaluate Community participation levels on projects in the study area and
- x. identify factors that are common to both conflicts and environmental justice in the study area;

1.4 Hypotheses

- H₀₁: There is no significant relationship between socioeconomic variables and conflicts in the study area.
- H₀₂: There is no significant relationship between socioeconomic variables and environmental justice in the survey area.
- H₀₃: There is no significant relationship between socioeconomic variables and Sustainability of development projects in the study area.
- H₀₄: There is no significant relationship between conflicts and sustainable development in the study area.
- H₀₅: There is no significant relationship between environmental justice and sustainable development projects in the study area.

1.5 Justification of the Study

Niger Delta region has witnessed various forms of conflict arising from environmental degradation as a result of oil exploration activities in their host communities. The region has long been known for their high level of industrial activities and therefore, needs peaceful and conducive environment that will encourage local and foreign investments to expand their economies for the much-desired employment generation and opportunities for their citizens.

The outcome or findings of this study will help development practitioners, to employ conflict reduction indices in fashioning out development strategies.

The result of the study will enable researchers to intensify the research for quantifiable variables that will fill the gap in extension practices which have mainly been social, qualitative analysis.

The study will extend the frontiers of knowledge in the overall area of social research and improve available information in national depositories such as libraries and archives.

1.6 Scope of the Study

The study covered three out of the nine states of the Niger Delta namely: Bayelsa, Delta and Rivers states. The study was concerned with providing information on the variables to target in fashioning out an equitable/fair and efficient environmental and developmental policies that will help to reduce conflicts related to the environment and allow for sustainable development in the Niger Delta region of Nigeria.

CHAPTER TWO

LITERATURE REVIEW

This chapter reviewed literature related to this study. The essence of the review is to isolate major findings from the work of other researchers that would be relevant to this study. The review was done under the following sub-headings:

- ❖ Concept of Conflict
- ❖ Types of Conflicts
- ❖ Causes of Conflicts
- ❖ Management of conflict
- ❖ Concept of Environment
- ❖ Meaning of Environmental Justice
- ❖ Concept of Sustainability
- ❖ Sustainable Development
- ❖ Conceptual Framework
- ❖ Theoretical Framework

2.1. Concept of Conflict: According to Stoner (1978) conflict, especially in an organisation refers to disagreement between two or more individuals or groups arising from the fact that they share scarce resources or work activities, and also from the fact that they have different status, goals, values or perception. Generally, conflict is a clash, battle, confrontation or struggle between two or more parties, with each party, group or individuals mobilizing energy to obtain a goal or goals. Each party perceives the other as a barrier or threat to that goal. Conflict therefore, is the outcome of opposing interest between or among groups that interact whether on adhoc or regular basis. Drawing from

the above, conflict could be economic, political, social, communal or religious in nature, depending on the source (Chukuma, 2008). Conflict is inevitable in society, in view of the fact that we all have values, culture and belief that help us to define both our physical and innate world. They also give us our sense of identity. Therefore, threats to these values, belief, culture and way of life tend to disrupt our sense of safety and survival, and this may lead to aggression. Furthermore, basic needs are non-negotiable; every human being wants his or her needs to guarantee survival as deprivation of these basic needs breed conflict. These needs could be physical or material, that is, economic- those things needed for survival and wellbeing; social- belonging to a group; or political- being part of the decision making process. However economic needs remain paramount, whether individually or communally.

Akpuru-Aja (2007) defines conflict as a frustration-based attitude or protest against lack of opportunities for development and against lack of recognition and identity. It can be development driven. Yet whether conflict is in the negative or positive, it cannot be left alone. It needs to be tailored towards the support of existing norms and rules of social existence. Either way, an uncontrolled conflict situation may be counterproductive. According to him, understanding the parameters of a conflict is useful. The primary objective is to conceptualize on how to control escalation and map a way forward. Overall, it is in the realm of concepts that brighter understanding of conflict is provided. They are used to organise specific knowledge to represent, describe, analyse and predict events and outcomes. They are also useful for decoding the specific ingredients of conflict theories by making them workable methods that stand up to empirical or normative analysis. He also went further to identify the phases of conflict as (a) early conflict indicators, (b) conflict resistance, (c) explosive or exhaustive conflict and (d) terrorism – a deadliest spiral and the highest level of violence. On the whole, Akpuru-

Aja (2007) submitted that consensus is achieved by scholars that conflict is an inevitable part or process of social life and that conflict involves two or more parties that have or perceived incompatibility in either interest and values or in strategy of achieving the ends desire. He concluded that for some, conflict is a strain in a relationship that goes with emotion. The higher the emotion, the higher the tendency of evolving conflict intensity.

Esor (2016) posits that they occur in the best of human societies and its index includes mutual image of misunderstanding, hostile utterances, actions and responses that seek to put the interest of the other party in a disadvantaged position.

The concept of conflict explosion according to Akpuru- Ajah (2007) is very suggestive. It is used to represent a paradigm shift from the phenomenon of conflict resistance to one of heightened level of violence. The strategy of conflict explosion according to him is both the employment of counter force and counter violence. The first refers to attacks directed at militancy or security related targets of the opponents (as in Niger Delta communities) while the second specifically represents wanton attacks directed against civilian cities, public utilities, business premises and defenceless civilians. He went further to state that in multilingual societies, ethnicity finds its way into a myriad of issues such as control of state power, development plans, educational controversies, resource control struggles, religious intolerance, land disputes and indigene-settler syndrome. All these makes conflict so complex and enduring. It permeates the very fabric of society and often a severe hindrance to conflict resolution. Another concept of conflict is known as ethnic victimization. When groups are under political, economic, ecological and military stress, they become vicious and malicious. It is further defined as a state of mind when security of any group is shattered by violence and aggression,

marginalization, exclusion, neglects, human and civil rights violations. These groups (as in the Niger Delta Region) feel that their survival is at stake and in their own hands. Cunningham (1998).

According to Burton in Esor (2016), conflicts take place when parties are insensitive and irresponsive to early conflict indicators. Observing and responding timely to conflict indicators will enhance understanding of each party's perception which will in turn alter the mind sets of the primary actors in support of well-coordinated and appreciated intelligence on conflict avoidance and prevention. Generally, conflict is not an automatic imposition. While the tendency towards conflict is inherent in human nature and our social existence, it is rather the failure to detect, control, and respond to crisis signals conflict indicators that often materialise into conflict. He went further to say that, be it civil war, or ethno-religious conflicts or resource control militancy (as in the Niger Delta area of Nigeria), no conflict comes as a surprise really and that in a civil setting, conflict indicators may take various forms and manifestation such as provocative utterances, communication gap, demonstrations, protests and even peaceful representation.

David, (2007) defines conflict as an intrinsic and inevitable part of human existence and is the pursuit of incompatible interest and goals by different groups. Armed conflict is the resort to the use of force and armed violence in the pursuit of incompatible and particular interests and goals. Therefore, conflict resolution scholars argue that conflict has an ontological basis in human needs and it is the denial which causes violence, conflicts or resolvable differences to degenerate into armed violence or armed conflict. The conception of conflict as management and resolution of differences have led to terms such as peace-making, conflict prevention, third party intervention and the focus

on mediation and negotiation, preventive diplomacy, peacekeeping, peace enforcement and peace building. Conflict analysis, that is a critical investigation into the root, secondary and tertiary causes of conflict, highlighting the actors, structures and dynamics in conflict situations is important in determining intervention mechanism and the management and resolution of conflict. Conflict prevention describes the whole range of development and crises intervention efforts to reconcile parties and groups with incompatible interest and to prevent the pursuit of divergent goals from degenerating into armed conflict.

2.1.2 Meaning of Community Conflict

A Community is a group of persons who share values, ideas, cultures or problems and who are aware of these common features and can undertake measures to solve its problems based on the viewpoint of mutual awareness, understanding and strategy (Odinwa & Nlerum, 2015). It may be a geographical one, or one of ideas, values, cultures and problems. They also listed six defining attributes of a community. These attributes are space, people, shared institutions and values, interaction, distribution of power and social system. These variables give credence to the definition of community by Odinwa & Harry (2015) that “When the members of any group, small or large, live together in such a way that they share not this or that particular interest, but the basic conditions of community life, we call that group a community.” In the same vein, Onyebamiji & Adekola (2008) defined community as a consciously identified population with common needs and interests; it may occupy a common physical space, engage in common activities and have some form of organisation that provides for difference in functions, making it adaptive to its environment as a means of meeting

needs. Its components include individuals, groups, families and organisations within its population and the institutions it forms to meet its needs.

Today, modern trends in technological progress have successfully turned the world into a global community. Therefore, scholars' perception of the concept of community is tending towards description that goes beyond geographical limitations (Onyebamiji & Adekola, 2008). In this sense, Anyanwu (1981) defined community as a group of people who communicate. This implies that the ability of individuals in the world to communicate and interact through various technological means make the globe itself a community. Yet, Anyanwu (1981), in his attempt to localise the concept of community, defines it 'as a social group occupying a more or less defined geographical area and based on the feeling that people have for one another'. Therefore, a community is a home, whether small or large; local or urban; national or international, where people who share the same socioeconomic environment collude and corrode in an attempt to advance the continuous existence of the environment/ home.

Conflicts arise when the interest of two or more persons clash and at least one of the parties seeks to assert its interests at the expense of another party's interest. Otit & Albert (2007) support this views that conflicts arose from the pursuit of divergent interests, goals, and aspirations by individuals and or groups in defined social and physical environment. Whichever sense conflict is defined, conflict produces either negative or positive effect each time it showcases itself in any environment. Therefore, community conflicts are series of cultural, social, economic and political actions and interactions engaged either by the people within or influence from people outside to bring about changes or developments in the community, Community conflicts

sometimes are vital growth hormones for community growth, development and advancement.

2.1.3 Types of Conflicts

Conflicts can be intra-group (occurring within groups) or inter-group (occurring among groups). Odinwa & Harry (2015) identified three basic types of conflicts such as: task conflict, interpersonal conflict and procedural conflict. The same source observed that ‘Task conflict’ occurs when group members disagree about facts or opinion from authorities. Here, interpretation of evidence may be questioned. Task conflicts can be productive by improving the quality of decisions and critical thinking processes. That ‘Interpersonal conflict’ is used to indicate the disagreement that most people call a ‘personality clash’, this clash may take the form of antagonistic remarks that relate to personal characteristics of group members or disregard any organisational goals to antagonise a particular group member. Conflict in this case, is expressed through subtler non-verbal behaviours. Interpersonal conflict may be inevitable and must be managed for optimal group maintenance; Procedural conflict exists when group members disagree about the procedures to be followed in accomplishing the group goals. In this case, new procedures may be formulated and a new agenda suggested. Even the group may be modified. Procedural conflict, like task conflict, may be productive (Odinwa & Harry, 2015). Also, conflict may be functional or dysfunctional. According to Nelson & Quick (2006), functional conflict is a healthy, constructive disagreement between two or more people. It can generate new ideas, learning and growth among individuals and group. Dysfunctional conflict is an unhealthy, destructive disagreement between two or more people. It has the demerit of taking the focus away from the work to be done and places the focus on the conflict itself and the parties involved. The key to

identify a dysfunctional conflict is that its origin is often emotional or behavioural (Nelson & Quick, 2006).

All conflicts such as task, procedural, interpersonal; inter and intra community; inter and intra group, constructive/functional and destructive/dysfunction conflict can further be classified into religious, economic, political, social, cultural and environmental conflicts, this is supported by Essor (2016) who reports that these conflicts may be on a small or large scale; they may occur within and among groups, communities, or nations and they may be triggered by ethnic, racial, religious or economic difference.

2.1.4 Causes of conflicts

Conflict is an ever-present process in human relations (Odinwa & Harry, 2015). Smith (2009) holds that conflict situations appear with frequency in daily, public and private life. These conflicts may be on a small or large scale; that may occur within and among groups, communities or nations; and, they may be triggered by ethnic, racial, religious or economic differences, or arise from differences in values, beliefs, and attitudes regarding issues. Local communities are constantly faced with issues such as funding education, siting of waste facilities and zoning that have the potential of leading to community conflict.

According to Smith (2009), at least four conditions are necessary if a conflict situation can be said to exist; (1) there must be sets of individuals exhibiting some level of organisation. These could be voluntary groups, religious groups, families, communities, nations or some other collections of individuals. (2) There must be some level of interaction among group members. Without contact and communication, there can be no conflict. The contact may merely be propaganda about another, culture, or group; it

needs not be personal. (3) There must exist, a scarcity of needed or desired resources and a general dissatisfaction among members about how these resources are being distributed. Odinwa & Harry (2015) observed that when there is dissatisfaction, conflict can erupt and that the potential for conflict depends on the degree to which needed resources must be shared, the amount of dependence among individuals and groups, and differences over goals, and added that the “process leading to conflict is dynamic, because of the constantly changing nature of goals”. Several specific factors have been related to the occurrence of conflict, such as: type of event or issue, type of local government, community type, and size.

2.1.5 Social Consequences of Conflicts in the Niger Delta

Odoemene (2011) in his study on environmental change discussed some unpalatable social consequences of conflicts as a result of Environmental degradation in the Niger Delta communities. These consequences are the effects of the conditions on the people as well as their reactions. Similarly, with the indigenes of the region resolute to defending their environmental and human rights, even violently where necessary, there are some significant changes in the peoples’ social life, consequential to the changes being experienced in their native homelands. In this section, some of these social consequences of conflict as a result of environmental degradation and climate change in the Niger Delta are examined

a) Youth Militancy and Gangsterism

Denial of benefits accrued from the natural resources of the Niger Delta and the destruction of its ecosystem have made the people advocate for self-determination, resource ownership and control – an off-shoot of the earlier agitations led by Isaac

Adaka Boro and later, Kenule Saro-Wiwa. This political activism introduced by the two 'revolutionaries' made the people of Niger Delta aware that the government has alienated them from the oil wealth (Odoemene, 2011). This resulted in a social breakdown, as evidenced by generalized lawlessness in the Niger Delta: During periods of anomie or social breakdown, society loses its grip on the people who would wish to act according to their own dictates and not that of the society. At a time like this, it is very easy to mobilize the people into mass movements because they readily make themselves available. However, mass movements, which emerge under such circumstances, do not primarily aim at changing society but to escape from their perceived isolation. People join social movements for the purpose of gaining a sense of belonging and significance, which the wider society denied them (Anele, 1999). These ultimately led to a new level of protest and agitations which have been popularized through various declarations like the Ogoni Bill of Rights (1990), the Kaiama Declaration (1998) of the Ijaw, the Resolutions of the First Urhobo Economic Summit (1998), the Bill of Rights of the Oron People (1999), the Akalaka Declaration (1999) and the Warri Accord (1999). In all these declarations, self-determination, resource ownership and control were cardinal objectives (Odoemene, 2011). Radical activism that followed these declarations metamorphosed into a resilient subculture of youth violence and rebelliousness, which are a clear signal of social disequilibrium (Jike, 2004). Such acts included the disruption of the activities of oil exploration in the Niger Delta by different protesting interest groups, especially those of women and the youth which witnessed intensification since the 1990s.

Okonta (2006) explains this transformation. The metamorphosis of political activism in the delta region from nonviolent advocacy to armed insurrection is partly explained by the deliberate infiltration of their ranks by government and oil company agents, thereby

narrowing the civic options of those who refused to be co-opted. In desperation, elements of the latter group embraced the AK47 to seek redress. This period (the 1990s) also coincided with the emergence of different pressure groups such as the Movement for the Emancipation of the Niger Delta (MEND), Niger Delta People's Volunteer Force (NDPVF), the *Egbesu* Boys, Martyrs Brigade, Coalition of Militant Action in the Niger Delta, Niger Delta People's Salvation Front, Niger Delta Vigilante (NDV), Joint Revolutionary Council and Militant Camps Across the Niger Delta, amongst other less prominent ones. These groups were responsible for violent attacks against petro businesses, destruction of oil facilities and installations as well as intimidation of oil workers to quit their jobs. Oil installations and pipelines belonging to the Nigeria National Petroleum Corporation (NNPC), the government-owned oil enterprise, were also targeted. This resulted in the loss of lives and property. The State's response to this development has been with further repression rather than dialogue and constructive management of the conflicts thus the Niger Delta struggles snowballed into kidnapping and hostage taking for huge ransoms.

b). Kidnapping and Hostage Taking

Niger Delta militants introduced worrisome dimensions of kidnapping and hostage taking in 2006. On January 11 of that year, four oil workers, Mikko Nichevi (Bulgarian), Harry Ebanks (Honduras), Arnold Laundry (American) and Nigel Watson Clark (Briton), were kidnapped and taken hostage in Bayelsa state after the declaration of *Operation Orido Danger* by MEND (Odoemene, 2011). By December 2006, a total of 24 incidents, involving 118 hostages, were recorded (Ibiba, 2008). The issues of kidnapping and hostage taking have been an insalubrious phenomenon of the Niger Delta society. This is for-grounded by Kolawole in Odoemene (2011) who observed

that: “Kidnapping expatriates and toddlers may just be a child’s play. Something more barbaric may be in the offing if we do not find a solution as soon as possible.” It is noteworthy that this ill wind has already blown to many other parts. Today, most parts of the country especially the South-eastern parts, have been grossly terrorized by the use of this new crime trend. It has, unfortunately, become “the talk and trend of the day in the country since its debut in the delta” (Jike, 2004) persuasively argued that one might conceptualize youth violence, restiveness, and rebelliousness in the Niger Delta as various shades of reactions to a system that has fallen short of meeting the expectations of the youth. Due to this fact, conflicts occur as a response to the frustration over the non-actualization of set goals (Odoemene, 2011). The militants, however, see the kidnapping of expatriates as a way to force their collective admittance into the system they had hitherto been eliminated from. The insecurity created by these activities equally sustains illegal oil bunkering by the militant, which costs the country billion US, Dollars’ worth of oil.

c). State Violence and Suppression

Due to the kind of wealth that the oil sector produces and the unimpressive way its affairs have been handled over the years, the petroleum industry has become a perfect conduit for corrupt government officials of successive administrations and petro business executives to enrich themselves. This has always been one of the grounds for the Niger Delta agitations. Regrettably, the official response of the government has been more repression of the agitators through the deployment of military troops and Mobile Police units with mortal instructions. For instance, since the 1990s many delta communities have had military occupations just to secure the activities of petro businesses and combat youth militancy. Notable of these was the 2006 Joint Military

Task Force (JTF) which was deployed to Rivers, Bayelsa and Delta states (Ejibunu, 2007). State violence in this context has been demonstrated in several forms: wanton killings, destruction of communities, abusive military occupation, and sexual abuses by government security operatives. One such case was that of Odi town (near Port Harcourt) in 2000. It is reliably reported that thousands of people were killed, while livestock, farms, public utilities and houses in the town were deliberately and totally destroyed and set ablaze by the rampaging Nigerian Army (Odoemene, 2011). Another angle to this could also be seen in the misuse and manipulation of rival gangs, known locally as ‘cults’, for selfish political and clandestine purposes. These cults have proven ties with political leaders in the Delta region who use them during elections to intimidate opponents and rig votes. The down turn of this arrangement has brought so much violence to the region. The hoodlums who are now kings of the territory acquired power and influence under the watch of political Godfathers who used them as political thugs and armed them with sophisticated weapons (Odoemene, 2011).

d). *Intractable Inter-Communal Conflicts*

Violent communal clashes have increased in the Niger Delta region, especially since the 1990s. Such conflicts were either inter or intra ethnic, or between oil-bearing communities and state and/or petro businesses. Most of these violent conflicts are another dimension to the State-sponsored violence against the people of the region. Inter- and intra-ethnic clashes are caused by the struggle for the ownership of resources, usually land, and the sharing of largesse and the spoils of oil from either the State or petro businesses. An in-depth analysis of the symptoms of such conflicts glaringly reveal the complicity of the State and/or the petro businesses operating in the area, both of who use it as a ‘divide and rule tactics’ (Iyayi, 2004). Many of these conflicts pitch

one delta community against the other, sometimes occurring between/among groups with no previous history of antagonism.

e). Breakdown of Cultural Values and Mores

Most communities of the Niger Delta are very traditional in their ways of life in that their cultures are central to their lives and guide their everyday activities and interactions. However, Jike (2004) notes that the once-revered values have become supplanted by fads, and the prospects of institutional continuity have become more cumbersome. Suddenly, the safety value and the social control for orderly individual conduct and group behavior have snapped and society is worse for it. Issues of ancestral worship or deification still feature prominently in the lives of Niger Delta peoples. Any disruption of such customary practice is unwelcome as it could sever the link between the living and the pantheon of forbears in such communities and their worldview. However, the activities of petro businesses have infringed on many communities' rights as ancestral homelands have been desecrated and forcefully converted to other uses by petro businesses. The Ogoni/Shell crisis in the late 1990s had this feature (Jike, 2004). The legendary 'respect for elders' in African societies has also been largely truncated in most Niger Delta communities (Jike, 2004). As a result, the typical Niger Delta youth sees the elder as corrupt, inept and the epitome of colossal failure. The elder represents an era that is best forgotten, an era that disembowelled enormous resources from the Niger-Delta region with very little to show for infrastructures, development, or collective self - upliftment. It was an era when Niger-Delta resources were ferreted to build skyscrapers and overhead bridges in Lagos and Abuja while the local people had no access roads to their subsistent farms, an era where several persons died of preventable and curable diseases because of lack of health care delivery facilities, an

era when children trekked 10 or more miles to attend the nearest primary school, an era when elders turned a blind eye when multinational companies began in earnest to desecrate and plunder ancestral homelands for narrow economic gains, an era of the Petroleum Act of 1969 and the Land Use Decree of 1978 when government usurped the holding rights of individuals and trampled on civil liberties with reckless abandon, and an era where a massive oil spillage with untold environmental consequences could be hushed up with a paltry compensation sum of N5,000 and a bottle of gin. This is the quintessential era of the elder that is best forgotten. It also explains why in every conflict, particularly in the Niger-Delta, the youths are more likely to hold on to a viewpoint that contrasts with those of their elders (Jike, 2004).

f). Increased Poverty and Destitution amongst Indigenes

The people of Niger Delta region are highly dependent on their environment (land, water and forest) for sustenance. They were attached to their environment and made their living from the exploitation of its resources as farmers, fishermen, hunters and forest product gatherers (Alamieyeseigha, 2005). As a result of environmental degradation and petro business activities, the economic activities of the people were soon dislocated as the effects on farmlands, economic crops, creeks, lakes and rivers became so severe and devastating. Hence, the people could not engage in meaningful productive activities as they used to do (Uyigüe & Agho, 2007; Alamieyeseigha, 2005). Due to this development, the dominant economic activity of the people has become traditional agrarian trading (Alamieyeseigha, 2005), while very few are employed in the industries and/or in the civil service. This impaired capacity of the people due to a degraded and devastated environment is a major cause of poverty in the region (Amnesty International, 2009; United Nation Development Programme, 2006;

Alamieyeseigha, 2005; World Bank Report, 1995). Furthermore, the cost of goods and services in the Niger Delta are quite high compared to other parts of the country because of the presence of petro business activities thereby birthing a high cost of living in the region. This is at the detriment of the local peoples because the costlier the prices of goods and services, the more the local people are impoverished (Uyigüe & Agho, 2007; Iyayi, 2004). An unfortunate aspect of this situation is the fact that Niger Delta indigenes are seldom employed by the petro businesses operating in the area, save for menial/low cadre positions.

The Nigerian government has made trillions of dollars from oil revenue in the last half a century of oil exploitation in the Niger Delta; despite this huge amount of money and the seemingly inexhaustible resource potentials of the Niger Delta, the people of the region remain in abject poverty and deprivation of the basic needs of life. In spite of being Africa's leading oil producing zone, the world development report shows that 36.4% of Niger Delta inhabitants live below poverty line and 70.2% of this proportion earn less than \$1USD *per* day with a clear absence of the basic social amenities (Odoemene, 2011). The link between oil production activities and poverty in the Niger Delta is well articulated by Aaron (2006) who aptly opines thus: Oil has meant for the indigenes of the Niger Delta, wrenching poverty... State laws and policies as they relate to petroleum resources, expropriate the indigenous peoples of the Niger Delta of their 'right' to their natural resource. The local economies of the Oil Producing Communities have collapsed. And they are not integrated into the oil economy of Nigeria ...The success of the oil economy has not promoted their own capacities. It has not promoted their own self-reliance. It has not promoted the social engine of the society. The pace of development has left them. Apart from the lack of income and assets to attain basic necessities of life, such as, food, shelter, clothing and access to acceptable levels of

health care and education, poverty has other manifestations which include a sense of voicelessness and powerlessness in the affected society. These manifestations subject the 'poor' to rudeness, humiliation, shame, inhuman treatment and exploitation in the hands of those in position of political power and authority. It speaks publicly through visible misery, persisting destitution, endemic hunger and visible malnutrition (Odoemene, 2011), all characteristics of the delta communities.

g). *Reinforced Human Underdevelopment*

Diverse literature on the Niger Delta agrees that the oil industry has not promoted the development of the region; instead it has undermined the area's human development (Aaron, 2006). Undoubtedly, the combination of the various social consequences already discussed would unequivocally lead to human underdevelopment. Thus, this situation results as a consequence of the devalued nature of human existence in the region.

Although the region is well endowed with intelligent human resources, it has the highest illiteracy and unemployment rates in Nigeria. Its educational system has virtually collapsed over the years, while the infrastructure vital for quality education is grossly lacking, thus leading to high school dropout rates (Odoemene, 2011). Indeed, education levels are below the national average and are particularly low for women. Statistics show that while 76% of Nigerian children attend primary school, this level drops to 30-40% in some parts of the Niger Delta. Unemployment rate in the region is reported to be 30% (Uyigwe & Agho, 2007). This is because of the low skills syndrome leading to the un-employability of the region's people. Again, change in means of livelihood from natural sectors to non-natural sectors due to the degraded and devastated environment

has equally affected the people adversely. This has been especially in the agricultural and fishery sectors.

Also, change in occupation has caused a high rate of rural – urban migration, which has particularly affected the productive workforce, especially those of the youthful age group in the rural communities. The restiveness of the youth in the Niger Delta, as earlier discussed, has some consequences on the business sector as a good number of business firms in the area have stopped operations because of kidnapping, hostage taking and attack on oil installations (Ejibunu, 2007). The sense of social inequity, deprivation and alienation felt by these people has been aptly highlighted by Jike (2004). In addition, as a consequence of the entire negative socio-environmental trends in Niger Delta communities, the little school child is truant because the parents, having been displaced from their farms, are unable to meet their obligations to provide food and the recommended textbooks for the child at school. The fisherman sits very early in the day guzzling locally brewed gin (*Ogogoro*) in his sitting room because the fishes in his domain have been depleted, not by the plunderers activity of humans but by spillage and industrial effluents that have begun to introduce toxicity and distort aquatic balance, thereby forcing whole species to migrate or die, (Jike, 2004).

h). *Gender Dimensions of the Social Crises*

While one acknowledges that the social costs of environmental change in the Niger Delta has not been adequately articulated in scholarship, the gendering of these perspectives has been consistently neglected. Insights into this area are quite revealing as women even in the Niger Delta, suffer great hardships in times of conflict more than men. In the socioeconomic structure of Niger Delta communities, women are subordinate to men; this reinforces the double marginalization of the womenfolk in

these communities. Though traditionally women of this region neither own nor inherit land, they bear the burden of raising and nurturing their families (household), sometimes as breadwinners. Thus, they provide the basic needs of their household: food, fuel and fodder through engaging mainly in fishing, farming and gathering of forest products. As the principal custodians of their communities, women are the major income earners in the region (Chinweze & Abiola-Oloke, 2009). However, the poor management of oil and gas resource in this region coupled with pressures arising from environmental changes has undermined the livelihoods of women and the income they generate to sustain their families. As the resourcefulness of these women depends totally on the viability of their environment, a degraded environment is a challenge on their socioeconomic status; so the women have to over-exploit the slim natural resources available to them, in a bid to squeeze out a living for their families. As a result, the trends and developments underlining poverty and destitution affect women because of their socioeconomic position in the society. This typically elucidates what could be referred to as “the feminization of poverty” – a phenomenon which is more evident in the Niger Delta than elsewhere in the country.

Ibeanu (2000) highlights the undergoing of the Ogoni women from violent men fighting for their rights; as under the disguise of frustration and deprivation, deluded young men of Niger Delta communities are known to be involved in criminal sexual acts that leave many women violated, dehumanized and ‘broken’ (Odoemene, 2011). Security forces sent by the government (or petro businesses) to contain “insurgency” in the Niger Delta use women’s bodies as their battlefield. They invade private homes; terrorize residents with beatings and rape women and girls. This was exemplified on 28 October 1999 when scores of women were raped by a contingent of Nigeria Mobile Police and

soldiers who invaded Choba town in Port Harcourt city on the orders of Wilbros, an American oil servicing company in the community (Ekine, 2005).

Furthermore, Odoemene (2008) extensively documented acts of sexual violence by Nigerian security forces (with the complicity of Shell Oil) against the Ogoni women of Niger Delta. Types of sexual violence referred to in his essay include rape, forced prostitution, sexual slavery, sex-related threats, sexual harassment (touching the breasts or bodies of women and young girls), and instances of forced pregnancy (Odoemene, 2008). These acts of sexual violations have grave socio-cultural implications, not only on the women victims, but also their families and communities (Odoemene, 2008). As fallout of the Niger Delta crisis, prostitution is common as girls and young women seeking economic survival involve in prostitution in major towns and cities of the Niger Delta. Even those in marriage are not left out: The wives' tales...are that many wives abandon matrimony in preference for young White oil workers who have more than enough money to spend as opposed to their struggling husbands. ...As expected, among young couples' divorce is on the rise (Jike, 2004).

Again, these cities now exhibit an unsavoury night-life which has been on the increase since the 1990s. Not only do these oil men have cheap sex at their disposal, but worse still, most of these relationships end up with children and the women are left alone to carry the burden of bringing up these 'fatherless babies'. These trends connote a breakdown of societal moral fibre and social values, all of which these indigenous Niger Delta communities were reputed and respected for (Odoemene, 2011). This trend calls for stake holders to seek for satisfactory and acceptable means of conflict resolution in the Niger Delta.

2.1.6. Conflict Resolution

Conflicts whether task, interpersonal or procedural; functional or dysfunctional need to be resolved, in order to encourage new solution to problems and enhance creativity in an organisation or a community. Otite & Albert (2007) opine that conflict do not normally result in the destruction of the societies in which they occur. Instead, they follow their own courses and stages, and usually terminate in the reconciliation of the communities concerned. They restore society to at least some degree of order which permits it to continue to exist in a changed form. Conflict resolution as noted by Miller (2003) is a variety of approaches aimed at terminating conflicts through the constructive solving of problems, distinct from management or transformation of conflict. Odinwa & Nlerum (2015) indicate that by conflict resolution, it is expected that the deep rooted sources of conflict are addressed and resolved, and behaviour is no longer violent, nor are attitudes hostile any longer, while the structure of conflict has been changed.

Mitchel and Banks (1996) posits conflict resolution to mean:

1. An outcome in which issues in an existing conflict are satisfactorily dealt with through a solution that is mutually acceptable to the parties, self- sustaining in the long run and productive of a new, positive relationship between parties that were previously hostile adversaries; and
2. Any process or procedure by which such an outcome is achieved. Conflict resolution has been part of human experience for centuries (Otite & Albert, 2007). Burton in Esor (2016) argues that the concept is comparatively recent in academic discourse. He drew attention to the term “dispute” which some scholars interchange with conflict. For him, settlement refers to negotiated or

arbitrated outcomes of disputes, while resolution refers to outcomes of a conflict situation (Esor, 2016). We thus have “dispute settlement” and “conflict resolution”. However, dispute and conflict operate on the same principles and although they may refer to different conditions and scope of social relationships, they may, like the concepts of settlement and resolution, be used interchangeably.

Conflict resolution is essentially aimed at intervention to change or facilitate the course of a conflict. Other problem-solving techniques are known generally as “problem-solving workshop”, interactive problem-solving”, “third party consultation”, or “collaborative analytical problem-solving (Mitchell, 1993). In general, conflict resolution provides an opportunity to interact with the parties concerned, with the hope of at least reducing the scope, intensity and effects of conflicts. Conflict resolution may be used by some people to mean a specialised field of study and practice as in the field of conflict resolution (Essor, 2016). According to him, conflict resolution connotes a sense of finality, where the parties to a conflict are mutually satisfied with the outcome of a settlement and the conflict is resolved in a true sense. He added that some conflicts, especially those over resources, are permanently resolvable, while those over values, may be non-resolvable and can at least be transformed, regulated or managed. This view was supported by Otite & Albert (2007) who observed that experiential situations and conflict workshop experiences tend to query the use of the term, ‘conflict resolution’, and rather suggest the concept of conflict management since conflict resolution is not realisable or an ideal situation to which one may strive.

2.1.7 Conflict Management

Conflict management according to Essor (2016) is the process of reducing the negative and destructive capacity of conflict through a number of measures and by working with and through the parties involved in that conflict. It is a term sometimes used synonymously with “Conflict regulation” which covers the entire area of handling conflicts positively at different stages, including those efforts made to prevent conflict by being proactive, he added.

Otite & Albert (2007) was of the same view when they perceived conflict management as a wider concept, involving conflict resolution and transformation when necessitated, and it is of a long-term arrangement involving institutionalisation provisions and regulative procedures for dealing with conflicts whenever they occur. They added that in some respects the concepts of conflict resolution, conflict transformation and conflict management overlap both in content and in practice. Wilmot *et al.*, (1998) identified some ideas for dealing with conflicts. These include clarification of communication and the checking of perceptions which in turn involve the following:

- Speaking out what is one’s mind or heart,
- Listening carefully.
- Expressing strong feelings appropriately,
- Asking direct questions, about what is going on,
- Maintaining a spirit of give and take,
- Avoiding harmful statements,
- Telling others one’s opinion,
- Looking for flexible “shades of gray” solutions,
- Recognising the power of initiating a co-operative move,

- Identifying conflict patterns and
- Engaging in negotiations of agreements and settlements.

These suggest that conflict management must occur in a polite atmosphere and context even though those conflicts do not generally follow the demands of politeness. Based on this, Nelson & Quick (2006) identified two overall strategies in conflict management such as competitive versus co-operative strategies, also known as win-lose versus win-win strategies. According to them, competitive strategy is founded on assumptions of win-lose and entails dishonest communication, mistrust, and a rigid position from both parties. While the co-operative strategy is founded on different assumptions; the potential for win-win outcomes, honest communication, trust, openness to risk and vulnerability and the notion that the whole may be greater than the sum of the parts.

2.1.8. Conflict Resolution and Management Strategies

Best in Essor (2016) stated that there are two broad categories of conflict resolution. The first is the proactive category which entails methods that aims at preventing the occurrence of conflict in the first instance, for example, good governance, community based trust and confidence building measures. The second category is reactive, dealing with responses to situations that have already turned conflictive or are potentially so. These include mediation, brokerage, conciliation, arbitration and litigation. Conflict resolution was seen by Miller (2003) as a variety of approaches aimed at terminating conflicts through the constructive solving of problems, distinct from management or transformation of conflict. Miall, *et al.*, (2011) indicated that by conflict resolution, it is expected that the deep rooted sources of conflict were addressed and resolved and behaviour is no longer violent nor are attitudes hostile any longer while the structure of the conflict has been changed. They concluded that from the point of view of needs, a

conflict is resolved when the basic needs of parties have been met with necessary satisfaction and their fears have been allayed.

Burton in Esor (2016) defined conflict management as the process of reducing the negative and destructive capacity of conflict through a number of measures and by working through the parties involved in that conflict. This term is sometimes used synonymously with conflict regulation. It covers the entire area of handling conflicts positively at different stages, including those efforts made to prevent conflict by being proactive. It encompasses conflict limitation, containment and litigation. The term conflict management is perhaps an admission of the reality that conflict is inevitable, but that not all conflicts can always be resolved; therefore, what practitioners can do is to manage and regulate them. Miall, *et al.*, (2011) contends that conflict transformation goes beyond conflict resolution to build longer standing relationships through a process of change in perceptions and attitude of parties. They summarised the idea of conflict resolution to mean that conflict can be either negative or positive but parties can transform it into positive to maximize opportunities.

Best in Esor (2016) again asserted that conflict suppression is used to portray the unwillingness of more powerful parties or stronger interveners who have the ability to transform or manage a conflict situation to take necessary measures leading to the management or resolution of conflict. Instead, they use instruments of power or force to push away the issues under the carpet or to impose a solution that is not sustainable and with which the parties are not satisfied. This happens in unequal relationship. Governments and repressive regime are usually guilty of this situation by declining to take appropriate decisions as at when due or trying to lord it over others, leading to protracted conflicts. He also dwelt on the idea of alternative dispute resolution (ADR)

as a method of conflict resolution which is about the need for an application of non-conventional peaceful methods of settling disputes and resolving conflict situations using the least expensive methods and in ways that satisfy the parties as well as ways that preserve relationships after settlement might have been reached. Alternative dispute resolution is meant to serve as an alternative to the official conventional means settling disputes, mainly through litigation and the courts, but with preference for non-violence. Simply put, African's ADR is conducted in the open also as a means of ensuring that subsequent generations in the community learn the process and value of socialization. He also listed other methods of conflict resolution to include collaboration, negotiation, conciliation, arbitration and adjudication. This position is also supported by Miall *et al.*, (1999). Ochinya (2007) equally identifies domination, avoidance, accommodation, collaborating, compromising, confrontation / fighting and problem- solving as conflict handling styles.

2.1.9 Environmental Conflict

The Environmental and Conflict Project (ENCOP) maintained that Environmental conflicts manifest themselves as political, social, economic, ethnic, religious, or territorial conflicts, or conflicts over resources, or national interest, or any other type of conflict. They are traditional conflicts induced by the principal importance of degradation in over or more of the following: over use of renewable resources, overstrain of the environment's sink capacity (pollution) and improvement of the living space. Environmental Conflicts in the Niger Delta mostly stem from the oil industry's activities, which have degraded the land, contaminated neighboring bodies of water and groundwater, and polluted the air as a result, many communities have become frustrated

and some groups decided to take violent action against the onslaught of destruction of their communities without proper compensation (Ibeanu, 2000; Ukiwo, 2007).

Environmental Conflict Management refers to all kinds of interventions in a conflict over the use of renewable resources as well as the degradation of the environment. The aim is to solve the problems as perceived by the involved actors, transform the hostile relationship between the actors into a co-operative relationship, and enhance ecological sustainability.

2.2. Concept of Environmental Justice

There is a growing evidence of the links between environmental problems and social injustices; environmental justice is the idea that brings them together. According to Ejumudu (2014), the term “Environmental Justice” otherwise called “environmental equity” has featured prominently in the environmental debate for over three decades. Different scholars have attempted a conceptualization of the term and while there is no generally accepted definition, largely because of the fact that concepts in the social and environmental sciences are confounded by a wooliness of thought and usage that characterize the domain, there exist a common strand of understanding. Such conceptualization efforts date back to Brutland Report’s definition of sustainable development that tied together the concern for the carrying capacity of natural system with the social challenges facing humanity. The report, which is one of the seminal environmental documents of the 20th century, is representative of the growing global awareness of the enormous environmental problems facing the planet and a growing shift towards global environmental action. The focus of the report on environmental justice underlie the bold steps recommended for re-examining the problems associated with the critical environment and development inter-linkage and formulating realistic

proposals to solve them so as to actualize the aspirational goal of the world community to protect and enhance the environment. Environmental justice therefore focuses on the disproportionate sharing of environmental benefits and burdens between different states, institutions, organizations, groups and individuals as the case is with the Niger Delta that had suffered from marginalization and oppression in the face of its centrality to the economic growth and development of Nigeria (Ejumudu, 2014). Taking a more critical view on the concept of environmental justice, Bullard (2000) posited that environmental justice is based upon the recognition that environmental costs and benefits are not in a fair and equitable manner and that traditional environmentalism has not been sufficiently concerned with very divergent local situations and the plight of minorities. The term is therefore concerned mainly with the side effects of production activities, such as the siting of waste disposal facilities, the proximity of industrial pollution and workplace exposure to industrial toxins and the socioeconomic consequences occasioned by it as McDermott (2004) rightly articulated.

Environmental justice thus seeks to redefine the traditional environmental movement by incorporating the concerns of minorities within environmental policy decision-making, thereby engendering environmental equality or equity as typified by the agitation of the Niger Delta over the region's hazardous, worrisome and pitiable situation and the failure of the superficial institutional remedial actions by successive Nigerian governments to address their genuine concerns (Torres, 2000). The main thrust of environmental justice is a shift in focus from the environment to the people, for it underscores the need for environmental protection not to be planned within a vacuum and for environmental goals to take into account social, political and economic realities in environmentally devastated and dislocated regions like the Niger Delta.

In a broad sense, environmental justice is about positive discrimination because it seeks to achieve a redistribution of the costs of environmental justice so as to lower the disproportionately high burden borne by some segments of society like the highly marginalized and pauperized Niger Delta. In effect, it is shifting the focus of environmental protection towards taking into account the needs of the poorer sections of society that have suffered the environmental consequences of industrialization more than others (Ejumudo, 2014). This holds true for the paradoxical situation of the Niger Delta that is bearing the burden of the revenue generating, yet environmentally degrading and socioeconomically dislocating consequences of oil exploration and production activities without any imaginably comparative adequate and justifiable compensation in the light of developmental benefits. It also addresses the extent of linkages between environmental and social injustice and asks whether it is practicable to tackle both social exclusion and environmental problems through integrated policies and development. It therefore follows that by looking at social justice issues through an environmental lens and simultaneously by analysing environmental issues more clearly in terms of social justice, new and more effective ways of dealing with each can be developed.

Environmental justice is equally the blend of social and environmental concerns that deals with holistic efforts to analyse and overcome the power structures that thwarts and militates against the principles of fairness and equity (Ejumudo, 2011). This phenomenon views the environment as encapsulating where we live, work and play and seeks to redress the imbalances in the distribution of environmental benefits and costs. By implication, environmental justice seeks to achieve an accommodation or balance between access to environmental costs or burdens (pollution, unemployment, social and economic dislocation and crime) and environmental benefits (nutrients food, clean air,

and water, health care, education, transportation and safe jobs). In this direction, the structural foundation for the environmental injustice that has become commonplace in Nigeria's Niger Delta region was constructed through the initiation and sustenance of obnoxious oil and environmental laws such that the operational menace of oil exploration and production activities as well as the failed government institutional efforts to compensate the environment that is the treasure base of the nation are only an outgrowth and a manifestation of the legal roots provided by the above detestable laws that are not likely to be dismantled even in the face of unabated protestation and reactions by the region.

Environmental justice, which is not a panacea to all social problems, especially as environmental and social goals can be in conflict, has two fundamentally basic premises; first, that everyone should have the right and be able to live in a healthy environment, with access to enough environmental resources for a healthy life and second, that it is predominantly the poorest and least powerful people who are missing these conditions. These two premises connote environmental rights and responsibilities that focus on the inevitability of ensuring that a healthy environment exists for both the present and future generations and that countries, organizations, institutions and individuals do not create environmental problems or distribute environmental resources in ways that damage other people's health. Environmental justice is therefore a core element of and, as a consequence, it is critical to achieving social justice goals, particularly as it is concerned with ensuring the environment part of the social justice goal.

Thus, environmental justice prevails when the environmental risks, costs and hazards or investments and benefits are distributed with a sense of equity. It does not question

the current path of development and its associated environmental implications but seeks solutions in order to mitigate the problems caused by the current development process. Environmental justice principles are thus expected to serve as a guide for organizing, networking and relating to governmental and non-governmental organizations' demands and this implies that environmental policy decisions are product of the political process (Field and Field, 2006). In the above context, there exist policy gaps as far as environmental justice issues affecting the Niger Delta region are concerned. This is because the policies are not environmentally benign enough to cushion the effects of the wreck and havoc caused by the devastating oil exploration and exploitation activities in the region, the little remedial and intervening role of the existing environmental policies are castrated by the conspiracy between the Nigerian state and the oil multinationals and the concomitant inaction by the state and its agencies in the face of the operational recklessness and attitudinal highhandedness of the oil giants (Ejumudo, 2008). After all, environmental justice affirms the sacredness of the earth, ecological unity and the interdependence of all species and the right of people to be free from ecological destructions and demands that public policy be based on mutual respect and justice for all peoples free from any form of discrimination or bias. It also emphasizes the strict enforcement of environmental principles and policies and the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet and seeks to promote the fundamental right of all people to political, economic, cultural and environmental self-determination and to participate as equal partners at every level of decision-making, including needs assessment, planning, implementation, enforcement and evaluation. Environmental justice equally protects the right of victims of environmental injustice to receive full compensation and reparations for damage as well as quality health care and affirms the need for urban and

rural environmental policies aimed at cleaning up and rebuilding cities and provide fair access for all to the full range of resources which is lacking in the case of the Niger Delta region. The essence of environmental justice is the capacity of the earth to satisfy the intra and inter-generational needs of society and it recognizes that access to clean and healthy environment is a fundamental right of all human beings (Ejumudo, 2014) The 1982 World Charter for Nature, for example, asserts that man's needs can be met only by ensuring the proper functioning of natural systems and it is an essential human right to redress it when the human environment has suffered damage or degradation (Cunningham *et al.*, 2007) In a similar vein, the 1987 World Commission on Environment and Development stated that all human beings have the fundamental right to an environment adequate for their health and well-being.

The Environmental Protection Agency (EPA) of the United States of America defined Environmental Justice as the fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Fair treatment means that no single group of people should bear a disproportionate share of the negative environmental consequences arising from industrial, government, or commercial operations or policies. Meaningful involvement means that: (i) people must have the opportunity to participate in decisions about activities that may affect their environment and/or health. (ii). the public contribution can influence the regulatory agency's decision; (iii) the public concerns will be considered in the decision making process; and (iv) the decision makers must seek out and facilitate the involvement of those potentially affected. Three different notions of justice have been applied, including distributive, recognition and procedure (or participation) (Walker, 2009). Procedural justice means that those who are most affected by decisions should have

particular rights to be involved and have their voices heard on a fully informed basis (Hampton, 1999). Participation has also been demanded as an instrument of Environmental Impact Assessment. Participation increases the transparency of the decision making process and from a social point of view, participation is a central element of Sustainability (Becker, 2014), according to him participation is a social indicator difficult to translate meaningfully into quantitative terms. Considering the settlement and deplorable conditions of the Niger Delta region there is the need to incorporate the concept of Environmental Justice in project implementation and respect the view of the local people, culture in addition to protecting the environment. Improvement in environmental Impact Assessment (EIA) is needed for the environment but EIAs are inadequate for dealing with the problems caused by resource exploitation in the Niger Delta region. There is the need to stress justice and equity in easing ethnic conflicts in ethnic regions. Public participation needs to be strengthened to allow full participation to ensure sustainable development.

2.2.1. Origin of Environmental Justice

Environmental Justice is multifaceted in concept and its uses (Beretta, 2011). He maintained that the notion of environmental justice in part reflects its root in a social movement which has been subjected to low interrogation and definitional precision. They argued that the way in which it has been deployed has been more as an instinctive and rigorous treatment, where as the main impulse has been to call for environmental justice as a response to perceived injustice, as judged through observations of unreasonable inequality in outcome and lack of “fair treatment” for particular people and social groups that are already marginalised and disadvantaged.

The notion of environmental Justice was conceived in the United States in the mid-1980s, in the context of the struggle for racial equality (Ikeme, 2003). According to Taylor (2000), although it was not labelled as such, environmental justice activism has been an underlying frame in the politics of communities of people of colour for more than a century. Since the beginning of modern conservationism, environmental thinkers and nature advocates applied arguments about injustice related to environmental rights in making claims about human to environment relations and advocated for environmental policies and actions (Ejumudo, 2014). Therefore, the environmental justice movement is only the latest in a series of environmental mobilisation that employ the notion of injustice but, unlike its predecessors, the environmental justice movement makes the injustice frame explicit. This is because it is the first branch of the environmental movement to examine human to human and human to nature relations through the lenses of race, class and gender. In other words, Environmental Justice not only acknowledges the existence of environmental injustice in the form humans harming nature, it also recognizes that environmental injustice arises from racial, Gender, and class discrimination (Taylor, 2000). By the 1980s, the environmental justice movement in the USA was gaining increasing visibility as people of colour began to organise environmental campaigns. This includes the prevention of pesticides poisoning and to oppose the sitting of noxious facilities in their communities. In 1990, a seminal work on environmental injustice was published by African-American sociologist Robert Bullard (1990), while the congressional black caucus, a bipartisan coalition of academics, social scientist, and political activist met with Environmental Protection Agency (EPA) officials to discuss its troubling findings and investigate ways to address the perceived unfair treatment of minorities by EPA inspectors. This led to the institution of “Environmental Equity work group” to investigate the allegation

that racial minority and low income populations bore a higher environmental risk burden than the general population. The resulting Environmental Equity: Reducing Risk in all communities report was published in June 1992. Also in 1992, the first official body addressing environmental justice was established known as the office of Environmental Equity (which in 1994 became the office of Environmental Justice). By the early 1990s, the term Environmental "Equity" fell into disuse and was replaced by the term "Justice" which activists felt was more inclusive, and incorporated such as equity, equality and impartiality. The movement was concerned with two kinds of justice "distributive" justice which addresses who should get what and "corrective" or "commutative" justice which concerns how individuals are treated during social transactions (Taylor, 2000).

The EPA provides a clear definition of environmental justice on the basis of which the US government is able to take action. For EPA, environmental justice is the fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies. In Laurent's (2011) view, two important dimensions of this definition should be highlighted: fair treatment and meaningful involvement, pointing respectively to the traditional distinction between distributional and procedural aspects of justice. The EPA provides a precise definition of those concepts; Fair treatment means that no single group of people should bear a disproportionate share of the negative environmental consequences arising from industrial, governmental, or commercial operations or policies. Meaningful involvement means that (1) people must have the opportunity to participate in decisions about activities that may affect their environmental and /or health; (2) The public's contribution can influence the regulatory agency's decision; (3) The public's concerns

will be considered in the decision making process, and (4) the decision makers must seek out and facilitate the involvement of those potentially affected.

Ikeme, (2003), categorized environmental justice into preventive, corrective, and retributive types. Preventive environmental justice is exhibited in its forward looking nature. Instances of preventive characteristics of environmental justice occur in international law and national environmental policy. Environmental justice also seeks remedies or corrective actions for environmental injustice. (e.g. koko dump site in Delta state). Environmental justice also has retributive characteristics. Environmental enforcement fines and penalties are common features of environmental regulations in national policy.

2.2.2. The Evolution of the Use of the Environmental Justice Concept

The concept of environmental justice has evolved from its origins and initial framing in the U.S to become broader in scope, and more encompassing in the forms and processes of injustice with which it is concerned. In becoming more globalized, the environmental justice agenda is extending into questions of distribution both between and across nation-states (Newell, 2007). In addition, the term ‘justice’ is becoming more inclusive and now comprising gender and age differences, and the rights of future generations (Buckingham-Hatfield et al., 2005). ‘Generational environmental justice’ refers to the concept of sustainability (including global ecological integrity and global environmental justice); that is the responsibility of current generations to ensure a healthy and safe environment for future generations. It implies avoiding environmental degradation, which brings injustice on future generations for the sake of short-term economic gains (Johnson, 2012).

Similarly, notions of the environment have broadened to include access to environmental goods and resources such as water, energy, and green spaces (Lucas *et al.*, 2004), and the threat of natural as well as technologically produced risks (Walker *et al.*, 2006). Some environmental justice scholars are also trying to extend the discourse to the 'food justice problems', which includes issues related to health, globalization, workers' rights and working conditions, disparities in access to food and land use, and respect for the land, and ultimately, how food production, transportation, distribution, and consumption systems are organized (Gottlieb, 2009). Specifically, in the area of public health, some authors are focusing on the differential exposure of disadvantaged populations to environmental hazards and health resources (i.e. Lopez, 2002; Morello-Frosch & Jesdale, 2006). Concerning environmental health disparities, two mechanisms have to be considered regarding how socioeconomic factors may have an impact on environmental health: exposure variation and effect modification. In the first place, exposure to environmental burdens as well as access to environmental benefits may differ according to socioeconomic position. Disadvantaged communities often face greater likelihood of exposure to ambient hazards. Secondly, given a certain level of harmful environmental exposure, socioeconomic factors may modify the health effects by influencing individual's vulnerability. Factors such as existing medical conditions and access to health care, to transportation, or resources (i.e. fresh foods) have been suggested to be vulnerability factors that link social conditions to environmental hazards. These vulnerability factors characterize differential preparedness and differential ability to recover from exposure to environmental hazards.

2.2.3. The link between poverty and Environment

According to Ugochukwu (2008), there is an inextricable link between poverty and environmental degradation. Poverty can be the cause and/or the effect of environmental degradation. Poverty itself is a complex multidimensional problem with origins in both the National and international domains. While managing resources sustainably, an environmental policy that focuses mainly on the conservation and protection of resources must take due account of those who depend on the resources for their livelihoods, otherwise it could have an adverse impact both on poverty alleviation and on chances for long-term success in resource and environmental conservation. Thus, a development policy that focuses mainly on increasing the production of goods without addressing the sustainability of the resource base will eventually run into declining productivity, thereby aggravating poverty as is the case in the Niger Delta. A specific anti-poverty strategy is, therefore, one of the basic conditions for ensuring sustainable development. The long-term objective of enabling all people to achieve sustainable livelihoods should provide an integrating factor that allows policies to address issues of development, sustainable resource management, and poverty eradication simultaneously (Ugochukwu, 2008).

2.2.4 Gender Perspectives and Equity in Environmental Issues

The meaning of gender varies from one culture to another, in time and location, while sex remains the same in all cultures. *Philippine Institute for Development Studies (1991)*: Defined gender, as social difference that are learned, changeable over time and have wide variations within and between cultures. Gender is a socioeconomic variable relevant in analyzing roles, responsibilities, constraints and opportunities of the people involved. It considers both men and women. Food and Agricultural Organisation

(FAO). (1998) defined Gender as the varied and culturally constructed roles, qualities, behaviors, power, and so on, that are ascribed to women and men by different societies. United Nations (2000) say that gender is a set of qualities and behaviors expected from a female or male society. World Bank (2009): Gender is socially constructed for the purposes of allocating power, duties, responsibility status and roles in any given social milieu or context.

According to Ibe, (2011), agriculture consists of all activities geared towards the production of crop (food, cash, forest trees) and animals (livestock, poultry, fisheries) for food and fibre for the benefit of man. Similarly, he defined agricultural development as development that ensures sustained improvement in the productivity of agricultural sector, therefore agriculture is the main driving force for rural development. In Africa, women constitute about 70% of the agricultural workforce and produce about 80% of the regions food (Blumberg 1994). Ezeanyika & Okorie (1994) in a farming systems survey of 20 villages in Eastern Nigeria reported that women in the villages surveyed in Abia, Anambra, Ebonye, Enugu and Imo States contributed on the average 69 percent of the household income, and their earnings represented 82 percent of the subsistence food consumed by the household. Their important contribution to local and national economies is not, however, reflected in the resources allocated to the urban and rural female food producers. Gender has proven to be an essential variable for analyzing the roles, responsibilities, constraints, opportunities, incentives and costs and benefits in agricultural projects, government programmes and other developmental programmes. In many developing countries like Nigeria, women have little or no access to or control over land, financial services, productive resources and extension or marketing services. This is usually due to cultural, traditional and legal factors (including customary law). Moreover, women are often underrepresented in rural organizations and institutions,

have low levels of education and are poorly informed. This prevents them from having an equal say in decision-making processes to influence policy and strategy at municipal level (www.gtz.de/gender). Added to this is the fact that women are hardest-hit by the increasing scarcity of natural resources. This is due to one hand on land acquisition by foreign investors (“Land Grabbing”) and on the other to the negative impact of oil exploration/ exploitation, climate change in terms of increased incidents of droughts, flooding and severe weather.

Very recently, the following environmental problems were identified to be endangering humankind's survival on planet earth: Depletion of the ozone layer, global climate change, the accumulation of toxic chemical or radioactive wastes coupled with the exhaustion of sinks, the human over-appropriation of biomass and the loss of biodiversity. According to Obinna (2013) studies have revealed that the above environmental problems were caused by the use of inappropriate technologies, maladministration of natural resources, population growth, consumption patterns and poverty. FAO (1986) defined land transformations as the use of land to yield goods and services. On the other hand, it defined land degradation as long-term decline in ecosystem function and productivity. It occurs in the following forms: deforestation, desertification, soil erosion, mineral depletion or chemical degradation (acidification and salinization). Obinna (2013) reported that women tend to be the most vulnerable to poor environmental management and ensuing environmental problems. Women are the most intimately involved in the day to day activities associated with the environment.

For instance, food preparation exposes them to indoor- air pollution, water pollution and food pathogen. Due to the physiology of women, land tillage and other agrarian practices expose them to soil and other land contamination and maintenance of the

home makes them more vulnerable to energy pollution and waste contamination. Women are most likely to be affected by environmental degradation and resource depletion in terms of deteriorating health, infertility, limited access to resources like land for cultivation and poorer quality of life, yet they are least likely to have impact on policy- making decision about environmental protection and sustainable development. It was in consideration of this facts that the Beijing declaration (1995) listed the following strategic objectives related specifically to gender and the environment:

- (1) Involve women actively in environmental decision- making at all levels
- (2) Integrate gender concerns and perspectives in policies and programmes for sustainable development.
- (3) Establish mechanism at the national, regional and international levels to assess the impact of development and environmental policies on women.

That was why Obinna (2013) stated that gender mainstreaming needs to approach environmental issues from two reciprocal standpoints; firstly, gender relations and the extent of gender equality affecting the environment. Secondly, that state of the environment which can have desperate effects on men and women. Men and women are likely to have different roles in the family, community and workforce. They are also likely to have different interaction with the environment. Therefore, the full participation of both men and women in decision-making about environmental management and conflict resolutions is essential to achieving sustainable development especially in Nigerian Niger Delta.

2.2.5 Community Power Structure

Community power structure is the complex network of relationships between the recognized power holders and the interplay of their roles in a community. These power holders, otherwise known as leaders, direct the affairs of the society towards the achievement of objectives. Kuponiyi (2008) describes power structure as “patterned distribution of authority and influence among various actors in a group or community”. The concept of leadership is very crucial to the survival of any society. Even where there are established norms, leaders are still needed to ensure compliance with such norms for societal orderliness and healthy being. Van den Ban and Hawkins (1996) define leadership as the “directing, influencing and controlling of others in pursuit of a group goal”. This implies that the function of making decisions lies on the leaders. Ekong (2003) even sees leadership as being synonymous with decision-making and therefore regards decision-makers as community leaders. He further posits that an effective means of identifying leaders should include a systematic observation of who decision-makers are for various community issues. Leaders provide the basis for improving the quality of life in communities (Kuponiyi, 2008). Because effective leadership does not exist in many rural communities, rural community development efforts should include identifying and training potential leaders from diverse backgrounds (Kuponiyi,2008). Rural community development literature emphasizes the importance of citizen participation as a means of strengthening communities (Flora, Flora & Fey, 2009).

Advocates and practitioners of rural community development also believe that citizens should be meaningfully involved in community decision making (Coe, 1990). For development to occur there is need for a greater participation of local people in

development process which will change the nature and direction of development intervention as well as result in a type of development which will have local people's support and recognition (Centre for African settlement studies and Development (CASSAD, 1994). However, Jackman (1987) emphasizes the impact of community structure, especially its power structure, on the availability of chances for citizens' participation in its decision-making process. Community leadership structure, its composition, and administrative styles dictate the level and extent of citizen's involvement in its decision-making and development activities.

Local leadership should also act as a continuity factor in the execution of development projects between incumbent development interventionists and their successors. Generally, the key elements of successful community-driven development projects have been identified to be participation, sustainability, social inclusion and enabling policy environment (Dahl-Ostergaad *et al.*, 2003). One major problem frequently encountered in rural communities especially in the Niger Delta is that of leaders' not conceding decision-making roles to other people especially in different development project situations. Some feel they could perform effectively in all situations thereby arrogating the roles of initiators, legitimizers, planners and executors to themselves alone for all projects. Community leadership structure should not be 'closed' despite the observation by Wall *et al.*, (2005) that the socioeconomic status of people often limits their access to the decision-making process, excluding them from community affairs. Williams (1989) posits that by striving to involve new people in the leadership structure of a community, one may introduce new ideas and reach a broader segment of the community. Both men and women of most communities in the Niger Delta region are subdivided into youth, women and Elders; the latter being committed persons who are more advanced in age and have actively contributed to the development of the

community and have to be recommended by other elders or the chiefs/ traditional ruler. However, a study by Ajayi & Otuya (2006) in Delta State revealed that majority of women were socially, culturally and politically barred from participating in community development planning and decision-making process. The “elders” have a high status in the community because of their experience and often make the decisive contribution regarding important activities at the communal level. However, some youth movements are increasingly challenging the status quo due to the perceived inaction of the elders with respect to securing anticipated communal benefits with government and corporations.

2.2.6. Environmental Justice in the Niger Delta of Nigeria

Cases of Environmental injustice have been recorded and studied also in Africa. In fact, as more and more environmental resources become scarcer, the increasing burden in hazardous environmental conditions imposed by more affluent countries in developing countries touches on an important issue of international environmental Justice. Therefore, the concept of environmental Justice has been taken up in many countries including Nigeria especially in the Niger Delta region.

Uyigue & Agho (2007) noted that the weakness in the Nigerian constitution to administer environmental justice and bestow the control of resources from the Niger Delta on the local people is a major limiting factor to development in the Niger Delta. There is no provision in the constitution that allows the inhabitants of the area to have an iota of control over the resources from their land. Thus the Nigerian constitution allows the Nigerian state and the oil companies to have total control of the oil resources from the region. This privilege bestowed on the state by the law has been greatly abused by the state or rather by government officials. It has become a case of “scavenging”

from the region and diverting the proceeds to other region or for other trivial issues rather than improving the lives of the people in the region whose livelihood has been taken from them. More severely is the mismanagement of these resources by government officials. The laws governing the ownership and control of oil mineral resources of the Niger Delta region are the same laws governing ownership and control of natural resources in Nigeria. The Nigerian constitution vested in the state (Federal Government of Nigeria) the ownership and control of natural resources. This is contained in petroleum decree of 1969 now enacted as petroleum Act of 1990. Section 1 of this law states as follows:

(1) The entire ownership and control of all petroleum in, under or upon any lands to which this section applies shall be vested in the state (that is the Federal Republic of Nigeria)

Also, the territorial water Act laws of 1990 as amended by Act No 1 of 1998 and the Exclusive Economic Zone Act of the Federal Laws of 1990 as amended by the Act No.42 of 1998 vest ownership and right of exploitation of minerals and natural resources in the territorial waters and exclusive economic zone of Nigeria in the federal government of Nigeria. Similarly, the land Use Act of 1990 appropriates the petroleum resources of the Niger Delta region in favour of the Nigerian Federation. The Land Use Act has been incorporated into the 1999 constitution and can only be repealed or amended through a cumbersome amendment procedure. Still another legislation that makes the oil mineral the sole property of the Nigerian state is stipulated in section 44(3) of the 1999 constitution. Moreover, the definition of the term “environment” is absent from the 1999 constitution of the federal republic of Nigeria. Although the term has been defined in other legislations such as the Federal Environment Protection Agency Act, these legislations are however inconsistent with the Nigerian constitution.

The only hope for the protection of environmental rights seems to come from the implementation of international environment treaties. However, the provision in the constitution states that *“No treaty between the federation and any other country shall have the force of law except to the extent to which any such treaty had been enacted into law by the National Assembly.”*

Thus international treaties are dependent on legislation by the National Assembly. Nigeria is currently a signatory to many of these treaties. One of them is the African Charter on Human and Peoples’ Right and Article 24 state that *‘All people shall have the right to a general satisfactory environment favourable to their development’*.

The environmental commitments provided in the Nigerian constitution are not justifiable. Pertaining to the right of fair hearing in respect to the environmental rights, the constitution is silent. The question as to who can prosecute when there is a breach in environmental rights is unresolved in the constitution. The tradition has been that it is the responsibility of the state. According to Onyeagucha (1999) of Environmental Rights Action/Friends of the earth, Nigeria there cannot be enjoyment of environmental rights if people do not control their resources in order to determine how it is exploited, only people, who will directly suffer the negative impact of the activities, should reserve the power to make the environmental laws guiding those activities.

The turbulent situation in Nigeria’s Niger Delta region has been cast as a struggle for environmental justice because it involves ethnic minorities outside the powerful political, military and corporate elite fighting for a just share of the revenues that flow from Delta’s oil and gas reserves. Extraction of these resources has occurred at a significant cost to the Niger Delta environment, with oil seepage and spillage common, and the country has the highest gas flaring rate in the world. The Niger Delta people

have also borne a large burden, with environmental degradation impacting on communities that depend on fishing and agriculture for sustenance. In recent decades, the Niger Delta region has become synonymous with violence and human rights abuses associated with the extraction of its resources, while the multinational oil company Shell has become infamous for its role in the region (Johnson, 2012).

According to Ejumudo, (2014), in the Niger Delta region of Nigeria, the costs of Environmental pollution and degradation that is borne by the marginalized, oppressed and pauperized people as well as the benefits that should flow to them in the form of employment, skill acquisition programmes, educational scholarship schemes, provision of basic social amenities and other pro-poor life-enhancing programmes are heavily disproportional so much so, that the principles of fairness and equity that underlie or underpin environmental justice are impaired with one likely hazardous consequence, environmental crisis. He further stated that the environmental injustice problem in Nigeria's Niger Delta is mainly a product and a manifestation of the shallow, flawed, failed and largely pseudo democracy that is in practice in Nigeria; essentially concomitant poor presence or near absence of democracy and Democratic culture has, in fact, constrained or undermined Environmental Justice and equity in Nigeria, a nation that operates a mono-product economy with devastating effects on the oil-rich Niger Delta region.

The justification for the above position is that true, consolidated and functional democracy and an ingrained democratic culture presupposes an institutional and governance climate that encourages and upholds fundamental human rights, guarantees equity and fairness and promotes responsible, accountable and representative governance that are at the heart of environmental justice. Madubuko (2014), stated that

since 1956, oil has been extracted from the Niger Delta with destructive consequences on the environment, bringing about environmental degradation and destruction of the people's primary means of livelihood. Land and water were badly polluted, and the health of the people affected because of leaks from oil pipelines, gas flaring and acid rains. Several petitions and non-violent protests by Delta communities, women and youth against environmental destruction failed to receive attention.

Rather opposition to peaceful protests earned the people military invasions of their communities, clampdowns and Jailing's. The rise of militarism and terrorism in the Niger Delta was the result of the Federal Government of Nigeria and oil companies' clampdown on nonviolent protests for environmental justice in the Niger Delta. Ogomudia & Afolayan (2001) had it that exploration and exploitation activities especially of oil and gas operations in the oil producing areas have had tremendous impact on the environment. The report went further to identify environmental problems associated with oil producing communities as a result of the operation of oil companies to include pollution, oil spills, gas flaring, effluent discharge, pressure on land, population migration, flooding, erosion and coastal submergence amongst others. Ekuri and Samuel (2003) posit that man is dependent on the environment and the quality of the environment determines the level of satisfaction that is derived in life. The above mentioned environmental problems affect the lives of the inhabitants of oil producing communities adversely. For example, pollution have far-reaching effect on peasant, aquatic and terrestrial life with respect to agricultural production and consumption. In addition to the effects of oil spills on farmlands, dumping of by-products from crude oil exploration/exploitation, refining operations and overflowing of oil wastes have adverse effects on surface and ground water used for drinking, fishing and other household purposes. Similarly, the flaring of gas affects plant life, pollutes the air and

water and is also believed to be responsible for acid rain. The resultant effect of all this is the destruction of the main sources of occupation of oil producing communities which are fishing and farming (Ezemonye, 2001).

This state of affairs always results in conflicts between communities/victims of environmental degradation and oil prospecting companies. The Niger Delta environment is one of the most blessed deltas in the world, in both human and material resources (Oyefusi, 2008). The region has huge oil and gas reserves and ranks the sixth world's largest exporter of crude oil and ranks third as world's largest producer of palm oil after Malaysia and Indonesia (Omofonwan, 2009). In fact the region accounts for over 90% of the nation's oil revenue and its gas reserves are now touted as the next great potential revenue-earner for the nation, (Ross, 2003). It is this potential that has attracted huge investment in the oil gas sector of the Nigerian economy by oil prospecting companies or multinationals. Traditionally, the people of the region earn their living by fishing and farming. Ogunduvwe, (2013) reported that all these have changed since the inception of oil exploitation in the region as it has experienced unprecedented environmental degradation due to oil and gas exploration by the multinational oil companies. Ogunduvwe, (2013), Baghebo, Ubi & Nwagbara, (2012), United Nation Environmental Programme (UNEP) report (1987), Oyefusi (2007) list the environmental externalities besetting the area to include the following: Oil spillage, gas flaring, drill cuttings, canalization, dredging, coastal erosion, effluent and waste from oil refineries, pollution (land, water and air), health risk, soil erosion, floods, damage to archaeological sites and landscape destruction. The state of environmental degradation has led to low agricultural yield, destruction of aquatic life, home displacement, loss of fishing ground and extreme poverty (Oyefusi, 2008) and as a result Sagay, Osuji & Avweromve (2011) reported that the degradation of the

environment is one of the functional cause of acrimonious relationships between communities and oil prospecting companies and the effect can no longer be ignored by the companies, state and country. Ross (2003) reported that the region is populated by minority ethnic groups that have borne a disproportionate share of the cost of oil extraction for which they believe have not been adequately compensated and have also suffered a high share of government repression; a case of environmental injustice. According to Pavsic (2012), most natural conflicts occur due to the disagreement about the way in which those resources are extracted, the distribution of revenues from exploration and the level of involvement of the local population in the development decisions. There is also income disparity between the migrant oil explorationists and indigenous population which is a veritable source of conflict. Halleson (2009) has it that the Niger Delta region alone accounts for over 90% of Nigeria oil revenue and host a dozen oil companies.

It is therefore, rich but the richness of the region does not reflect in the richness of the inhabitants. According to him, the region is the most under developed in Nigeria and for decades' oil has been at the centre of the violent conflict between ethnic minorities, the government and the oil companies and have therefore, placed the region on the hot map of the world. The position was collaborated by Egbebulam, Ekpe & Adejumo (2013) who concluded that the people of Niger Delta are among the poorest in terms of living conditions in Nigeria. According to them, seventy percent (70%) of the inhabitants still live in rural subsistence characterized by a total absence of such basic facilities as electricity, pipe-borne water, hospitals, proper housing and motor able roads. According to Amaefule (2009), there is no doubt that the presence of oil and gas industry provides some opportunities for the people of the Niger Delta and surrounding states. However, those benefit pale in comparison to the costs these communities incur

as a result of oil companies' activities. These costs include environmental, economic, social, health, cultural, biophysical etc. Much has been written about the Niger Delta and oil and gas exploration, however, not much has focused on the costs of these activities on the host communities.

Nnoli, (2003) have stated that the future of the region is threatened by incessant incident of militancy, kidnapping and insecurity as a result of unemployment and poverty which in essence has grossly affected the tremendous potential for growth and sustainable development in the area. Okai (2008) has it that the history of protest and conflict of acrimony by the Niger Delta people against forced union and exploitation dates back to 1957 when testimonies were made in respect thereof before the Willink's commission of inquiry into minority fears. Subsequently several protests and clamours for justice have been registered but all to avail. Characteristically both military and civilian governments have ignored calls for equitable remedy and forcibly smothered protests through use of over whelming military and other documented acts of state sanction and political violence. Bassey, (2002) carried out a research on conflict and stability in the Niger Delta, the Warri case points to the strategic value of conflicts dynamics. Acknowledgement of its manifestation are central to conflict intervention and certainly makes a difference whether the conflict escalate, de-escalates, intensifies, dies down, expands or contracts in the fact of conflict management process.

In Nigeria, resources exploitation, especially crude oil is carried out in designated oil concession Areas duly leased out by the Federal Government to the various oil companies operating in the country under joint venture agreement with the Nigerian National Petroleum Corporation (NNPC), (Duru,2014). According to Ikporukpo (1998), the processes of oil production have profound impact on the producing

communities and the environment. He argued that the Seismic method of crude oil prospecting employed by the oil companies have often resulted in soil subsidence, structural damage to building due to rock blasting and extermination of wild and aquatic lives. Also the crisscrossing maze of oil pipelines have laid waste substantial stretches of farmlands and destroyed natural vegetation and listed the harmful materials released to the environment to include the following:

- (i) Drill cuffing, drilling mud and fluids used for stimulating production
- (ii) Produced fluids: Oil, water and chemicals injected into them to control corrosion or assist the separation of oil from water
- (iii) General industrial waste and
- (iv) Gas flaring which increases the heat level in the environment.

According to Duru (2014), oil spill is the most prevalent and damaging to the environment. According to them, the effects of these spills are usually catastrophic, depending on the oil dosage, type, meteorological, physical, geographical and bio data conditions. No wonder they argued that the oil industry has undoubtedly brought economic benefits to Nigeria but has left in its trail a complex mix of environmental problems in the oil producing areas; A case of environmental injustice. Ikporukpo (1998), collaborated this when he noted that the activities of these oil companies have brought about untold hardship to the oil producing areas of the Niger Delta region of Nigeria. The negative impacts cut across social-economic, physical, and health consequences upon the people and the environment. Omole (1988), argued that Niger Delta region which account for over 90 percent of Nigeria's oil production is blessed with vast hydrocarbon reserves, yet the region remains poor with largely undeveloped infrastructure. The region remains impoverished with basic amenities such as health

centres, electricity, pipe borne water, schools and good roads among others lacking. He further argued that the situation is aggravated by rapidly increasing population growth, coupled with negligible employment opportunities in the rural and urban areas. The physical environment is degraded and damaged in the process of oil production, while the people lose their source of livelihood as they are mostly fisher men.

Alamieyeigha (2003) argued that the effects of oil exploration and exploitation are everywhere evident in the Niger Delta and need not to be overemphasized. He pointed out that marine life is virtually extinct while indigenous occupational industries are comatose due to the destruction of local sources of raw materials. He pointed out the oil companies themselves are not helping the situation by their flagrant display of insensitivity. He went further to say that at their drilling sites all the amenities such as electricity, water, telephone services, high powered marine transport vessels, air transport and health facilities are available. Yet within a short radius outside the site, there is a stark hundred percent disparity in living standard. He therefore concludes that; it is the paradox that the people of the Niger Delta have had to contend with for almost half a century.

Again, the shady modus operandi of oil companies and the incompetence and corruption of state officials did not take responsibility for the enormous environmental and social damages caused by crude oil production. He said that about 1993 the Ogonis Rivers State began a massive campaign against environmental pollution, material deprivation and social exclusion which they attributed to crude oil production by Shell Petroleum Development Company (SPDC). Soberu (1990) reported that the Ogoni's issued a bill of rights in 1990 through their organization, Movement for the survival of Ogoni people (MOSOP). The bill requested proper compensation for the destruction of

their environment by SPDC to the tune \$30 billion which they claimed accrued to Nigeria from crude oil extracted from their land since 1958. They also lamented the pervasive poverty, lack of health, educational and other social amenities as well as the progressive disappearance of Ogoni languages. Ken Saro-Wiwa, a known activist, argued that the people of Ogoniland and the people of the Niger Delta are like the goose that laid the golden egg but suffer the most severe forms of deprivation and poverty (Chukwuemeka *et al.*, 2011) In plain language, the people of the NDR host resources that generate wealth yet remain poor; In 1993, arising from the Ogoni people's protests of passive resistance against Shell, the Nigerian Army laid siege on Ogoniland, and their leader Ken Saro-Wiwa and eight others received death sentences by a tribunal convened under the military government (Emuedo, 2010). Okafor (2011) and Babatunde (2012) remarked that Ken Saro-Wiwa and other co-accused were hanged despite international protest against the court's judgment; a case of Environmental injustice.

Okai (2008) again reported that in November 1990, the oil rich community of Umuechem in Etche Local Government Area Of Rivers State was burnt down when the youths demanding for infrastructural facilities clashed with security men. Peel (2005) described the Niger Delta region as poor and one of its main problems is the lack of infrastructure and remoteness of villages from clinic, schools, shops and other essential services and that they are extremely hostile to both oil companies and the government due to deprivations and so resort to warring with oil companies who have taken over their lands and means of livelihood. Briggs in Esor (2016) argued that as far the oil communities in the Niger Delta are concerned, there should be an altruistic distribution of costs and benefits. To them, there is an unequal distribution of oil wealth and costs in Nigeria. He asserted that while the oil producing areas have little or nothing to show

for their natural capital while other non-oil producing areas are basking in oil wealth. He pressed home further his argument by drawing attention to the rate of depreciation of the social capital of the oil producing areas. How are the people of the oil producing areas coping with the socioeconomic pressure of life as it is reported that most of them are losing their basic source of livelihood?

According to Stoner, (1978), companies should always mitigate the impact of their activities on their environment and compensate the people in their area of operation. They should also play an active role in solving some of the society's problem. He argued that the companies can achieve this by embarking on social responsibility programmes for the people. However, Stoner further points out that the question often asked is, where does such responsibility begin and where does it end? to what extent can a company actually get involved in social responsibility programme? These questions are pertinent because, before an organisation can devote resources to social responsibility programmes, it must make enough profit to maintain the confidence and support of its shareholders. Nevertheless, the proponents of corporate social responsibility have warned that in view of the investments made by the companies' in the society which they are part of, ignoring social problems might in the long run be self-destructive. Not only that, social responsibility programmes help strengthen the organisation and serve its interest by preventing conflict over environmental issues, community demands, individual and group demand, as well as foster a good public image for the company.

2.2.7. History of oil exploration in Nigeria: In Nigeria, the race for oil and gas exploration began in the year 1908 when a German business interest formed the Nigerian Bitumen Company to handle the exploration of coastal areas between Lagos and Okitipupa in present day Ondo State (Paki & Ebienfa, 2011). Contrary to this view,

Steyn in Duru (2014) argued that the Nigerian Bitumen Company was not a German company, but a British company and its shares traded on the West African market of the British Stock Exchange in London. The company suspended its activity following the outbreak of the First World War (Duru, 2014). The project restarted in Nigeria in 1937 with the establishment of the Shell/D'Arcy Petroleum Development Company of Nigeria, an affiliate of the mineral oil companies of Shell Petroleum Company and British Petroleum Company (Paki & Ebiefa, 2011). At that time, Nigeria was officially a colony of the British government. Duru (2014) revealed that systematic policies by British colonial authorities had given Shell, a British oil company, a virtual monopoly over oil exploration in the country, and Shell has remained the dominant oil company in Nigeria. In November 1938, Shell Overseas Exploration Company Limited received an exclusive oil exploration license (OEL) covering the whole of mainland Nigeria (357,000 square miles) from the British colonial rule (Duru, 2014).

Exploration activities in Nigeria ceased during World War Two. After the war, Shell-BP intensified its exploration activities. Shell-BP made Nigeria's first commercial discovery in 1956 at Oloibiri, in what is now Bayelsa state (Akpomuvie, 2011b). The discovery attracted rapid development, and by 1958, production had reached 5,100 barrels per day. Subsequently, Nigeria shipped the crude oil to Europe. Thus, Nigeria entered the global oil scene. Duru (2014) noted the role played by Shell BP during this period, “the opportunity of exercising an autonomous strategy throughout two decades in the realm of concession politics brought about the result that this company today possesses the optimal concession site in the country”.

The monopolistic position historically controlled by Shell, with respect to license selection, affords the company a dominant position in the development of the Nigerian

mineral oil industry (Duru, 2014). This concrete example of dependency created under colonial rule lends support to dependency and underdevelopment theories as regards the economic interests of the metropolis under colonial rule, although this finding does not guarantee in any way the notion that the self-perpetuation of dependency was inevitable after decolonization (Kalu, 2010). Duru (2014) suggested that the British colonial government allowed greater competition in the Nigerian oil industry in the late 1950s, yet this policy of diversification motivated by British political interests did not diminish after the Nigerian government acquired majority shares in oil companies operating in the country, according to him, this state of affairs ensured that Nigerian investors had limited opportunities for participation in the nation's largest trade. Oil production in Nigeria is mainly through joint ventures between the government of Nigeria and a number of multinational oil corporations, namely Shell (normally called Shell Petroleum Development Company-SPDC), Mobil, Chevron, Texaco, Elf and Agip (Akhakpe, 2012; Akpabio & Akpan, 2010). Since the discovery and exploitation phase, oil revenue accrued to the government of Nigeria has exceeded over 280 billion dollars in over 30 years (Dhir, 2007). Oil revenue accounts for 90% of Nigeria's export earnings, over 80% of government's annual income, and 70% of budgetary expenditures (Ako *et al.*, 2009). Eweje (2007) noted that the oil extracted from Ogoniland alone has netted \$30 billion to MNOCs and the Nigeria state so far.

Ako *et al.*, (2009) revealed that multinationals control the oil production in Nigeria with the government holding substantial equity stakes in them through its domestic oil company, the Nigeria National Petroleum Oil Company (NNPC). Geological and geophysical investigations showed that the most favorable oil-yielding structures and the severe cases of environmental degradation and resulting consequences lay in the Niger Delta of Nigeria (Ekpoh & Obia, 2010). The MNOCs in the NDR explore for oil

without regard to overall health and safety standards or observed minimum levels of protection of the environment from chemical pollution in the air, land, rivers, and water table (Akpomuvie, 2011a). Babatunde (2010) suggested that environmental sustainability is essential to the nation's success and growth as their existence largely relies on subsistence efforts. Hence, it can be argued that oil exploration threatens to destroy the survival of indigenous people, as their livelihood is dependent on their immediate environment for survival (Babatunde, 2010). The implication of these facts suggests that the oil production has exploited the ecosystems for resources beyond the level of sustainability (Babatunde, 2010; Kadafa, 2012). Consequently, the prevailing social deprivations, human violations and lack of access to assets that unlock poverty, and the apparent inability of the government to protect the land and the Niger Delta people from the hazards of hydrocarbon activities underscores the relationship between environmental degradation and underdevelopment (Babatunde, 2010).

2.2.8. Significant Causes of Environmental Degradation in the Niger Delta.

All stages of oil exploitation negatively affect the environment, and the greatest single intractable problem caused by crude oil exploration in the Niger Delta is oil spillage (Kareem *et al.*, 2012). Other identified causes of environmental degradation are gas flaring, seismic surveys, canalization, dredging, and poor waste disposal (Donwa, 2011; Effiong & Etowa, 2012). The effects that result from oil and gas extraction activities for people in the Niger Delta region are extreme poverty without the basic provision of infrastructure (Imobighe, 2011). The Niger Delta was ecologically sound, and the local population was economically independent before the discovery of oil in the area (Afinotan & Ojakorotu, 2009). Prior to oil exploration, the Niger Delta sustained a large percentage of Nigeria's commercial fisheries industry (Afinotan & Ojakorotu, 2009).

Agbakwuru (2011) noted “the Niger Delta plays host to 600 oil fields of which 360 are on shore while 240 are offshore with over 30,000 kilometres of pipelines crisscrossing the region and linking some 275 flow stations to various export terminals”. It can be argued that the massive oil installations in the Niger Delta region explain their vulnerability to vandalism (Agbakwuru, 2011). Agbakwuru (2011) asserted that oil spills resulting from vandalism have continued to be a problem with most incidents along important pipelines occurring with high frequency.

a). Oil spillage. The Niger Delta environment has been characterized as polluted due to unbridled activities of the oil companies operating without much consideration to the fragile environment of the region. Oil spillage is categorized into four groups: minor, medium, major and disaster. Minor spill takes place when the oil discharge is less than 25 barrels in inland waters or less than 250 barrels on land, offshore or coastal waters that does not pose a threat to the public health or welfare. In the case of the medium, the spill must be 250 barrels or less in the inland water or 250 to 2,500 barrels on land, offshore and coastal water while for the major spill, the discharge to the inland waters is in excess of 250 barrels on land, offshore or coastal waters (DPR, 1991). The disaster refers to any uncontrolled well blowout, pipeline rupture or storage tank failure which poses an imminent threat to the public health or welfare (Ntukekpo, 1996). Oil spillage is the leading environmental hazard caused by crude oil exploration in the Niger Delta and constitutes significant economic, ecological, health, social, and political problems in Nigeria, and the Niger Delta in particular (Aro *et al.*, 2010; Atakpo & Ayolabi, 2009). Oil spills may result from operational mishaps, equipment failure, and sabotage. In an environment that is aquatic, the oil sometimes flows on the water surface, encroaching shorelines by wind and wave actions invariably affecting the soil (Okpo & Eze, 2012).

In 1979, a storage facility at West Niger Delta, a Shell operated Forcados terminal, collapsed and spilled approximately 560,000 barrels into the surrounding land, mangroves swamps, and the Atlantic Ocean (Imobighe, 2011). In the 40 years of oil exploration in Nigeria, the Directorate of Petroleum Resources (DPR, 1997) recorded over 6,000 spills with an average of 150 annually (Imobighe, 2011). In the period from 1976-1996, 647 incidents occurred resulting in the spillage of 2,369,000 barrels of crude oil (Atakpo & Ayolabi, 2009). Of this oil spillage, 549,000 barrels were recovered while 1,820,410 barrels dissolved into the ecosystem (Atakpo & Ayolabi, 2009). Poorly designed causeways and canals used by the oil industry affect the hydrology of the seasonally flooded freshwater swamp and the brackish water of the mangrove forest, killing crops, destroying fishing grounds, and damaging drinking water supplies. Dredging of creeks by MNOCs has significantly altered the landscape, thereby causing soil erosion and houses to collapse (Duru, 2014). Pollution due to oil well blow out, corrosion of pipelines and vandalism can lead to underground leakages, which threaten the environment in the form of soil pollution and destruction of vegetation (Atakpo & Ayolabi, 2009). In 1980, a significant pipeline blowout spewed some 200,000 barrels of crude oil into the Atlantic Ocean and destroyed over 840 acres of Niger Delta mangrove (Imobighe, 2011). The cumulative effect of repeated but small-scale oil spills is just as potentially dangerous to the affected site as any isolated large oil spill (Okpo & Eze., 2012). The negative impact of oil spills and gas flaring in Niger Delta have probably placed the survival of endangered species, such as the Delta elephant and the white crescent monkey, at greater risk in addition to devastating the largest mangrove forest in Africa and the body of water in the region (Escobar & Vredenburg, 2011).

b). Gas flaring. One of the main types and causes of environmental degradation in the Niger Delta is the result of gas flaring. Gas flaring is the burning or disposing of waste

gases through the use of combustion (Edino *et al.*, 2010; Ekpoh & Obia, 2010). Most of the gas flaring that occurs in the Niger Delta region is around oil wells that are close to farmlands and dwelling homes. The law prohibits gas flaring except in certain circumstances such as breakdown of equipment or emergencies (Edino *et al.*, 2010). In the case of Nigeria, state corruption and the lack of the rule of law prevents the enforcement of standard practice in oil exploration activities (Mustapha, 2010). Edino *et al.* (2010) noted that the 56.6 million metric tons of associated gas flared daily in Nigeria are equivalent to about 16% of the total gas flared in the world. The environmental damage is yet to be fully estimated, but anecdotal evidence suggests it is equally colossal. Consequently, the oil firms in Nigeria account for more greenhouse gas emissions than all other sources in sub-Saharan Africa combined (Kingston, 2011). Bayode *et al.* (2011) argued that gas flaring contributes to climate change, which may portend enormous risk for Nigeria and the world. Carcinogens with serious health concern for the residents of the region represent many of the by-products of gas flares (Ekpoh & Obia, 2010). Crops cultivated on farmlands produced low yields, and their nutrient statuses are reduced due to the closeness to gas flaring sites (Edino *et al.*, 2010; Ekpoh & Obia, 2010). Consequently, the result of gas flaring is that communities observe a continual bright light, making it difficult to distinguish night from day (Okpara, 2012). Constant deafening noises caused by hardware on the site, dehydration and heat waves from gas flares exacerbate this situation (Okpara, 2012). In oil and gas production, emitters of air pollutants include trans-shipment stations, maritime floating port terminals, drilling platforms, crude oil recovering platforms, linking platforms, water injection platforms, pumping platforms, shelter platforms, telecommunication platforms, crude oil measurement platforms, and flaring platforms (Sonibare, Adebisi, Obanijesu & Okelana, 2010). The cost of gas flaring is significant when calculated in

monetary terms. Babatunde (2010) suggested that gas flaring in Nigeria costs the nation about \$12.5 million annually.

2.2.9. Economic Cost of Oil Spillage: The World Bank reported in 1999 that the Niger Delta region has the agricultural potential of feeding the whole of West Africa; today hunger in the area is widespread (Olufemi, 2010). The Niger Delta region of Nigeria has abundant natural resources and climate, which supports all year round agricultural production (Kew and Phillips, 2013). In the essay *Paradox of Oil Wealth in the Niger Delta*, Imobighe (2011) revealed that the unwarranted poverty in the oil producing states can be traced to the high activity level in the Niger Delta which has exposed the area to dangers of water, land, and air pollution as well as oil spills, which harm aquatic life as well the entire ecosystem, topography, and surface vegetation. Nigeria's Federal Office of Statistics (FOS) revealed that about 50% of the active labour force engaged one type of agricultural activity or another with yam, cassava, plantain, maize, cocoyam, and vegetables as the main food crops in the Niger Delta (Afinotan & Ojakorotu, 2009). The hydro graphic conditions of the area allow only on a fraction of the land area for cultivation of crops (Baghebo *et al.*, 2012; Bayode *et al.*, 2011). Oil spillage, which eventually leads to germination failure of crops on underutilized farmland, contributes to reduced income from farming, and these issues lead to lower standard of living (Bayode *et al.*, 2011). Consequently, most farmers are unable to send their children to school. Unarguably, low crop yields of agricultural staples translate to the high cost of food items, such as garri, corn, and cassava, a condition that exacerbates hunger (Afinotan & Ojakorotu, 2009). Crop germination failure and resultant poor agricultural yields can be directly attributed to decreasing soil fertility due to the destruction of soil microorganisms from oil spills (Akpomuvie, 2011b, Onwubiko *et al.*, 2013).

The outcome of underutilization of farmland is underemployment, exacerbated by lack of adequate tools of trade or money (Onwubiko *et al.*, 2013). The cumulative impact of oil spillage on farmland is not only loss of land use, but also the situation forces farm owners to relocate. The transformation of a once fertile land to wasteland as a result of oil spills adds to the physical and emotional trauma of ancestral property owners and diminishes the prospects of future generations (Odoemene, 2011); this is a case of generational environmental injustice. Women in the Niger Delta region remain educationally disadvantaged, and the percentage of school enrolment significantly lags behind the median score (Odoemene, 2011). The unemployment rate in the region is higher than the national figure (Odoemene, 2011). The collapse of infrastructures in the Niger Delta region is the reason why rural roads are impassable in all seasons of the year, and this contributes to the high cost of moving persons, goods or services in and out to the markets (Afinotan & Ojakorotu, 2009). Akpomovie (2011b) asserted that these effects have led to economic stagnation, agricultural underdevelopment, and poor quality of life due to a lack of essential goods, facilities and funds, isolation, and poor communication. It is estimated that more than half of the inhabitants of the Niger Delta live in rural subsistence characterized by a total absence of such basic facilities as electricity, pipe-borne water, hospitals, proper housing, and roads (Ihayere *et al.*, 2014). Consequently, debilitating poverty, malnutrition, and disease oppress the people daily (Oguduvwe, 2013).

Oil pipeline failures and the accompanying spills have led to infernos that caused destruction of life, homes, and property worth millions of dollars (Agbakwuru, 2011; Dhir, 2007; Oshwofasa *et al.*, 2012). In some instances, oil pipeline failures resulted in wildfires that led to mass evacuations of people from their ancestral homes. Ogege (2011) noted that apart from the environmental degradation arising from oil spills, the

other natural resources face the prospect of non-renewability. The people in the face of these predicaments of oil spillage have had to brace up to the hard choice of survival or decimation, and the Niger Delta is slowly losing its capacity to sustain life (Ogege, 2011).

2.2.10. Economic Cost of Gas Flaring: A report by the American Central Intelligence Agency (CIA) indicated that every day, eight million cubic feet of natural gas burn off in flares that light the skies across the Niger Delta (Odoemene, 2011). In their research on the role of gas flaring in the Niger Delta region, Ekpoh & Obia (2010) wrote that gas flaring has a role to play in the acid rain effects on zinc roofs in the region. Most homes in the Niger Delta region are roofed with corrugated iron sheets. The life span of zinc-coated galvanized sheets is 25 years. Though these sheets rust after prolonged contact with water, the effect of acid rain has reduced the life span of these to between 3 and 5 years, depending on the inclination of the roof (Ekpoh & Obia, 2010). The incessant replacement of zinc roofs in houses located in the region is of significant financial challenge to inhabitants. For rural communities in a region where over 80% of the population lives below the poverty line of one dollar per day, obtaining an estimated \$165 to re-roof a home (measuring 29 feet by 72 feet) every three to five years has brought serious financial hardship, especially among the distressed farmers, fishermen, hunters, and forest gatherers (Ekpoh & Obia, 2010). The revenue lost from gas flared by the government of Nigeria over the last 30 years amounts to billions of United States dollars (Effiong & Etowa, 2012). The effect of gas flares in farming communities often leads to rapid destruction of a year's supply of foodstuff (Adelana *et al.*, 2011). Exposure to flare smoke can also lead to serious asthmatic conditions, respiratory malfunctioning such as coughing, wheezing, difficult breathing, chronic bronchitis, reduced lung function, body itching, impotency, miscarriages, and

premature death (Ana, Sridhar & Bamgboye, 2009). The average life expectancy for every child born in the Niger Delta region remains at 49.13 years (Effiong & Etowa, 2012). The destruction of vital economic and botanical plant species, as a result of gas flaring, means that traditional healers must search endlessly for herbs, bark of trees, and roots that could be sourced for treatment of minor ailments (Aghalino, 2009). The attendant cost for health services and financial loss associated with the loss of work force due to gas flaring is incalculable (Afinotan & Ojatorotu, 2009).

2.2.11. Social Impact of Oil Spillage and Gas Flaring: The social impacts of oil spillage and gas flaring represent the resultant effects of the outcomes of environmental degradation on the people and the way they have reacted to this matter (Dhir, 2007). The effect of gas flaring and oil spillages is that oil-producing communities have lost their financial sustainability (Edino *et al.*, 2010). An occupational and revenue loss that causes voluntary and forced migration is a common experience of the people in the region (Akhakpe, 2012). The denial of benefits accrued from the natural resources of the region prompted the people to strive for self-determination, even violently where necessary (Odoemene, 2011). The resultant activism arising from this situation has led to social breakdown as evidenced by generalized lawlessness in the Niger Delta (Odoemene, 2011). The mass movements that appear under these conditions do not primarily aim at changing society, but to escape their perceived isolation (Odoemene, 2011). The shift from peaceful protests by the people of the NDR to armed insurrection reflects radicalization of once peaceful political activism (Ezirim, 2011). The crisis of legitimacy is engendering a new generation of social tensions that include politically established cult groups and gangsters who are unleashing overt violence on rural and urban communities alike (Afinotan & Ojatorotu, 2009).

In the article, “The Rape of Paradise,” Obayiuwana (2012) noted that the inhabitants of Ogoniland complained about contamination of the air, which is causing death and disease. Husbands can no longer provide for their families, and thus direct their children to seek employment as domestic servants in towns and cities (Obayiuwana, 2012). In some cases, these children fall victim to human trafficking, street begging, and sometimes risk falling into prostitution (Afinotan & Ojkorutu, 2009). The high percentage of unemployed young people in the Niger Delta is even more worrisome and portends serious dangers for the country’s social and financial stability (Ihayere *et al.*, 2014). The incidence of youth militancy, gangsterism, kidnapping, and hostage of foreign and local oil workers for ransom in the Niger Delta, has pushed the conflict into a new direction (Idemudia, 2009).

Further, the militants’ confrontational strategies find expression in high profile kidnapping of expatriates or members of their families, bombing and destruction of oil facilities as well as daring guerilla-styled assaults on highly fortified military formations (Ogege, 2011). The government responds to attacks on its security institutions by increasing repression against the affected communities and deploying military and police formations with instructions that engender dire consequences (Afinotan & Ojkorutu, 2009). Odoemene (2011) remarked that government violence in this context appeared in various forms: wanton killings, destruction of communities, belligerent military occupation, and sexual abuses by military and government security operatives. Bagaji *et al.*, (2011) argued that violent communal clashes that are either inter or intra ethnic, or between oil bearing communities and state or petro-businesses is a frequent occurrence in the Niger Delta communities. Fatalities from the Niger Delta conflict amount to 1,000 yearly, which place the region on the violence level with highly intense conflict areas such as Colombia and Chechnya (Emuedo, 2010).

Nigeria is a country with oppressive institutions and the Niger Delta is the theatre where these repressive institutions, at the behest of multinational oil corporations, inflict severe brutalities on the helpless inhabitants of the oil communities (Akpan, 2010; Okafor, 2011). Based on the aforementioned view, Wiwa contended that respect for the civil liberties of the Niger Delta residents and other marginalized groups is the key to lasting peace in Nigeria (Chukwuemeka *et al.*, 2011). The examination of the multiplier effects resulting from environmental degradation in the Niger Delta provides an understanding of the comprehensive nature of the crisis.

2.2.12. Multiplier Effects of Environmental Degradation

a). **Gender Relations/Capacity Utilization:** The people of the Niger Delta region depend on land and sea resources for sustenance. The women play active socioeconomic roles in the harsh Niger Delta environment and form the first line of social defence against socioeconomic deprivations in the region (Ihayere, C.; Ogeleke, O.F. & Ataine, T., 2014). The women have benefitted least from employment in the oil companies and have been excluded from minimal compensation arising from acquisition, pollution, and destruction of farmlands and fishing waters (Olankunle, 2010). Often, the women are custodians of resources such as food, water, and firewood used for cooking. For example, in Ogoni land when a woman gets married, her husband will give her a piece of land to farm; it is from that farm that she feeds her family and grows food for sale to purchase other staples (Wiwa in Duru (2014). This practice guaranteed the women a certain level of financial independence. Fishing and gathering of seafood, and farming in the forest areas represent the primary sources of financial livelihood for rural women in the Niger Delta (Olankunle, 2010).

As the resourcefulness of these women depended on the viability of their environment, they become susceptible to over exploitation of the remarkably slim resources and thus experience some of the harshest consequences of the prevailing conditions (Ihayere *et al.*, 2013; Odoemene, 2011). The lack of employment for many young men and women makes them an on-going responsibility for their mothers long after they should have been independent (Wiwa, in Duru (2014). The constant acquisition of new territory for oil exploitation and the resultant pollution have left the Niger Delta women with no means to maintain or support their families, and this gives rise to tension in the home and community (Wiwa, in Duru (2014). The precarious nature of life of women caused by environmental degradation places the entire population of the region at risk. Security forces deployed by the government or petro-business to quell the insurgency in the area often beat, rape women, and commit other sexual criminal acts (Dhir, 2007).

In many instances, security forces invade private homes; terrorize residents, and gang rape girls (Odoemene, 2011). The implications of these actions on the well-being of families and communities of the victims can be quite severe. Some of the consequences include stigma and social exclusion that may lead to forced prostitution, fatherless children, child abandonment and neglect, prevalence of sexually transmitted diseases including HIV/AIDS, and homelessness (Obi, 2011; Odoemene, 2011). These trends indicate a breakdown of societal moral fibre and social values all for which indigenous Niger Delta communities were reputed and respected (Ihayere *et al.*, 2014; Odoemene, 2011). Akiyode in Duru (2014) argued that women have a vital role to play in environmental management and development, and their active participation is necessary to achieve sustainable growth. Duru asserted that the rural woman is the last to be hired by oil Companies; thus, she suffers a discrepant impoverishment thereby deflating her gender status especially relative to men.

b). Socio-cultural effects: Emuedo (2010) asserted that the people of the Niger Delta consider two pieces of legislation, the Petroleum Act and the Land Use Act, which bequeath all land in the region to the federal government, as an assault to their humanity. To them land is sacred. It is also a source of pride, livelihood, and income, links the living to the dead, and is a source of confidence in supernatural and deities (Dhir, 2007; Emuedo, 2011). To the Niger Delta people, this legislation contradicts the definition of social order because it excluded the communities from participation in the agreements with multinational oil companies, thereby denying them any portion of the royalties paid by MNOCs (Odoemene, 2011; Paki & Edoumiekumo, 2011). The youth in the Niger Delta region claimed that selfishness on the part of their elders may have contributed to the plunder of their ancestral lands in the past (Chukwuemeka and Aghara, 2010; Odoemene, 2011). Perhaps, the legislative acts and the perceived complicity of the community elders explain the difference between the youth and elders of the Niger Delta today, especially in their response to the conditions of endemic poverty and destruction arising from the environmental degradation of the region (Duru, 2014,). Poverty has also been identified as a major cause of sexual risk behavior and susceptibility to sexually transmitted diseases such as HIV/Aids as well as unplanned pregnancy (Odoemene, 2011). With the presence of thousands of foreign and local oil workers, most of them separated from their families by exigencies of work, young girls in the region respond to oil workers' lusts by prostituting (Odoemene, 2011).

Consequently, the incidence of teenage prostitution among boys and girls has become widespread in the region. In examining the social consequences of environmental change in the Niger Delta, Odoemene (2011) wrote that the legendary respect for elders in African society has diminished in the Niger Delta region; as a result, the typical Niger Delta youth sees the elder as corrupt, inept, and the epitome of colossal failure. The

environmental destruction in the Niger Delta is the cause of juvenile truancy, as many youths have dropped out of school because their parents are not able to afford school fees or buy textbooks, having lost their ability to farm or fish due to the environmental degradation (Afinotan & Ojakorotu, 2009). The rate of unemployment is reportedly much worse for the age group 15 to 24, and especially among those with the Secondary School Leaving Certificate as their highest educational qualification (Edino *et al.*, 2010). In comparison to the other non-oil producing areas of Nigeria, the Development Policy Centre revealed that 73% percent of the households in the Niger Delta have five or more dependents without a job (Edino *et al.*, 2010).

c). **Health Impact of Oil Spillage and Gas Flaring:** Exposure to hazardous air pollutants emitted during incomplete combustion of gas flares affect human health, which includes cancer, neurological, reproductive, and developmental effects (Adelana *et al.*, 2011; Ekpoh & Obia, 2010; Gobo, Richard, & Ubong, 2009; Jimoh *et al.*, 2011). Benzene is a known cause of leukemia and possibly other disorders (Ana *et al.*, 2009). In their study *Environmental Risk Factors and Health Outcomes in Selected NDR Communities*, Ana *et al.*, (2009) revealed that emissions from incomplete combustion contribute to climate change as comparative genomic hybridization (CGH), and also significant adverse health impacts. The attendant health impacts include acute respiratory infections, chronic obstructive pulmonary disease, asthma, nasopharyngeal and laryngeal cancer, tuberculosis, prenatal conditions, adverse pregnancy outcomes, and eye irritation. Akinola (2010) revealed that of every 1,000 new born children, 200 die before the age of 5; this statistic is one of the poorest records among developing countries. Access to health was estimated to be available to only 56.5% of the population, and population per one hospital bed was as high as 1,227 people (Akinola, 2010). The current high levels of pollutants, such as polycyclic aromatic hydrocarbon

(PAHs) in the soil, water, and air, especially in the Eleme community in Rivers state, are an indication that there is a much higher level of intoxicants in the environment from industries, including the refineries and petrochemicals present in the area (Ana *et al.*, 2009). Recently, cases of physiological effects have been recorded in areas with intense gas flaring and these effects include birth defects, which occur during the reproductive cycle of women in advanced stages of pregnancy (Gobo *et al.*, 2009). Other disturbances are the effects on the wake-sleep rhythm, which are associated with neurological problems, and depression among individuals found in the area where gas flaring activity is common (Gobo *et al.*, 2009).

Before the discovery of oil, the Niger Delta contained pure stretch of fresh water and healthy water lettuce that adds beauty and flavor to the environment (Onwubiko *et al.*, 2013). Oil pollution has resulted in a situation where polluted water will threaten future generations (Jimoh *et al.*, 2011). The failure of public water supply schemes in the Niger Delta has led to the exploitation of hand-dug wells from near surface aquifers for domestic use by those who cannot afford the cost of sinking boreholes (Omojimate, 2012). Ana *et al.*, (2009) reported that water pollution is possibly the worst problem affecting pristine (surface and ground) waters in the area. This problem has been associated with a high rate of stomach ulcers stemming from the consumption of contaminated water that is prevalent in the Niger Delta region (Ana *et al.*, 2009).

In the Niger Delta, flaring of gas at petroleum operating sites generate fumes that contain harmful chemicals, and may contribute to the accelerated aging of lungs, aggravated asthma, and bronchitis (Ana, Sridhar, & Asuzu, 2010). Hospital records in the area are replete with cases of diarrhea and typhoid fever diseases, both of which can be water borne (Ana *et al.*, 2009). This trend presents a public health risk. Ana *et al.*

(2010) noted that populations living in areas of the Niger Delta with high environmental risk factors may be exposed to contamination related morbidities including a higher tendency to cancers of the lung, skin, and eye. The physician ratio is one doctor for every 150,000 inhabitants of the oil rich states of Bayelsa and Delta (Akinola, 2010). Ana *et al.*, (2009) contended that although several studies in developed countries have indicated a pattern of health effects associated with environmental risk factors, there is a dearth of information on this in developing countries like Nigeria. Therefore, it is reasonable to say that the human security issue in the Niger Delta crisis is multidimensional, and mainly centres on the impact of the oil industry activities on people whose entire source of livelihood and ultimate existence is dependent on the environment (Chukwuemeka & Aghara, 2010; Paki & Edoumiekumo, 2011).

2.2.13. Collateral Effects of Environmental Degradation

Environmental impact: The rich biodiversity of the Niger Delta region is under severe threat from multiple sources. The danger in the context of this study is most typically from oil and gas exploration, and development activities. The following statement attributed to Ken Saro-Wiwa is a credible assessment of the collateral effect generated by the operation of Shell in his embattled community, Ogoni: The Ogoni is embattled and imperilled. Since oil was discovered in the area in 1958, they have been victims of a deadly ecological war in which no blood is spilled, no bones are broken, and no one is maimed. But the people die all the time. Men, women, and children are at risk; plants, wild life, and fish are destroyed, the air and water poisoned, and finally the land dies. Today Ogoni has been reduced to a wasteland. (Oluduro & Oluduro, 2012) A United Nation Environmental Program (UNEP) evaluation that studied the effects of pollution in the Niger Delta revealed that nearly 60% of all the tested sites contained oil pollution

levels that exceeded safety limits; inhabitants of Nisioiken Ogale consumed drinking water from wells containing benzene, a known carcinogen, at levels over 900 times above the World Health Organization guidelines (Obayiuwana, 2012). Obayiuwana (2012) noted that the study found strong contamination present at Ejama- Ebubu, 40 years after an oil spill occurred, despite reported clean-up attempts. Oil contamination in Ogoniland is extensive and is severely affecting many components of the environment. Fishing and farming, which are the traditional economic occupations of the people in this particular area, are no longer possible because of the environmental conditions.

The aquatic life in the fishponds has died, and the ponds themselves taken over by thick deposits of crude oil; high levels of pollution poisoned all forms of drinking water normally drawn from wells (Adelana *et al.*, 2011; Obayiuwana, 2012; Okpara, 2012). The impact of an oil spill may appear to be localized at the time of occurrence, but the overall cost can be far reaching. When a spill occurs on the seabed, the impact on marine life can affect aquatic life elsewhere through migration by surviving species (Aro *et al.*, 2010). In such instances, the resulting health hazard incurred can easily be transmitted beyond the shore of the incident. These actions expose the extent of man-made and logical consequences associated with environmental threats that are ever present in extractive industry operations (Oguduvwe, 2013).

2.2.14. The Niger Delta Region of Nigeria and its Characteristic Features

The Niger Delta region of Nigeria is among the richest deltas in the world. Other major deltas are either famous for crude oil or natural gas (Amazon in Brazil, Orinoco in Venezuela, Mississippi in the U.S.A., Mahakam in Indonesia) or grow mainly rice (e.g. Indus in Pakistan, Ganges in Bangladesh, Mekong in Vietnam) (Petters, 2007). It

constitutes the coastline area of Nigeria; it covers approximately 853km facing the Atlantic Ocean (Dublin Green et al., 1999). The Niger Delta however has huge oil and gas reserves and ranks as the world's sixth largest exporter of crude oil and the second largest producer of palm oil, after Malaysia, which even obtained its palm seedlings from Nigeria. The Niger Delta is the richest part of Nigeria in terms of natural resources. The area has large oil and gas deposits, as well as extensive forests, good agricultural land and abundant fish resources. Despite the tremendous natural and human resource base, the region's potential for sustainable development remains unfulfilled and its future is being threatened by environmental degradation and deteriorating economic conditions which are not being addressed by present policies and actions (O'Rourke & Connolly, 2003). Fifty years of oil development have not brought significant benefits to the region. Resource-use decisions are being driven by a lack of development, poor healthcare and social facilities, stagnant agricultural productivity, and rapid population growth (Ugochukwu, 2008). The Niger Delta is also among the world's major wetlands; with one of the largest mangrove ecosystems.

Environmental degradation, arising from total dependence of the rural population on unsustainable agriculture, fishing, forestry and wildlife exploitation, and oil exploration has seriously threatened the Niger Delta. Since pre-colonial days, the Niger Delta has played a crucial role in the Nigerian economy. Its ports and rivers provided access for the British to penetrate the Nigerian hinterland; the gateway for the trade in slaves, and later export commodities such as palm produce timber, rubber and even groundnut and cotton from the distant northern parts of Nigeria. Land resource degradation, renewable resource depletion and oil pollution are now the irreversible consequences of prolonged dependence on the natural resources of the region by the indigenous population and the nation. However, conservation must start with human considerations before it can

succeed. Environmental conservation and economic development in the Niger Delta depend on the flow of federal funding and goodwill into the region, and on improved understanding of the delta, its petroleum occurrences and its peoples.

However, the historical background and human dimensions of the unrest in the Niger Delta have hitherto, not been sufficiently highlighted in the search for lasting peace in the oil producing communities. Almost all the crude oil produced by Nigeria, which amounts to approximately 2.7 million barrels per day, comes from the Niger Delta region. Despite the crude oil production, the Delta is enormously rich in biological and cultural diversity and has become one of Africa's highest conservation priorities. This same ecosystem feeds and supports nearly seven million people, comprising 14 ethnic groups and over 25 different languages. Most are minorities that historically found safe haven in the delta; they now struggle to maintain their identities and livelihoods as part of its ecosystem. Decades of dictatorship, a breakdown of civil society, and a near complete lack of attention to environmental concerns have turned the Niger delta into one of the world's most endangered ecosystems; an epicentre of human rights abuses and environmental injustice (Ugochukwu, 2008).

2.2.15 The Ecological Zones of the Niger Delta

According Hutchful (1985), the Niger Delta consists of two distinct ecological zones: tropical rainforest in the northern reaches of the Delta, and to the south a coastal area of mangrove vegetation traversed by many rivers, tributaries and creeks. He stated that the coastal area could be further subdivided into two, namely: Salt-water riverine area immediately adjoining the coast where the Niger and its tributaries flow into the sea; and a freshwater riverine area, which is further inland. The World Bank later in their own study identified four different ecological zones namely: freshwater swamp forests,

mangroves, lowland rainforests, and barrier Island forests. Hutchful's classification appears to be broad-based, while that of the World Bank is specific. Nevertheless, for the purposes of this study, the World Bank's classification would be used because it would be more helpful. Each of the four zones is described briefly below.

a). *Freshwater Swamp Forests*

These forests cover 11,700 km of the Niger Delta and lie within the hinterland away from the mangrove forest. It is located within the flood plains. The freshwater swamp forests are most extensive in the west and central delta; in the eastern delta, the freshwater forest band is much thinner because of higher elevations (World Bank, 1995). The dominant ecological influence in this zone is seasonal flooding; floodwaters collect in countless swamps and ponds, saturating the soil for at least the rainy season (World Bank, 1995). The swamp forest can be sub-divided into two 'ecological groups. a) riverbank levees which are rarely flooded and have been mostly converted to agricultural land (very suitable for tree growth); and b) the back swamps which can be inundated with water for most part of the year. This zone is the most heterogeneous of the main ecological zones, with various species of flora and fauna. Hutchful (1985).

b). *Mangroves*

Nigeria has the third largest mangrove forest in the world and the largest in Africa; the majority of it is found in the Niger Delta (World Bank, 1995). It covers a total area of about 10,240 km (Ebeku, 2005). It is characterized by regular salt-water inundation. According to Ebeku (2005), creeks, which are kept open by tidal action and flooding, flow throughout the forests. Most importantly, the mangrove swamps lie at the centre of a complex and sensitive ecosystem, which is very vital to the fishing industry, and

the local economy of the Niger Delta people. The mangrove is the most economically rich among the four main zones and accommodates the most important flora and fauna.

c). *Lowland Rainforests*

This zone covers about 7,400 km of the Niger Delta region. However, evidence suggests that very little lowland remains and only a few of the remainder are significant in size or in species diversity (for example, Ebubu forest). Today most areas in this zone are in Sweden agriculture systems, which permit only oil palms and occasional mango trees to remain. For example, Hall in Duru (2014) suggests that Ogoni land used to be covered with a rainforest but has been largely converted to degraded bush and farmland. This zone represents the non-riverine or upland areas (coastal plains).

d). *Barrier Island Forests*

This type of ecological zone (also called beach ridge Island) is the smallest in the delta. They are freshwater forests found between the coastal beaches and the estuarine mangroves. They typically contain a band of rainforest species growing on the inland side According to Ebeku (2005), the forests are degraded in accessible areas, but large areas of high quality forest with high concentrations of biodiversity remain. An example is the Andoni area, which is still relatively intact. This area is being proposed as a games reserve because of its remnants of elephants and hippopotamus.

e). *Biological Diversity*

Biological diversity or biodiversity refers to the number, variety and variability of living organisms. Scientifically, the biodiversity of an area can be assessed from the *genetic*, *taxonomic*, or *ecosystem* perspectives. The *genetic diversity* represents the heritable

variation within and between populations of organisms. *Taxonomic diversity* is referred to as diversity at the species or higher taxonomic level – the variety of life forms that exist in an area. It can also be referred to as species diversity. *Ecosystem diversity* is the number of habitats or ecological systems within a given geographic area. Okiwelu & Anyanwu (2003) defined biodiversity as the variation among living organisms, which encompasses species diversity (the number of different species) genetic diversity (genetic variety within species) and ecosystem diversity (the variety of interactions among living things in natural communities). The term is also used to describe the number, variety and variability of living organisms. It is estimated that in Nigeria there are more than 4600 plants species of which about 205 are endemic. Of these, about 484 plants in 112 families are threatened with extinction. Many animals and birds are also threatened with extinction (Ugochukwu, 2008).

Apart from crude oil, other non-renewable resources of the Niger Delta include natural gas, fossil fuels, and construction materials such as gravel, sand clay, and earth (NDES, 1997). The major renewable resources of the Niger Delta include a network of water resources, a variety of economically important timber species (pole wood, fuel wood etc), edible vegetables, fruits, nuts and seeds, medicinal plants, palm wine and other palm products, and tannins (Ebeku, 2005). Besides, there are bamboos and grasses, which are useful for making a variety of products especially in local cottage industries (Ebeku, 2005). According to Ebeku (2005), in the Niger Delta region are found the various and extensive forests, which harbor a wide variety of wildlife, including mammals, reptiles, birds, insects and invertebrates (a good number are endemic in the region). The water resources hold a rich variety of aquatic life, including shellfish and crustacean (Environmental and Socioeconomic characteristics, Environmental Resource Manager Limited, NDES, 1997). In addition, the World Bank has emphasized

the importance of the delta as habitat for a great variety of coastal and estuarine fauna and flora, which lacks any marine or coastal protected area (World Bank, 1995). The Niger Delta holds a unique and highly diverse flora and fauna; no area in Nigeria compares with it (Ebeku, 2005). According Ebeku (2005), the Niger Delta region alone holds 60-80 per cent of all Nigerian plant and animal species. In addition, it has been found that Nigeria has 205 endemic species, and the largest number of this are found in the Niger Delta (Ebeku, 2005). The faunal and floral compositions of the Niger Delta are briefly described below.

f). Fauna

As recent works show, the delta contains distinct faunal zones, terrestrial and aquatic, and species new to Nigeria. According to Ebeku (2005), there is an indication that the full range of species in the Niger Delta is still unknown. The World Bank indicates that, the full significance of the delta's biodiversity remains unknown because new ecological zones and species continue to be uncovered and major groups, such as higher plants and birds, remain unstudied in large areas (World Bank, 1995). Naturally, faunal distribution depends on ecological characteristics. The following species: Mona monkey, speckle-throated Otter, and Marsh Mongoose occur in the mangrove forest of the Niger Delta (Ebeku, 2005). Clawless Otters and new species of genets have been identified. The freshwater swamp forest harbors the black squirrel and antelopes, and other species of monkeys and apes, including Chimpanzee (Ebeku, 2005). According to Ebeku, Elephants have also been discovered in this region. Slater's guenon (*cercopithecus scateri*), known to be endemic to Nigeria, is found in the Niger Delta ecosystems (Ebeku, 2005). Most of these species are not widely distributed in viable populations in the Niger Delta of recent, and are now being classified as vulnerable,

threatened, or endangered. Until his death, Powell, a Canadian Scientist and academic at the Rivers State University of Science and Technology, Port Harcourt, Nigeria, has done much of the recent works on this area (Ugochukwu, 2008).

Various studies have indicated that the commonest fish species in the Niger Delta include croakers, barracuda, shiny nose, and catfish; crustacean and molluscs are found in abundance. Powell (1993), from his study of freshwater fish species concludes that the Niger Delta has more freshwater fish species (197) than any other coastal system in West Africa. The NDWC has also found sixteen fish species, that are endemic to the region, and another twenty-nine that are near endemic¹⁰. According to the World Bank, over 330 different species of birds have been identified in the Niger Delta (World Bank, 1995). Among which are the parrots and the palm nut vulture. In addition, some species, which are vulnerable (such as the Hammer kop (*Scopopus Umberto*) which are rare over much of their ranges, remain abundant in the Niger Delta (Ebeku, 2005). The delta is also an important habitat for trans-hemispheric migratory bird species (World Bank, 1995). From the above accounts, it can be seen that the Niger Delta is very rich in biodiversity, which is naturally distributed in different ecological zones. The biological diversity is more concentrated in the freshwater and Barrier Island ecological zones. The extreme hydrological conditions of the mangrove forests limit their biological richness (World Bank, 1995).

g). Flora

The delta region is cited as one of the most poorly collected areas of West Africa for plant specimens (World Bank, 1995). However, studies indicate that the mangrove forests of the Niger Delta consist mostly of the red mangrove tree (*Rhizophora racemosa*) with its characteristic stilt or prop roots. Other trees include the smaller black

mangrove and white mangrove (Ebeku, 2005). Ecologically, the mangrove floor is very important to a lot of smaller flora and fauna and to the human/eco-food chain. Salt ferns can be found in higher mangrove, while the exotic spiny false date (*Nypa fruticans*) colonizes cleared areas, and apart from these, there are also the freshwater raphia swamps, floodplain forest and upland rainforest (Ebeku, 2005).

2.3. Sustainable Development

2.3.1 Meaning of Sustainable Development

Today, issues bordering on effective management of the environment continue to dominate international discourse. The complex nature of today's environment across the globe has called for more effective environmental policies, based on the well-accepted principles of a sustainable global environment. "Sustainable development" has become the new slogan of development experts. Questions of ecological sustainability are arising on every continent. The scale of human activities has begun to threaten the habitability of the earth itself. The concept of sustainable development recognizes the basic obligations of the current generation to future ones. Perhaps there is no area in which the sustainability of development is more important in terms of human welfare than in the area of agriculture and land development. Sustainable development focuses on economic prosperity, effective environmental management and social responsibility. What this is about is meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. The foundation of sustainable development lies in the idea that people or social groups can and will alter their environmental ethics when they realize that it will make things better. The assumption is also that such people/social groups can work together for common goals when they need to. Sustainable development of the environment is

related to protective, rational use of natural resources. It is conservation in the face of development and quite essential, for the welfare of future generations to be guaranteed. As a concept, it calls for efforts to increase human welfare and halt the destruction of the world's ecosystem capacity to support life – the giant global ecosystem being made up of smaller local home environments. In doing this, it is essential to secure a widespread and deeply committed adherence to new environmental ethics even at the micro-levels. This will occur when principles of environmental conservation are upheld. In this way, conservation is blended with development in a manner that development goes on within the carrying capacity of the environmental resources-air, water, vegetation, animal etc. which when allowed to deteriorate, leaves nothing to meet our needs over time (Adenikinju, 2000).

Increasingly, people in all walks of life are being confronted by a few questions as they strive to assert their activities within the environment: is the activity sustainable? What does the action portend for those who wish to act likewise in the future? These are some of the emerging posers as consciousness of the fragility of the earth's ecosystems increases. The questions are fundamental to securing a symbiotic interaction between man and his environment. Taken from the first principle, experts say an activity is sustainable if, for all practical purposes, it can continue forever. Incidentally, several combinations of the term are now being employed including sustainable development, sustainable economy, sustainable society, sustainable use, etc. to broaden its meaning. Sustainability vis-à-vis environmental protection is turning to a colossus now bestriding all spheres of human endeavour, and requiring that every sector thereof yield to it (Ibekwe, 1995).

For a country like Nigeria, especially the Niger Delta region which has been yearning for development in the agricultural and industrial sectors, and which has almost totally neglected environmental consideration until recent years, the need for sustainable development is imperative (Aderiye, 1997). The concept of sustainable development involves the successful integration of environmental considerations into development management. The idea of development that was used when the global community initiated the development decades was based on increase in per capita national income with some notions of equity and cultural vigour added on. Then, development was presumed to be sustainable and the principal problem was to achieve it not sustain it. The fact that it has been necessary to add the concept of sustainability to development indicates the changed circumstances of the last four decades. Most importantly, there have been very real achievements in both economic and political terms. Development has been the reality for many countries, which were formerly politically and economically dependent. In this sense, the addition of sustainability at this stage emerges from the success of the last three decades. It reflects a growing awareness of the potential for interrupting the process of development because of constraints that were well-known but not perceived before as preventing development. Many nations, whether economically advanced or at some stage in the process of transforming themselves now find that the growth of their economies and development of their societies was being stunted or destroyed by costs associated with their natural resources, for example, reductions in agricultural productivity through soil fertility; increases in disease through release of pollutants into the air and water and losses from reduced productivity of hydro/electric/irrigation scheme through soil run off, sand salutation of dams. Sustaining development means preventing these costs from destroying the gains of the past and preventing further gains in the future. Development, in order to be long-

term sustainable, must respect the constraints set by the environment and natural resources. If environmental constraints are violated, development will ultimately lead to its own destruction. (Aderiye, 1997).

According to Adenikinju, (2000) development planners and decision-makers must, therefore, be aware of the limits put by the environment. Paradoxically, development is a source of environmental deterioration in the country. The major aspects of development that have occasioned environmental problems include urbanization and urban development, manufacturing industry development and extractive industry exploitation. The real issue in sustainable development is not just “protecting the environment” parse but how to optimally manage the environmental resources to acquire sustainable social, economic and physical development. After several decades of emphasis on rapid economic growth, there is now a growing awareness in Nigeria that development is not just higher and higher growth of national income. Rather there is a shift which sees economic successes as a means of achieving basic human needs and development, particularly those related to collective and individual wellbeing.

In parts of the country, especially in the Niger Delta environmental threats and other social and human problems are beginning to act as constraints to some economic activities as well as the well-being of the people. In spite of the expanded economic output and the high hopes for a better economic future expressed daily in public pronouncements by influential and powerful Nigerians, studies of the state of the Nigerian environment tend to indicate that the environmental condition are worsening. These trends are rooted in the structure and pattern of our national development process and the development models which we have adopted up till now. They are also embedded in our collective perception and utilization of development as separate from,

or antagonistic to the environment. There has been lodged within the choice of our national development strategies vested interests that, either through ignorance or because of a misperception of more fundamental goals and ultimate development objectives, often work against environmental protection and sustainable development. The dominant philosophy and ideology of “progress” that have guided economic development in Nigeria’s history have often seen “development” in terms of the conquest or exploitation of nature and natural forces. Environmental protection and conservation which define a different relationship with nature and natural forces are often seen as not being in harmony with “progress” and economic growth as perceived by these interests. However, some events in our recent history along with world-wide trends have brought out the need for a strategy of sustainable development which involves the articulation of environmental and other elements of human needs and rights with the economic growth and development objectives. Efforts aimed at ensuring that the environment continues to sustain human life have been complicated and confused, owing to the ambiguity and vagueness of the concept “sustainability”. (Adenikinju, 2000).

Sustainable Development Defined

Sustainable development has been defined in many ways, but the most frequently quoted definition is from Our Common Future, proposed by World Commission on Environment and Development also known as the Brundtland Report (1987). This report defines sustainable development as follows: According to Brundtland Commission (1987), “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. It contains within it two key concepts: the concept of **needs**, in particular the

essential needs of the world's poor, to which overriding priority should be given; and the idea of **limitations** imposed by the state of technology and social organization on the environment's ability to meet present and future needs." All definitions of sustainable development require that we see the world as a system – a system that connects space; and a system that connects time. Sustainable development seeks to meet the needs and aspiration of the present without compromising the ability to meet those of the future. It is a process in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspiration” (Nigeria’s Threatened Environment, 1991). The environment and development literature is full of definitions of the notion of “sustainable development”. Certain key elements of sustainable development are important. They are: (a) Ecological integrity and sustainability. (b) Equity and distributive justice at all levels (global, national, community, household and intergenerational). (c) Socially-relevant economic productivity and technological development. (d) Popular participation and collective autonomy. (e) Prevalence and institutionalization of human and democratic rights. The realization from these key elements of sustainable development listed above constitutes the core of our contemporary development challenge. Attaining these objectives within the context of a changing world that emphasizes ecological integrity and sustainability, distributive justice and equity, popular participation, socially relevant economic productivity and the institutionalization of human rights is Our challenge. Concept of sustainability came into existence when we realize that GDP per capita alone cannot be considered as an indicator of development. As GDP per capita can be increased by destruction of natural resources, it cannot be considered as the development of the country or organization. Environmental sustainability is the rates of

renewable resource harvest, pollution creation, and non-renewable resource depletion that can be continued indefinitely. If they cannot be continued indefinitely then they are not sustainable.

Basically the world's standard definition of environmental sustainability is sustainable development, which means sustainable economic growth, which is an oxymoron. No form of economic growth can be continued indefinitely. Furthermore, all economic growth today is terribly environmentally degrading. The principle of The Three Pillars of Sustainability says that for the complete sustainability problem to be solved all three pillars of sustainability must be sustainable. The three pillars are social sustainability, environmental sustainability, and economic sustainability. Of the three pillars, the most important is environmental sustainability. If this is not solved, then no matter how hard we try the other pillars cannot be made strong because they are dependent on the greater system they live within, the environment (Krishna, 2015). To measure sustainability there must be the need for indicators. An indicator is something that helps you understand where you are, which way you are going and how far you are from where you want to be. A good indicator alerts you to a problem before it gets too bad and helps you recognize what needs to be done to fix the problem. Indicators of a sustainable community point to areas where the links between the economy, environment and society are weak. They allow you to see where the problem areas are and help show the way to fix those problems. Indicators of sustainable community are ways to measure how well a community is meeting the needs and expectations of its present and future members.

According to Environmental Sustainable index (ESI) (2005), some of the following indicators below are used to assess the environmental sustainability of a country: A

country is more likely to be environmentally sustainable to the extent that its vital environmental systems are maintained at healthy levels, and to the extent to which levels are improving rather than deteriorating. A country is more likely to be environmentally sustainable if the levels of anthropogenic stress are low enough to engender no demonstrable harm to its Environmental systems; · A country is more likely to be environmentally sustainable to the extent that people and social systems are not vulnerable to environmental disturbances that affect basic human wellbeing; becoming less vulnerable is a sign that a society is on a track to greater sustainability;

A country is more likely to be environmentally sustainable to the extent that it has in place institutions and underlying social patterns of skills, attitudes, and Networks that foster effective responses to environmental challenges; A country is more likely to be environmentally sustainable if it cooperates with other countries to manage common environmental problems, and if it reduces negative trans boundary, environmental impacts on other countries to levels that cause no serious harm.

The economic and social aspect of indicators would be used to balance the sustainability issue such as income level, per capita income, availability of rural community infrastructure such as borehole, health center, town hall, housing, etc. The effective management of natural resources is the key to attaining sustaining development in all sectors of the global economy. Global and National Agencies have long been at the forefront of promoting natural resources management and environmental protection. The thrust of natural resource management is to support environmental services, promote the sustainable management and use of land, water and genetic resources and to strengthen research and development endeavours. The urgent need for today is to utilize our natural resources in a sustainable manner with a

focus on minimizing their depletion and pollution. Besides, the sustainable development of any nation is closely linked to its industrial progress, with the energy sector being the major driving force. And achieving sustainable development without drastically disrupting the environmental balance of nature is the challenging problem facing mankind today (Narayanan, 2009). Admittedly, any industrial activity will pose some degree of environmental impact that could lead to environmental degradation and hazards to well-being and health of living organisms with the possibility of environmental crisis. Cognizant of the above, all sustainability efforts studies should incorporate the technological, legal, political, environmental, economic and ethical dimensions in their policy direction and responses. Since sustainable development centres on maximizing and optimally distributing the net benefits of economic development, it requires appropriate natural resource management strategies that will accommodate conservation rules to maintain the regenerative capacity of resources and guide technological change so as to switch from non-renewable to renewable resources wherever physically possible and to develop a phasing policy for the necessary use of non-renewable resources (Ugochukwu, 2008).

Concepts of Sustainable Development

Krishna (2015) analysed three distinct concepts of Sustainable Development.

2.3.1 The Concept of Equity

For development to be sustained, a balance (equity) must be struck among the three pillars of the sustainable development (Agyeman, Bullard & Evans, 2002). Equity is a key social concept in sustainable development discourse (Murphy, 2012). In policy terms, it refers to the distribution of welfare goods and life chances on the basis of

fairness and it applies to national, international, and intergenerational contexts (Murphy, 2012). This very broad conception of equity therefore covers a wide spectrum of policy areas and includes the promotion of freedom from discrimination on the grounds of gender, religion, or race (Murphy, 2012). In this context, the concept of equity calls for the inclusion of all concepts cited above for effective sustainable development (Wuelser et. al., 2012). Agyeman, Bullard & Evans (2002) argue that, “wherever in the world environmental despoliation and degradation are happening, they are almost always linked to questions of social justice, equity, rights and people’s quality of life in the widest sense”. The aforementioned researchers believe that a truly sustainable society is one in which wider questions of social needs; equity, welfare, and economic opportunity are integrally related to environmental limits imposed by supporting ecosystems.

2.3.3 The Concept of Integrative Management

This concept represents sustainable development’s integrative view of aspects of social development, economic growth and environmental protection (Golder *et al.*, 2012). From a policy perspective, the concept of integrative management seeks to create an integrative balance between living and non-living asserts (Foxall, 2014). This requires the integration of policy, planning and management levels; providing an effective legal and regulatory framework; making effective use of economic instruments and market and other incentives; and establishing systems for integrated environmental and economic accounting (Golder *et al.*, 2012). The concept of integrative management posits that whatever changes are implemented; it is the duty of governments to do so while working in partnership with the private sector (Hill *et. al.*, 2014).

In general however, the specific situations in which different countries are placed are the overall framework in which such integration takes place (Foxall, 2014).

2.3.4 The Concept of Political Global Agenda

This concept calls for inclusivity across national boundaries in order to achieve global sustainable development (O'Brien and Williams, 2013). In this regard, sustainable development has become the central adage of environmental policies around the globe (Dodds, 2000). This discourse conceives the earth as one unified globe (Carter, 2013). Given the recent economic crisis, scholars are calling for greater attention to the effective functioning of global institutions (Baylis *et al.*, 2013). The capacity, power and actions of these actors in relationship to each other provide an understanding of the global political agenda (Baylis *et al.*, 2013). Therefore, global institutions can study policy agenda setting processes across geographic boundaries to see how they mutually influence each other and what value they contribute to their own policy process (O'Brien & Williams, 2013).

Sustainable Development Goals

The Sustainable Development Goals are a United Nation (UN) Initiative.

The **Sustainable Development Goals (SDGs)**, officially known as **transforming our world: the 2030 Agenda for Sustainable Development** is a set of seventeen aspirational "Global Goals" with 169 targets between them. Spearheaded by the United Nations, through a deliberative process involving its 194 Member States, as well as global civil society, the goals are contained in paragraph 54 United Nations Resolution A/RES/70/1 of 25 September 2015 (UN; 2016) The Resolution is broader intergovernmental agreement that, while acting as the Post 2015 Development Agenda

(successor to the Millennium Development Goals), builds on the Principles agreed upon under Resolution A/RES/66/288, popularly known as The Future We Want(UN;2016) The SDGs were in large measure informed by the oft quoted assertion by United Nations Secretary-General Ban Ki-moon that "there can be no Plan B, because there is no Planet B."

The goals

The Official Agenda for Sustainable Development adopted on 25 September 2015 has 92 paragraphs, with the main paragraph (51) outlining the 17 Sustainable Development Goals and its associated 169 targets. This included the following goals: (UN; 2015)

1. **No Poverty** - End poverty in all its forms everywhere
 - Extreme poverty has been cut by more than half since 1990- however, more than 1 in 5 people live on less than \$1.25 a day
 - Poverty is more than lack of income or resources- it includes lack of basic services, such as education, hunger, social discrimination and exclusion, and lack of participation in decision making.
 - Gender inequality plays a large role in the perpetuation of poverty and it's risks; They then face potentially life-threatening risks from early pregnancy, and often lost hopes for an education and a better income.
 - Age groups are affected differently when struck with poverty; its most devastating effects are on children, to whom it poses a great threat. It affects their education, health, nutrition, and security. It also negatively affects the emotional and spiritual development of children through the environment it creates.

2. **Zero Hunger** - End hunger, achieve food security and improved nutrition and promote sustainable agriculture

- Globally, 1 in 9 people are undernourished, the vast majority of these people live in developing countries.
- Agriculture is the single largest employer in the world, providing livelihoods for 40 per cent of today's global population. It is the largest source of income and jobs for poor rural households. Women comprise on average 43 per cent of the agricultural labor force in developing countries, and over 50 per cent in parts of Asia and Africa, yet they only own 20% of the land.
- Poor nutrition causes nearly half (45 percent) of deaths in children under five – 3.1 million children each year.

3. **Good Health and Well-being** - Ensure healthy lives and promote well-being for all at all age.

- Significant strides have been made in increasing life expectancy and reducing some of the common killers associated with child and maternal mortality, and major progress has been made on increasing access to clean water and sanitation, reducing malaria, tuberculosis, polio and the spread of HIV/AIDS.
- However, only half of women in developing countries have received the health care they need, and the need for family planning is increasing exponentially, while the need met is growing slowly - more than 225 million women have an unmet need for contraception.

- An important target is to substantially reduce the number of deaths and illnesses from pollution-related diseases.
4. **Quality Education** - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Major progress has been made for education access, specifically at the primary school level, for both boys and girls. However, access does not always mean quality of education, or completion of primary school. Currently, 103 million youth worldwide still lack basic literacy skills, and more than 60 per cent of them are women.
 - Target 1 "By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes"- shows the commitment to non-discriminatory education outcomes
5. **Gender Equality** - Achieve gender equality and empower all women and girls.
- Providing women and girls with equal access to education, health care, decent work, and representation in political and economic decision-making processes will fuel sustainable economies and benefit societies and humanity at large.
 - While on record 143 countries guaranteed equality between men and women in their Constitutions by 2014, another 52 had not taken this step. In many nations, gender discrimination is still woven through legal and social norms.

- Though goal 5 is the gender equality stand-alone goal- the SDG's can only be successful if women are completely integrated into each and every goal
6. **Clean Water and Sanitation** - Ensure availability and sustainable management of water and sanitation for all
 7. **Affordable and Clean Energy** - Ensure access to affordable, reliable, sustainable and modern energy for all
 8. **Decent Work and Economic Growth** - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
 9. **Industry, Innovation and Infrastructure** - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
 10. **Reduced Inequalities** - Reduce income inequality within and among countries
 11. **Sustainable Cities and Communities** - Make cities and human settlements inclusive, safe, resilient and sustainable
 12. **Responsible Consumption and Production** - Ensure sustainable consumption and production patterns
 13. **Climate Action** - Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy
 14. **Life Below Water** - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
 15. **Life on Land** - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

16. **Peace, Justice and Strong Institutions** - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. **Partnerships for the Goals** - Strengthen the means of implementation and revitalize the global partnership for sustainable development

As of August 2015, there were 169 proposed targets for these goals and 304 proposed indicators to show compliance: (*From Wikipedia, the free encyclopedia*)

2.3.5. Sustainability and Justice

Dobson (1998) discussed the relationship between Environmental justice and sustainability in his article titled: "Justice and the Environment; conceptions of environmental Sustainability and theories of Distributive justice". He argued that the discourses of sustainability and Justice may be related but the question of whether sustainability and justice are compatible objectives can only be resolved empirically, and the range and depth of empirical research required in solving this question has not been done. However, Liu *et al.*, (2014), argued that in carrying out Sustainable Impact Assessment studies for subtle ethnic region such as the Niger Delta and Mongolia, justice, including Environmental, social and economic justice and equity, which has been recognised as a key element of Sustainability should be stressed. Sustainability is about meeting needs; justice has increasingly been recognised as one of such needs. There is no sustainability without justice Liu *et al.*, (2014). The United Nations resolution 66/197 on sustainable development pays special attention to the welfare of ethnic minorities; recognising and supporting their identity, culture and interests and avoiding endangering their cultural heritage, practices and traditional knowledge and preserving and respecting non-market approaches that contribute to the eradication of

poverty. To achieve sustainability in Niger Delta the issue of environmental Justice must be properly addressed.

2.3.6 Corporate social responsibility as a component of sustainability

Sustainability in the context of corporate responsibility means the established capability and capacity of corporations and governments to manage their own businesses with the aim of preserving the environment for the future (Afinotan & Ojakorotu, 2009; Akhakpe, 2012). The goals of corporate sustainability are to improve the processes of production, distribution and consumption by creating lasting value for all stakeholders (Afinotan & Ojakorotu, 2009).

Sustainability is part of corporate social responsibility (Duru, 2014). In contrast to this view of sustainability, environmental degradation that has manifested through oil spillage and gas flaring in Niger Delta region has produced problems of widespread poverty, disease, social injustice, insecurity, and social unrest that threaten not only domestic but also global security (Ogege, 2011).

To achieve sustainability effectively, stakeholder standards (a similar but significantly different concept from shareholder value) is essential (Ako *et al.*, 2009). Odoemene (2011) argued that environmental actions must be improved to meet best practices elsewhere, which would simultaneously affect social conditions for development. The goal of sustainability is to guarantee unrestricted production, and trigger social, political, and financial innovations that would create new opportunities for previously impoverished and marginalized people (Odoemene, 2011). Eweje (2007) argued that multinational oil corporations have a responsibility to protect the physical environment and society in which they carry out their operations because when corporations violate

this duty, the host community will protest against them. A World Bank Report (2003) stated that sustainability is an evolving framework, which demands that societies must continue to change over time (Afinotan & Ojakorotu, 2009). It is argued that where significant social stress and crisis likely to lead to a breakdown in the development and maintenance of all assets, intergenerational wellbeing may be jeopardized (Afinotan & Ojakorotu, 2009). The ethical responsibility of multinational oil companies is to refrain from polluting the ecosystem, refrain from harming people and their history of livelihood such as farmland and utilize natural resources in a sustainable fashion (Ebegbulem *et al.*, 2013; Eweje, 2007). The minimalist concept insists that corporations or any related entity must refrain from causing unlawful damage because failure to act responsibly would violate certain moral rights not to be harmed (Eweje, 2007). To understand the logic of applying the aforementioned principle in the context of this study, it is necessary to emphasize notable episodes of oil spills in the Niger Delta region due to negligence by MNOCs. In 1980, Nigeria's largest spill ever, perhaps more than 400,000 barrels from a Texaco offshore facility, destroyed 340 hectares of mangrove (Aro *et. al.*, 2010). Olufemi (2010) expressed reservations about fair compensation to a host for the loss of income of livelihood, health hazards, death, destruction of natural resources of the forest, and wildlife. Olufemi (2010) asserted that true sustainable community development depends on the creation of wealth within communities and not on the unequal redistribution of income, assets, or gifts. For the petroleum industry to be sustainable in the near and distant future in Nigeria, the social dimension of sustainable development has to be considered the most critical component since social issues present and pose the greatest threat to the industry's survival (Kew & Phillips, 2013; Oguduvwe, 2013).

Sustainability requires integrating human needs in planning, along with environmental and economic considerations because social sustainability (or well-being) of communities are vital to any assessment of sustainability (Kew and Phillips, 2013). Real economic growth stems from private investment and individual initiatives (Olufemi, 2010). Olufemi (2010) suggested that emphasis on capacity building and economic empowerment always make partnership formation an imperative, and cooperation the dominant strategy for managing issues of corporate, and community relations. Based on the foregoing, it is relevant to assess the response of the Nigerian government to the Niger Delta crisis.

2.3.7 Participation of stakeholders in Development in the Niger Delta

In an attempt to define development in academics, it was observed that there is no consensus about the meaning of Development, thus what obtains are different school of thought. According to Little (1982) there can be no objective definition of development and therefore, no universal acceptable indicators of development but that the best one might hope for would be to get some rough consensus on objectives and hence on how progress toward these objectives can be measured. It suggests that indicators for development may vary from region to region and community to community. This therefore gives relevance to the need for participatory approach to development. One major factor that has hindered development in the region has been lack of participation of stakeholders in the planning and implementation of projects.

The local people are the primary targets of development and development can only be precisely defined by them. It is only the definition given by the local people to whom development is directed at that are acceptable. Thus, every development strategy must seek to view development from the perspective of the local people. The United Nations

Declaration on the Rights to Development of 1986 recognised that the human person is the central subject of the development process and the development policies should therefore make the human being the main participant and beneficiary of development. Lack of stakeholder participation in the development of the Niger Delta has led to unacceptable projects that are not sustainable.

2.3.8 Environmental Sustainability Issues in Niger Delta

The issue of sustainable development in the Niger Delta is critical. There has been series of crises in recent time in the region leading to hostage taking of Oil Workers and loss of lives. The cause of the crises was simply due to the negligence of the local communities in this Oil rich region in the business of Oil production by the Nigerian government. Environmental degradation is the damage to the biosphere as a whole due to human activity. Environmental degradation occurs when nature's resources (such as trees, habitat, earth, water and air) are being consumed faster than nature can replenish them, when pollution results in irreparable damage done to the environment or when human beings destroy or damage ecosystems in the process of development. In Niger Delta today, there are so many practices especially those relating to industrialization that is quite unsustainable to the environment.

Environmental degradation can take many forms including, but not limited to, unsustainable extraction of natural resources, desertification, deforestation, extinction and radioactivity. Some of the major causes of such degradation include: overpopulation, urban sprawl, industrial pollution, waste dumping, intensive farming, over fishing, industrialization, introduction of invasive species and a lack of environmental regulations. The goal of environmental sustainability is to minimize these and other causes, to halt and, ideally, reverse the processes they lead to. An

unsustainable situation occurs when natural capital (the sum total of nature's resources) is used up faster than it can be replenished. Sustainability requires that human activity, at a minimum, only use nature's resources at a rate at which they can be replenished naturally. Theoretically, the long-term result of environmental degradation would result in local environments that are no longer able to sustain human populations to any degree. Such degradation on a global scale would, if not addressed, of course mean extinction for humanity. In the short-term, environmental degradation leads to declining standards of living, the extinctions of large numbers of species, health problems in the human population, conflicts, sometimes violent, between groups fighting for a dwindling resource, water scarcity and many other major problems (Ugochukwu, 2008)

2.4. Theoretical Framework

This study is based on the following theories namely:

- ❖ Structural Conflict Theory
- ❖ Biological Theory
- ❖ Economic Conflict Theory
- ❖ Cultural Theory
- ❖ Systemic Theory
- ❖ Dependency and Internal Colonization theory
- ❖ Social-Economic Theory
- ❖ Ethical Theory
- ❖ Technological Theory
- ❖ Daly's sustainable Development Path Theory
- ❖ Participatory Development Theory:

2.4.1 Structural Conflict Theory:

Coller (2000) argued that structural conflict theory is also known as transformative, which addresses the reactions of individuals, groups, cultures, institutions and societies to change. It further sees incompatible interest based on competition of resources which in most cases are assumed to be scarce as being responsible for social conflicts. It looks at social problems like political and economic exclusion, injustice, disease, exploitation and inequality as sources of conflicts. Ross (1993) emphasizes on structural theory is thus on how competing interest of groups tie conflict directly into the social, economic and political organisation of society as well as the nature and strength of social networks within and between community groups. Khotari (1979) puts it that the control and use of natural resources lies at the heart of the deepening crisis in the world today while Best in Esor (2016) posits that in most cases, problems of over population, economic underdevelopment, un-integrated social and political institutions as well as demographic factors that put pressure on human settlements and available resources were responsible for internal structural conflicts.

Esor (2016) has it that realism believes that the competitive processes between actors, primarily defined as states is the natural expression of conflict by parties engaged in the pursuit of scarce and competitive interest and the theory is made up of three parts namely, descriptive, explanatory and prescriptive realisms. All three points to the fact that decision makers have a moral justification to defend their basic interests and ensure self-preservation using any means necessary. He further argued that human nature is selfish, individualistic and naturally conflictive that states will always pursue their national interests defined as power and that such interest will come into conflict with those of others leading to the inevitability of conflict.

This is the situation in the case of Niger Delta Region of Nigeria where there incompatible interest based on competition of resources by the Nigeria State, Oil Companies and the Niger Delta People, which in most cases are assumed to be scarce as being responsible for social conflicts. This theory process creates social problems like political and economic exclusion, injustice, disease, exploitation and inequality as sources of conflicts.

2.4.2. Biological Theory: Best in Esor (2016) sees biological theory as innate theory of conflict which contends that conflicts is innate in all social interactions and among all animals including human beings. In other words, it is believed that conflict is inherent in man and this can be explained from man's inner properties, attributes and hormonal composition. That aggressive instinct will be provoked when man is threatened and challenged. Where expectation does not meet attainment, the tendency is for people to confront those they hold responsible for frustrating their ambitions. Lorenz (1966) and Maclean (1975) have sought to understand how the human brain reacts when people are under stress and threat. They noted that it is possible for a person to experience conflict between what he is feeling and what he is thinking. For this reason, when people are under stress and under certain conditions, their reaction can conform or differ from what others expect. They concluded by saying that even though humans have the capacity to be aggressive this capacity remains idle until stimulated by necessity or encouraged by success. Therefore, since conflicts is innate in all social interactions and among all human beings, and for the fact that the expectations of people of the Niger Delta region does not meet attainment, there is the tendency to confront those they hold responsible for frustrating their ambitions. They become aggressive and provoked because their life and Environment is threatened, devastated and challenged.

2.4.3 Economic Conflict Theory: On economic conflict theory, Berdal and David in Esor (2016) agreed that social conflicts are generated by many factors, some of which are deep-seated. For them, across the ages, conflicts have come to be seen as having a functional utility and are embedded in economic disparities. War, the crisis stage of internal conflicts has sometimes become a vast private and profit-making enterprise. They argue that the importance of economic factors to the understanding of conflicts will always be a contentious issue. The need to explore this linkage is not contested. They further contend that even though issues in conflict may later be packaged as resulting from ideological, racial or even religious differences, these represents the most basic level, a contest for control over economic assets, resources or systems. The Niger Delta Region of Nigeria do not control their resources and are economically impoverished, hence the demand for “Resource Control”.

2.4.4 Cultural Theory: Best in Esor (2016) informed that proponents of psycho-cultural theory argue that conflict could arise when people are unfairly treated as a result of their identity. He contended that this social conflict takes long to resolve possibly because some groups are discriminated against or deprived of satisfaction of their basic (material) and psychological (non-material) needs on the basis of their identity. These needs are identified in Maslows theory of motivation (1970) and Burton’s (1990) human needs theory both of which described the process by which an individual or group seeks to satisfy a range of needs moving from the basic ones such as food and sex to the highest need of self-actualization, the fulfilment of one’s greatest human potential. Conflicts that are caused by a crisis of identity are usually the most dangerous and most violent. There is the believe that the Niger Delta people and region is unfairly treated and this has resulted to conflicts.

2.4.5. Systemic Theory: Chalmers and Best in Esor (2016) agreed that systemic theories provided a socio-structural explanation for the emergence of violent social conflicts. The position of this theory is that reasons for any social conflicts lie in the social context within which it occurs. Systemic factors that lead to changes in people's material comfort include environmental degradation that reduces access to sources of livelihood. Environmental degradation, oil pollution and gas flaring have led to negative impact and reduction to sources of livelihood in the Niger Delta region. Uncontrolled population growth especially in urban centres, resource scarcity and its allocation through lopsided political processes and competition, the negative effects of colonial legacies, breakdown of cherished values, widespread poverty in the midst of plenty, the domination and marginalization of minority groups by those in the majority and ethnicity. Because systemic factors bear directly on the less privileged, preventive strategies that are meant to support social and political stability, initiate people-friendly economic and political reforms and state policies that genuinely seek to prevent or reduce conflicts between individuals and groups should be vigorously pursued. Finally, relational theories attempt to provide explanations for violent conflicts between groups by exploring sociological, political, economic and historical relationship between such groups. Thus the belief here is that cultural and value differences as well as group interests all influence relationship between individuals and groups in different ways, a veritable reason for conflict.

2.4.6. Dependency and Internal Colonization theory: Many scholars have offered theoretical explanations for global environmental injustices and the lack of concern for human rights through the dependency / world-system perspective and internal colonialism theoretical model (Adeola, 2001; Ayoob, 2002).

First, the dependency / world-system perspective suggests that the global economic system initiates a hierarchical structure where industrialized nations promote dependency through loans and debts, in exchange for natural resources in developing nations (Adeola, 2001). In many cases, this has led to a series of conflicts in developing nations due to the scrambling and exploitation of resources with the conviction that the only way to be secure is to grow economically (Ayoob, 2002). Secondly, after the Scramble of Africa in the late 1800s, a different form of colonialism emerged in many developing nations. The internal colonialism theoretical model suggests that numerically dominant groups exploit minority groups in the name of national security (Blauner, 1972). These minority groups are also known as subaltern groups, which are groups that are alienated from economic and social relations based on historical discrimination or religious intolerance (Ayoob, 2002). There are four elements of internal colonialism as identified by Blauner (1972); an ethnic-centred political dominance employed to exploit the minority groups' natural resources, the alliance of the core ethnic groups and the government, the detriment of the ecology for resource-dependent national economies, and the minority group experienced some form of colonization by others in the past. The Niger Delta region has fallen victim to the dependency / world-system and internal colonialism perspectives for various reasons. One is that post-colonial nations, such as Nigeria were put at a disadvantage because of premature economic liberalization, which led to structural adjustment, deindustrialization, political and social upheavals, and intra-conflicts (Ayoob, 2002).

This in turn provided only short-term monetary gain for 'resource rich' developing nations like Nigeria in exchange for long-term health and livelihood consequences on vulnerable populations. In essence, industrialized nations have pursued their own agendas, while displacing environmental burdens and fuelling intra-conflict in

'resource rich' developing nations like Nigeria (Adeola, 2001; Ayoob, 2002; Ako, 2009). For example, in the years following Nigerian independence from Great Britain, the Government of Nigeria adopted many of the laws that were instituted by their past colonial master. Two of these laws were the Petroleum Act of 1969 and the Land Use Act of 1978 (annexed in 1979), which both exclude the extraction of any resource or use of any land in Nigerian boundaries without the approval of the Government (Ikelegbe, 2001; Ako, 2009). While these Acts promoted industrialized nations' interests through foreign investments in oil exploration and production, they also encouraged the placement of noxious facilities in close proximity to residents and degradation of the environment in certain regions in Nigeria.

According to a World Bank study published in 1990, Nigeria lost approximately \$5.1 billion annually because of the effects of erosion, soil degradation, deforestation, water pollution and other environmentally degrading activities (Chokor, 2004). Internal colonialism is also observed in Nigeria where ethnic groups in the south are marginalized because they host the nation's economic entity. The subaltern groups such as the Ogonis, Ijaws, Itsekiris, Urhobo, and others continue to be alienated from economic decisions and social relations in Nigeria. This is a result of the northern ethnic groups such as the Hausa- Fulani, and other political dominance over national interests and affairs fuelled by past colonial powers (Adeola, 2001; Ukiwo, 2007). For example, despite the revenues from oil production in the Niger Delta accounting for the majority of the Nigerian GDP and national government revenue, living standards of Niger Delta communities remain extremely poor (Ibeanu, 2000; Ikelegbe, 2001; UNDP, 2006; Ukiwo, 2007; Ako, 2009).

The sub- standard living conditions are a result of the marginalization of minority ethnic

groups in the region since colonialism (Ukiwo, 2007) and the emphasis of majority ethnic groups to develop northern Nigeria, while destroying the environment of southern Nigeria, where the subaltern groups are mainly located. The Niger Delta region has been ‘cursed’ by a market-based economy and historical marginalization of certain groups, which has promoted global environmental and economic injustices (Watts, 1999; Africa Network for Environment and Economic Justice [ANE EJ], 2004). These injustices have been perpetuated by Nigerian leaders’ lack of concern for human security in southern Nigeria, which has led in recent years to the rise of insurgency groups. Consequently, the onslaught of violence by insurgent groups has shifted the focus of the Nigerian State to protect its economic entity by fighting insurgent groups rather than to improve the health and livelihood conditions of host populations in the Niger Delta region (Ibeanu, 2000; Ukiwo, 2007).

2.4.7. Social-Economic Theory: There are theories relating to environmental problems. This theory of Jhingan and Sharma (2008) postulates that issues of development should adopt environmentally sound technologies in relation to its natural resources of soil, water, plant and animal life and should avoid the destruction of the resources base of the inhabitants of the given area. It further looked at the environment as the stock of physical or social resources available at a given time for the satisfaction of human needs and upon development as a process pursued by all societies with the aim of increasing human wellbeing. Aston-jones and Douglas (1998) contended that environmentalist and other experts have focused attention on environmental degradation resulting from oil activities and that major bone of contention is the implication of the environmental impact on the livelihood of the people of the oil bearing area of the Niger Delta. The importance of environmental sustainability cannot be overemphasized because it is fundamental to the people’s welfare and development

as their existence to a large extent relies on subsistence endeavours which depends on natural resources (Ukeje *et al.*, 2002). They concluded that oil exploration activities have threatened their very existence and survival as it has created life-threatening ecological hazards and deterioration of health and social fabrics of the inhabitants of the oil-affected communities. The implication of this is that the oil industry has exploited the ecosystem for resources beyond the level of sustainability and this ecological problem is a reality. Philips (1997) agrees with this position and went further to state that, this state of affairs have instigated and intensified bitter and bloody conflicts among emerging interest groups, victims of environmental degradation, oil bearing communities and oil exploration companies because of the destruction of the means of livelihood of oil bearing communities and victims of environmental degradation.

2.4.8. Ethical Theory: Lester (1979) postulates this theory as identifying pollution as a major environmental problem and an ecological stress on mankind. He went further to state that pollution is more than a mere nuisance. It can impair and even destroy the productivity of local biological systems. It can also ruin forests, crops and fisheries, fresh water and streams, destroy whole species of plants and animals, impair human health, break up the ozone layer, impede the exchange of oxygen and carbon dioxide between the oceans and the atmosphere and even damage clothing, buildings, and statuses. According to him, all these are stresses which manifest themselves in economic terms such as scarcity, inflation, unemployment and economic stagnation or decline. The need to adapt human life simultaneously to the carrying capacity of earth's biological systems and to the limits of renewable energy sources will require a new social ethic and this ethic must arrest the deterioration of man's relationship to nature to avoid conflicts.

Aworawo in Esor (2016) contended that oil bearing areas in the Niger Delta region have faced so many environmental problems caused by pollution arising from oil activities such as drill cuttings, drilling mud, fluids used in production, chemicals injected to control corrosion or to separate oil from water and general industrial waste. Added to this are problems of gas flaring and incidents of oil spills and blow outs. According to him, while spills inevitably accompany oil production in Nigeria, they occur with an alarming frequency and magnitude because most of the oil delivery infrastructures are obsolete and inadequate. This theory is collaborated by Ikein (2000) where he stated that oil exploration and exploitation and pollution are some of the negative by-products of the petroleum industry and its effect on environmental quality is a source of major concern. Apart from the extensive monetary loss and cost of clean-up, it causes rapid depletion of fish stock, worsens the economic condition of fishermen and degrades the biomass. Achalu & Achalu (2004) stated that one of the implications of oil exploration and exploitation is that most of the resources of water supply in the riverine oil areas of Nigeria are dangerously polluted and rendered unfit for human consumption.

Gogo (2004) also reported that crude oil spill or effluents later settle on the seabed (floor of the river) thus covering the surface of the lithosphere and prevent living organisms in the ecosystem from having access to the planktons. Thus the problem of oil exploration and exploitation becomes serious if one considers the fact that man depends on the sea for a large proportion of food protein. Angaye (2003) also stated that the impacts of oil exploitation on the oil mineral producing communities are in three folds. First, that it leads to environmental pollution, second, that it destroys the ecosystem and the ways of life of the people and that thirdly, the oil producing communities are generally underdeveloped. Thus the pollution of the flora and fauna as a result of incessant oil exploitations and gas flares are some of the hazards associated with the oil

industry in Nigeria with huge costs to the environment. Similarly, Esor (2016) has argued that oil exploration/exploitation has over the last forty years impacted negatively on the socio-physical environment of the Niger Delta oil-bearing communities, massively threatening the subsistence peasant economy, the environment and hence the entire livelihood and basic survival of people.

Jimoh & Aghahlino (2000) also agreed with the above assertions. United Nations Development Programme (UNDP), (2006) asserted that the Niger Delta is a region suffering from administrative neglect, high unemployment, social deprivation, abject poverty, filth, squalor and endemic conflicts. It can be concluded therefore, that since the commencement of oil and gas exploration/exploitation activities in the region, there has been social, economic, health and ecological destabilization and significant reduction in terrestrial and aquatic life which have accelerated exponentially by oil exploration activities with its damaging effect on the environment. In fact, Okopido (2003) stated that the trend in oil production is correlated to increased social cost to the oil producing areas by way of spills and other forms of pollution. Unakalamba (2010) contended that Nigeria recorded 784 oil spills between 1976 and the year 2000.

2.4.9. Technological Theory: Jhingan & Sharma (2008) under the technological approach postulate that the environment emphasizes the link between the nature of technological change that has taken place and its environment implications. They believe that the main purpose of business firms for example, oil multinational companies is to maximise their profits in an economic system and that this objective should not be at the detriment of the environment which suffers the negative effects of pollution and environmental degradation which costs is borne not by the producers but by the oil bearing communities. Absence of this balance will normally result into

conflict. Eighemhenrio (2006) lend credence to this theory where he stated that oil-led development has seriously damaged the environment and the livelihood of many of those living in the oil producing communities because of pollution driven technology adopted by oil producing firms. Even though the oil exploration companies operating in Nigeria maintain that their activities are conducted in the highest environmental standards, Eighemhenrio, concluded that Nigerian environmental laws, in most respects comparable to their international equivalents are poorly enforced. This scenario portends a potential harbinger for discontents and conflicts by victims of environmental degradation with oil prospecting companies.

2.4.10. Daly's sustainable Development Path Theory: This theory is based on the premise that economic development is a primary goal of society and, as a consequence, it transcends beyond the satisfaction of basic material needs to the provision of the resources needed to improve the quality of life including meeting the demands for healthcare, education and a good environment (Daly, 1994). It pointed out that while conflict between economic development and the environment was not inevitable, there are reasons why the environment might not be adequately protected by market forces - hence approaches such as the polluter pays principle and the precautionary principle should be adopted and applied through appropriate regulatory mechanisms. The theory also stressed that sustainable development can be achieved through environmentally benign economic system by incorporating better information on environmental impacts, improved techniques for analysis of public decisions and environmental justice strategies that ensures that the benefits of developments are sufficient to outweigh the costs. The theory provides a holistic view of and approach to the state of the environment in sundry fields including trends in population, households and incomes, global atmosphere, air quality, fresh water, the sea, soil, land use, minerals, fossil fuels,

wild life and habitats. It also looked at how the principles of sustainable development can be applied over a full range of economic activities in agriculture, forestry, fisheries, minerals extraction, energy supply, manufacturing and services, biotechnology, chemicals, waste, development and town and country, construction, transport and leisure.

According to the theory, sustainability embodies a pragmatic orientation and action programmes at the international, national and local governmental and non-governmental organizational levels. It equally underscored the imperative of individual awareness and action, the use of environmental accounting indicators, the land use planning system, energy efficiency and the role of science, engineering and technology in environmental management and sustainable development. The adoption of the above theory was dictated primarily by its utilitarian value in the context of its adequacy in explaining the relationship between environmental management and sustainable development in diverse settings. This theory which provides a somewhat holistic approach to the understanding of the inevitability of managing the interface between environmental resource exploitation and economic policies for the purpose of achieving intra-generational and inter-generational sustainability is therefore important for this study. In the light of the above, it is expected that Oil companies will apply international best practices and environmental protection laws in course of oil exploration in the region.

2.4.11 Participatory Development Theory:

This study is based on the theory of participatory development and the analytical framework built largely from the input of five authors namely, Nelson & Wright (1995), Chambers (2008), Mohan (2008) and Desai (2008). In the end the study gravitates to a

functional relationship which presumes that absence of participation leads to conflicts and environmental injustice which precipitates unsustainable development projects.

Participatory Development Theory, as a strategy for rural development, is based on the principle of collective participation of the people in decision making especially in those programmes that affect their destiny. The theory is built on the assumption that no government or agency, no matter its resources or commitment, can develop the rural areas without the active involvement of the rural people themselves and without tapping their wisdom, talents, resources and institutions as foundation for development (Nkom, 1995). Nkom further explained that the organisational skills of the people and the various institutions, associations which they have devised for dealing with the exigencies and challenges of their situation become the building blocks for this participatory model of development.

The participatory development model further assumes that people will identify with and appreciate any development programme only when they are effectively informed of the programme in terms of its nature, sponsorship, functionality, benefits, the role they are expected to play and wider expectations of the project on their community. This explains the observations of the Technical Centre for Agricultural and Rural Cooperatives (C.T.A, 1996) that unless there is full participation of the rural people in the whole process of rural development, there will not be any sustainable development. In discussing citizenship participation and the utilitarian acquiescence, Ventriss & Kuentzel (2005) argued that public participation in environmental decision-making assumes that citizen involvement contributes to reflexive deliberations, communications, effective representation, and consensus building in the public sphere. The Niger Delta crisis meets the criteria of a public issue. O'Donnell (2007) asserted

that among the three different axes of conflict in a polarized world, the first axis is that of ecological conflicts, which are, by their transparent nature, global. The nation state and transnational cooperation share responsibility with this burden (O'Donnell, 2007). Thus, it can be inferred that the recurrent circle of violence against MNOCs' operations in the Niger Delta Region (NDR) are indicative of the failure of the Nigerian government and the oil companies to recognize the significance of stakeholder value. The framework for participatory Theory is built on the following aspects; Why participatory development is needed; Approaches to participatory development and contesting views in current participatory development trends.

Why participatory Development is needed?

The emergence of participation in development came from critiques of traditional top down development practices that usually incorporate biases of eurocentrism, positivism and 'top downism' (Desai & Potter, 2008).

The argument is that these practices were disempowering and tried to impose the same development methods that the West used to achieve modernity and through this process locals were not included in the development scheme and treated as objects . Robert Chambers has been one of the leading proponents of participatory development practices arguing, "putting the last first was necessary for rural development" (ibid). In the 1970s participatory action research began to be advocated which lead to a new environment where individuals could communicate their needs and desires. Approaches to participatory development has evolved over the years, however currently most donor agencies contend that a certain degree of participation is mandatory in development projects.

Nelson & Wright (1995) argue that participation is often seen as an input to development projects where participation can improve effectiveness and efficiency through use of local information and contributing labor and resources of the community, which in turn can lead to local ownership and promote self-reliance (Nelson & Wright, 1995). In this way, Nelson & Wright (1995) argue, that participation may be an end in itself which can increase confidence of the local citizens and make them feel empowered and part of the change. Furthermore, using local information can clarify problems and needs, enhance solutions, lessen the chance of misunderstandings, reach more people, and increase the commitment of the local people to the project, thus increasing the chance of sustainability and success of the project. Laura (2011) also contends that it is a widely held belief among development professionals that a higher level of participation among community members will lead to more sustained projects and better long-term results (Laura, 2011). Participation increases the transparency of the decision-making process and from a social point of view, participation is a central element of Sustainability (Becker, 2014), according to him participation is a social indicator difficult to translate meaningfully into quantitative terms.

Approaches to Participation in Practice

Incorporating participation into development practices sounds easy, but often full participation is unachievable. Nelson & Wright (1995) argue that in the past marginalized groups have been overlooked and excluded from participatory development but are now being included and sometimes even “put first” (Nelson & Wright, 1995). Nelson & Wright (1995) also argue that in practice voluntary and coercive participation can be hard to distinguish where sometimes material incentives are offered to ensure cooperation. Spaces are deliberately construed so that only certain

voices are heard. Thus, participation can be a challenge in conveying to the community why their involvement and input is important and worthwhile, as well as creating an equal space where participants can freely and equally express their opinions.

Key considerations for participatory development are:

- 1) Influence and power (who has the power; mapping community leadership and organizations)
- 2) Capacity building (what resources are currently available and what capacities exists (financial capital, human capital, etc)
- 3) Communication and learning (is there a shared vision and mechanisms for coordinating among the various community organizations?)
- 4) Impacts and outcomes (are the impacts and outcomes inclusive?)

Contesting views in current participatory development trends:

Current development practitioners are promoting participatory methods and claim that participatory approaches are being integrated into projects, however a critique and reflection on what this implies needs to be conducted if true participation will have a lasting and productive role in development (Laura, 2011). Many authors also contend that using the term ‘participatory development’ as a cosmetic label is often all too common in practice. Participatory development in practice tends to treat communities as a socially homogeneous, where the power of decision-making usually ends up in the hands of the elite (Desai & Potter, 2008). Alternatively, Parnwell (2008) argues that it is unrealistic to believe that participatory development is becoming the new mainstream paradigm for development and advocates for a practical mixed approach to

development that combines alternative and more traditional forms while strengthening the relations between government entities and non-governmental actors (Parnwell, M., as cited in Desai & Potter, 2008). Further Desai (2008) argues that any organization with more than a few people will innately involve power dynamics which grant a certain individual more power than others (usually the 'elite' or wealthier) and result in conflicting interests and personal agendas (Desai & Potter, 2008). Development initiatives always involve politics and power, which leaves the discussion about participation dominated by these themes he added.

2.5 Conceptual Framework

The conceptual framework for this research derives from the production function and participatory development concepts. A priori expectation which seems reasonable and rational implies that conflicts and absence of environmental justice lead to unsustainable development especially in the Niger Delta region of Nigeria. These assertions are depicted in figures 2.1

Figure 2.1: Infers that the level of sustainable development is predetermined by the level of conflicts and environmental justice. The greater the number and depth of conflicts, the greater the level of unsustainable development projects; the more the absence of environmental justice the greater the level of unsustainable development project. Alternatively stated, the absence of conflict and environmental injustice lead to sustainable development projects. The other inference depicted in figure 2.1 is the congruency between conflicts and environmental justice (injustice) which act together to lead to unsustainable development projects. On the other hand, the greater the participation of the population (rural or urban) in development projects the lesser the conflicts which in turn lead to sustainable development projects.

Secondly, participation of the population in development activities reduces the incidence of environmental injustice which in turn leads to sustainable development.

Participatory Development theory as a strategy for rural development is based on the principle of collective participation of the people in decision making especially in those programmes that affect their destiny. The theory is built on the assumption that no government or agency, no matter its resources or commitment can develop the rural areas without tapping their wisdom, talents, resources and institutions as foundation for development (Nkom, 1995).

The organisational skills of the people and various institutions and associations which they have devised in dealing with the exigencies and challenges of their situation become the building blocks for participatory model of development.

Participatory development model further assumes that people will identify with and appreciate any development programme only when they are effectively informed of the programme in terms of its nature, sponsorship, functionality, benefits, the role they are expected to play and wider expectations of the project on their community. This explains the observation of the Technical centre for Agricultural and Rural Cooperatives (C.T.A, 1996) that unless there is full participation of the rural people in the whole process of rural development, there will not be any sustainable development.

In discussing citizenship participation and utilitarian acquiescence, Ventriss & Kuentzel (2005) argued that public participation in environmental decision-making assumes that citizen involvement contributes to reflective deliberations, communications, effective representation and consensus building in the public sphere. The Niger Delta crises meets the criteria of a public issue. O'Donnel (2007) asserted

that among the three different axis of conflict in a polarised world, the first axis is that of ecological conflicts, which are by their transparent nature global. The nation state and translational cooperation share responsibility with this burden (O'Donnel, 2007). Thus, it can be inferred that the recurrent cycle of violence against the Multinational Oil Companies operations in the Niger Delta Region are indicative of the failure of the Nigerian government and oil companies to recognise the significance of stakeholders' value. These concepts are fully developed and depicted in figure 2.1. Box A represents the Independent variables namely Stakeholders participation, leadership or civic structure, social organisations, sex, age, income, education, awareness, employment, occupation, marital status and distance from home to project site.

These independent variables affect and are affected by conflicts and environmental justice in boxes B and C respectively. Conflicts and environmental justice separately or collectively affect or determine development projects Sustainability. Environmental justice and absence of conflict will enhance Sustainable Development in Box D and sustainable development will give rise to the expected outcome in Box E and they include improved cleaner environment, increased agricultural production, health, improved income, less restiveness, improved employment and social and civic environment. These outcomes agree with the sustainable development goals of 2015.

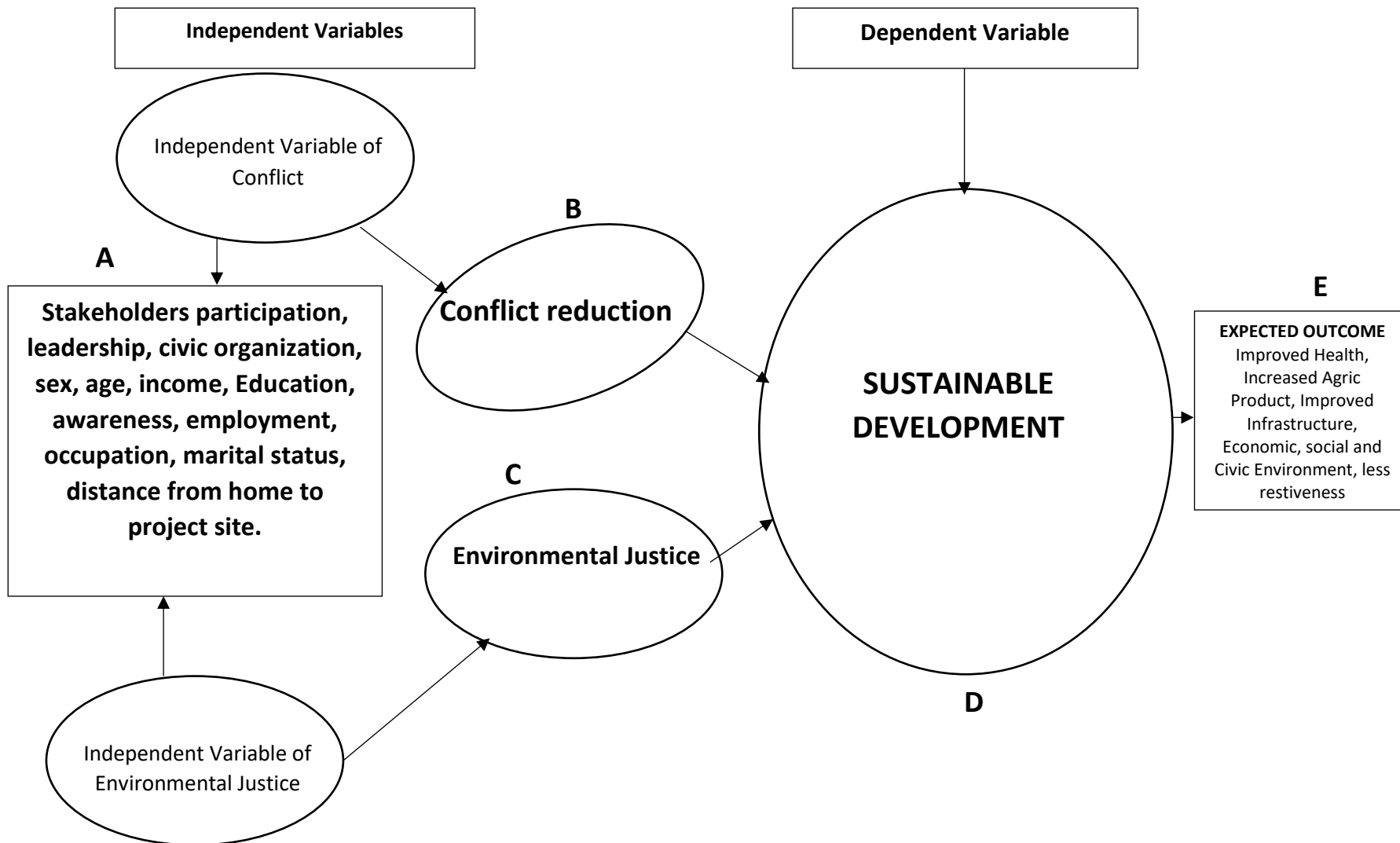


Fig 2.1- Schema for Assessing the Effects of Conflict Reduction and Environmental Justice on Sustainable Development

CHAPTER THREE

METHODOLOGY

3.1 The Study Area

The study was carried out in the Niger Delta region of Nigeria. The region is situated in the southern part of Nigeria, and covers some 112,110 square km. It is Africa's largest wetland belt (Esor,2016). The fragile ecosystems within the area include mangroves, fresh water, swamp forests, and coastal barrier islands and contain significant biodiversity including rare species (Bischoff & Lambrechts, 2010; Snapps, 2011).

The region is bordered to the south by the Atlantic Ocean and to the East by Cameroun. The core Niger Delta states comprises of Bayelsa, Delta, Rivers, Akwa Ibom, Abia, Cross River and Edo states (Esor, 2016). However, Sagay, Osuji & Avwronve (2011) went further to say that today, this region has been politically defined to include Imo and Ondo states. This definition according to them is political since it equates oil producing states to Niger Delta, its purpose is purely for administrative reasons. Esor (2016) listed the states in the Niger Delta as Rivers, Bayelsa, Delta, Edo, Cross River Akwa Ibom, Imo, Abia and Ondo, summing up to nine (9) states, the region is home to 300 oil fields, 51,284 oil wells, 10 oil and gas plants and massive liquefied natural gas reserves (Fagbade & Akinola, 2010).

The occupation of the people before the discovery of oil has been fishing, hunting and farming. For years before the advent of oil, these activities served as the economic lifeline of the majority of its people. However, since oil exploration started, the people's economic livelihood and production activities have been destroyed giving rise to the

frosty relationship between the oil prospecting companies and the host communities leading to conflicts. (Sagay, Osuji & Avweronwe, 2011). This study however, was carried out in three Niger Delta states namely Bayelsa, Delta and Rivers States.

3.1.1 Bayelsa State

Bayelsa is located in the lower southern part of the Niger Delta region, and its capital is Yenagoa. Bayelsa state has a riverine and estuarine settling, a lot of her communities are almost (and some cases) completely surrounded by water, hence making these communities inaccessible by road. It is geographically located within Latitude $04^{\circ} 15'$ North $05^{\circ} 23'$ South and Longitude $05^{\circ} 22'$ West and $06^{\circ} 45'$ East (Bayelsanewmediateam.blogspot.com /.../Bayelsa-state-general-information). The state was carved out of Rivers State in 1996. It is also amongst the major oil producing state responsible for producing about 80% of Nigeria's crude oil resources. This State is also one of the least populated state in Nigeria with only about 2million people occupying an area of $10,773\text{km}^2$ (Bayelsa State office of Statistics). Bayelsa State is made up of four ethnic groups namely-Ogba, Nembe, Izon and Epie- Atissa; consist of 8 local Government Areas namely: brass, Ekeremor, Kolokuma / Opokuma, Nembe, Ogbia, Sagbama, Southern Ijaw, Yenagoa. There are three senatorial zones in bayelsa and these are: Bayelsa East - (Nembe, Ogbia, Brass), Bayelsa Central (Kolokuma/Opokuma, Southern Ijaw, Yenagoa), Bayelsa West- (Ekeremor, Sagbama), like the rest Nigeria English is the official language. This State is blessed with many historical attractions, like the Slave Transit Hall and cultural festivals (Ekpetiama Okelede new yam festival, Odemimon festival and others), and is also renowned for fishing, farming and trading. The predominant religion is Christianity and Traditional worship.

3.1.2 Delta State

Similarly, Delta state is an oil producing state in Nigeria situated in the Niger Delta region with a population of 5,507,759 (2016, projected). It is made up of twenty-five (25) local government areas with three senatorial districts. The State covers a land mass of about 18,050sqkm, of which more than 60 percent is land. The State lies approximately within Latitude 5⁰ 00 and 6⁰ 30' North and Longitude 5⁰ 00 and 6⁰ 45' East (Wikipedia Encyclopedia) <http://en.wikipedia.org/wiki/deltastate>. It is bounded in the north by Edo State, east by Anambra, south east by Bayelsa State and on the southern flank is the bight of Benin which covers about 160 kilometres of the states coastline. It was carved out of the former Bendel State on August 27, 1991.

The state comprises mainly of Igbo, Urhobo, Isoko, Ijaw and Itsekiri (Esor, 2016). The capital city is Asaba and it is located in the Northern end of the state. Warri is the economic nerve centre of the state, the most populated and located at the southern part of the state. There are various solid mineral deposits in the state which include crude oil, industrial clay, silica, lignite, Kaolin, tar sand, decorative rocks and limestone, with many serving as raw materials for industries. The state is also rich in major tubers and root crops such as cassava, cocoyam, yam and potatoes.

3.1.3 Rivers State

Rivers State is the height of the country's hydrocarbon industry and accounts for over 48% of crude oil produced onshore in the country and a large quantity of its gas is currently being exported to several countries of the world in liquefied form through the liquefied natural gas terminal in Bonny, (Esor, 2016). The state plays a significant and strategic role in the nation's economy and contributes a large chunk of the nation's

foreign exchange earnings. It lies between Latitude 4° 45' North and Longitude 6° 50'



FIGURE: 3.1: MAP OF NIGER DELTA REGION SHOWING THE STATES AND STUDY AREAS

3.2 Population of the study

All the Rural dwellers in the study area constitute the population of the study. The population figure was 389,973 (NPC, 2016 projected). The population of the study is 389,973

3.3 Sample and Sampling Procedure

. Multi-stage sampling techniques was adopted in selecting the sample for this study. The first stage was purposive selection of 3 states (viz Rivers, Bayelsa and Delta States) from the nine states that make up Niger Delta Region of Nigeria. This selection was based on the pilot survey carried earlier which showed these states as the States in Niger Delta where conflicts, environmental degradation appear too prominent, supported by Essor, (2016). Each of these states has three senatorial zones namely: Rivers West, Rivers East and Rivers South East in Rivers State, Bayelsa East, Bayelsa Central and Bayelsa West in Bayelsa State while Delta State has Delta South, Delta Central and Delta North. Senatorial zones were selected instead of Agricultural zones because the study cuts across all rural dwellers and not just farmers. The second stage of the selection also involved the purposive selection of two (2) local Government Areas each from the three (3) senatorial zones of the states where conflicts, environmental degradation are very much pronounced based on pilot investigation earlier carried out and this gave 18 local Government Areas used for the study.

The third stage involved the simple Random selection of one community each from the 18 local Government Areas used for this study. On the fourth stage, based on the unequal population of the communities, proportionate sampling techniques was used

to select the sample for this study; in this regards Taro Yamene’s formula for sample size determination was used to get the sample size while Nwogu’s formula for sample fraction determination was used to get the sample fraction for each community. The sample size was four hundred (400) respondents with 95% retrieval rate bringing the number to 380 useful copies of the questionnaire used for the study.

The sample size of this study was 400 and was determined by using the Taro Yamene’s formula for sample size determination as specified in Okeke (1995). This formula was applied to the population of the study, that is the population of impacted eighteen communities chosen for this study. It is stated below as follows:

$$n = \frac{N}{1+N(e)^2}$$

- Where:
- n - Sample size sought
 - e - level of significance and
 - N - population size

To determine the sample size using Taro Yamane’s formula,

$$n = \frac{389,973}{1 + 389,973(0.05)^2}$$

$$n = \frac{389,973}{1 + 389,973(0.0025)^2}$$

$$n = \frac{389,973}{1 + 974.9325}$$

$$n = \frac{389,973}{1 + 975.9325} = 399.59$$

$$n = 400$$

The sample size was 400.

Calculation of Sample Fraction of the Study

$$\text{Sampling fraction} = \frac{\text{Samplesize}}{\text{Population}} = \frac{n}{N} \quad (\text{Nwogu, 2006})$$

Where n= sample size

$$N = \text{population of the study}$$

$$N = 389,973$$

$$n = 400$$

$$\frac{n}{N}$$

$$= \frac{400}{389,973}$$

$$= \mathbf{0.001026}$$

Applying the formula, the sample fraction is 0.001026, The sample size for each community surveyed was based on this proportion. (0.001026) of the population of each community.

According to Okeke (1995), Taro Yamane's formula is used for drawing a proportional representative sample size from various strata of the population.

Table 3.1: Sampled states, Senatorial zones, LGAs, Communities,

Projected population and Sample Size for the study.

Sampled states	Senatorial Zone	LGA	Community	Projected Population 2016	Sample Size
Delta	Delta South	Warri North	Koko	11,516	12
		Isoko South	Olomoro	13,491	14
	Delta Central	Sapele	Sapele	167,865	172
		Ethiope West	Oghara	47,364	48
	Delta North	Ndokwa West	Kwale	13,947	14
Umuachi Ofor			2,183	2	
		Ndokwa East		256,366	262
Bayelsa	Bayelsa East	Nembe	Ogbolomabiri	37,527	39
		Brass	Akassa	3,612	4
	Bayelsa Central	Southern Ijaw	Ogboinbiri	3,092	3
		Yenagoa	Yenagoa	13,573	14
Bayelsa West	Ekeremor Sagbama	Ekeremor	16,530	17	
		Sagbama	13,400	14	
				88,034	91
Rivers	Rivers West	Ahoada West	Akala-olu	1,361	2
		Ogba/Egbema/Ndoni	Ogbogu	12,841	13
	Rivers East	Etche Obio/Akpor	Umu-Echem	7,306	7
			Rumukurushi	7,851	8
	Rivers South-East	Oyibo Eleme	Obeaku	2,334	3
Ebubu			13,880	14	
				45,573	47
Total Sample					400

Sources: National Population Commission 2016.

3.4 Data Collection

Both primary and secondary sources of data were used for this study. The primary sources were obtained from the respondents themselves who are members of the (18) communities chosen for the study. Data was also collected from oil exploring companies operating in the selected communities on their current conflict management approaches, sustainable projects sited in the area of study. This helped to strengthen the study. Secondary data were obtained from journals, magazines, textbooks, internet and academic materials to strengthen the results.

3.5 Standardization of the Research Instrument

In order to control errors, the questions in the research instrument were standardized. According to Anaeto (2010) a standard measuring scale is one which is satisfactory, valid and reliable.

3.5.1 Test of Validity

Validity refers to the extent to which an empirical measure or operational definition adequately reflects the true meaning of the concept under study (Eboh, 2009). It is concerned with whether the research instrument is measuring what it intends to measure. Rational judgement/Jury method was used. In validating the measuring tools, the structured questionnaire was subjected to thorough review by the project Supervisors. The questions were examined by the experts for their relevance, importance and adequacy in eliciting the needed information.

3.5.2 Test of Reliability

Reliability means the degree to which a given measurement procedure gives the same description of a phenomenon if the measurement is repeated. (Eboh, 2009). In ensuring the reliability of instrument, the research questions were adequately represented in the questionnaire and were related to the objectives of the study. This means that all the variables in the study were explicitly and operationally defined for easy understanding by the respondents and measurement by the researcher. The test-retest method was employed in ensuring the reliability of the questionnaire administered. In doing this, the researcher administered sixty (60) copies of the questionnaire to sixty respondents from the six communities (10each) outside the selected area (communities) for the study. Two (2) communities each were selected from Rivers, Delta and Bayelsa states making a total of six (6) communities respectively. Two weeks later, the same process was repeated within the same communities and to the same respondents that were originally served. The responses result was correlated using the Pearson Correlation Coefficient of reliability and 0.9 coefficient of reliability (r) was obtained. This is an indication of a strong positive correlation between the pretest and post test and affirms that the measurement scale and instrument were reliable. This is in line with Issa (2014) were in it was stated that a reliability coefficient (alpha) of 0.07 or higher is considered acceptable reliability.

3.6 Measurement of Variables

The variables of the study measured include:

a) Personal and socioeconomic characteristics

- Age - This was measured by the chronological years of life indicated by the respondents and measured in years.
- Marital status: - This was measured with a nominal scale: Single 1, Married 2, Separated / Divorced 3, Widowed/Widowed 4.
- Sex - This was measured as dummy variables male 1, Female, 0
- Household size - This was measured by the total number of people who feed from the same pot
- Employment - This was measured with nominal scale:, Unemployed 0 Employed 1,
- Occupation of respondents - This was measured with a nominal scale: Farming = 1; Fishing =2; Transportation = 3; Public/ Civil service = 4; trading = 5
- Income - This was measured in Naira and represents monthly earnings of respondents
- Education - This refers to the status of the respondents on formal education. It was measured on No of years spent in school. No formal education 1, Primary education 2, Secondary education 3, OND/HND/NCE 4, Tertiary education 5
- Membership of social organization - This was measured using dummy variables; member 1, Not a member 0 and subsequently an indication of the organization measured nominally as: Women association 1; youth association 2; community development association CDC 3; Farmers association 4; Cooperative society 5
- Membership Status - This was nominally measured as Ordinary member 1; Regular attendant to meeting 2, Financial member 3; Committee member 3; Executive member 4.

- Distance - Distance of project from home of respondents was measured in kilometers
- Participation - Participation in project design and / or implementation was measured using dummy variable yes 1, No 0

Section B:

This section identified:

- (i) Conflicts that exist in the study area and likely causes and methods of Resolution. Environmental injustices prevalent in the study area were also identified.
- ii) Level of conflict in the study area was measured by the respondents' indication of the level at which they perceived conflict using a 3-point scale of Not Serious=1, Serious =2, very Serious= 3.
- iii) Factors that contributed to the sustainability of projects were measured using Likert type scale responses of Strongly Disagree (DA) =1, Disagree (D) =2, Agree (A) =3, Strongly Agree (SA) = 4.
- iv) Level of participation was measured with a scale: Not Participated =1, partially Participated =2, Fully Participated =3

3.7 Method of Data Analysis

To achieve the objectives of this study including the testing of the research hypotheses, the data were analysed using both descriptive and inferential statistics.

Descriptive statistics such as frequency distribution, percentages, mean scores and

standard deviation were used to describe the data and present them in tables, charts and graphs. For inferential statistics Probit Regression Analysis, Spearman rho Correlation Analysis and Chow Test were used.

Descriptive statistics (mean, percentages, tables and frequency distribution) were used for objectives 1,2,3,4,5,6,7,8 and 9 while Inferential statistics such as Spearman rho correlation analysis and Chow Test were used in objective 10.

To achieve objective ten three methods were adopted; firstly, the variables that were significant in both environmental justice equation and conflict equation were identified by inspection. These variables were then linked to determine how they relate to sustainable development. The second analysis was by the use of Spearman, rho correlation matrix. The third method was the use of Chow Test to test the equality of the coefficients from the two sets of equations. This was applied to see if the set of variables that affect conflict is different or same as the set of variables that affect environmental justice.

For objective two, the mean score was computed for the level of conflict as very serious=3, serious =2, and not serious =1 with 3-point Likert type scale

$3 + 2 + 1 = 6 \div 3 = 2$. The mean of the scaling statement.

Using an interval of 0.5 we have

$$2 + 0.5 = 2.5 \text{ upper Limit}$$

$$2 - 0.5 = 1.5 \text{ lower Limit}$$

Decision Rule = Any mean score above and equal to 2.5 is taken as very serious

Any mean score equal and lower than 1.5 is not serious.

Any mean score in between 2.5 and 1.5 is taken as serious.

For objective seven, the mean score based on Likert type scale of Strongly Agree (AG), Agree (A), Disagree (D), and strongly Disagree (SD) with weights of 4,3,2, and 1 respectively was computed. The weights of the scales were added together and divided by the number of scales:

$$\frac{SA + A + D + SD}{N}$$

$$\frac{4 + 3 + 2 + 1}{4} = \frac{10}{4} = 2.5 \text{ acceptance level}$$

For objective Nine, the mean score was computed for the Level of participation in development projects rated as Fully Participated (FP) (3), Partially participated, (PP) (2), and Not Participated (NP) (1). The sum of the weights of the scales were added together and divided by the number of scales.

$$\frac{FP + PP + NP}{N}$$

$$\frac{3 + 2 + 1}{3} = \frac{6}{3} = 2 \text{ acceptance level}$$

Mean score equal or greater than 2 is considered as participated while mean less than 2 is considered not participated in development projects.

Five hypotheses were tested

Hypothesis 1.

Hypothesis one states that there is no significant relationship between socioeconomic variables of age, sex, income, employment status, education, occupation, household size, marital status, membership of social organization, membership status, distance of respondents from project site, participation in project design/implementation and conflict in the research area.

To achieve this hypothesis, the probit regression analysis was used.

Probit regression Analysis:

The probit regression analysis is a type of regression used to analyse binomial response variable where a binomial response variable refers to a response variable with only two (2) outcomes, example flipping a coin resulting into Head or tails outcome (Kim, 2014). Miroslaw & Ranata (2007) have used this model in determining the true willingness to accept or reject a proposed sum of cash compensation while Henamann *et al* (1991) used the model to determine the true willingness to pay because it is more information- intensive and asymptotically more efficient than the single-bounded method. For Probit regression analysis, the dependent variable is usually only dichotomous response of 1 or 0 (Agwu & Olaolu, 2014). The major reason for adopting the probit regression analysis is that Ordinary Least Square (OLS) regression has been shown to be inadequate when the dependent variable took a discrete value (Agresti, 1990 & Collet, 1991). Here the dependent variable (conflict) takes a discrete value of (conflict =1, no conflict = 0) 0 or 1 which is also a binomial response. Again the probit regression model is able to determine

which independent factor(s) significantly contribute to the overall outcome of the dependent variable at a predetermined alpha level.

The implicit probit regression equation:

$$P_i = \beta q_i + \mu_i.$$

Where:

P_i A dichotomous variable

β coefficient of parameters to be estimated

q_i coefficient of explanatory variables and

μ probability distribution of the random error term.

The explicit probit regression equation:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} \quad \text{Equation 1}$$

Where:

Y = Conflict (No conflict=0, conflict=1)

β_0 = Slope or intercept of the equation

X_1 = Age (number of years of respondents)

X_2 = Education: This refers to the No of years spent in school . It was nominally measured as: No formal education 1, Primary education 2, Secondary education 3, OND/HND/NCE 4, Tertiary education 5

- X_3 = Sex : male (1) female (0))
- X_4 = Occupation of respondents (measured on a nominal scale of Farming = (1), fishing (2) Transportation (3), Public/Civil service (4)) Trading (5)
- X_5 = household size (number of persons in a household
- X_6 = Income (Monthly income of respondents measured in naira)
- X_7 = Marital status: Single 1, Married 2, Separated/ Divorced 3, Widowed/Widowed 4.
- X_8 = Employment status : with nominal scale :, unemployed 0 Employed 1
- X_9 = membership of social organization (member (1); non-member (0))
- X_{10} = membership status (ordinary member (1), regular attendant to Meetings (2), Financial member (3), committee member (4) Executive (5)
- X_{11} = Distance of respondents' home from Development project site (Kilometer)
- X_{12} = Participation in project design and/ or implementation- participated (1), otherwise (0)
- U = Stochastic error term

A priori expectation is that the coefficient of the variables will be positive (ie >0)

Hypothesis 2.

Hypothesis two states that there is no significant relationship between the socioeconomic variables of age, sex, income, employment status, education, occupation, household size, marital status, membership of social organization,

membership status, distance of respondents from project site, participation in project design/implementation and environmental justice in the survey area.

The dependent variable of environmental justice is represented with participation as surrogate since environmental justice simply means fair and meaningful participation of all people in affairs that concern them.

Here the dependent variable (participation in project) takes a discrete value of

(participated =1, Did not participate = 0) 0 or 1 which is also a binomial response.

The explicit probit regression equation:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} +$$

$$\beta_{12} X_{12} \quad \text{Equation 2:}$$

Where

Y = Participation in projects. (participated =1, Did not participate =0).

It is believed that environmental justice implies fair and meaningful participation of all people in the project that concerns them.

X₁ = age (number of years of respondents)

X₂ = Education: This is measured by the number of years spent in school. It was nominally measured as No formal education 1, Primary education 2, Secondary education 3, OND/HND/NCE 4, Tertiary education 5

X₃ = Sex : male (1) female (0)

X₄ = Occupation of respondents (measured on a nominal scale of Farming = (1), fishing (2) Transportation (3), Public/Civil service (4)) Trading (5)

- X_5 = household size (number of persons in a household)
- X_6 = Income (Monthly income of respondents measured in naira)
- X_7 = marital status: Single 1, Married 2, Separated/ Divorced 3, Widowed/Widowed 4.
- X_8 = Employment status : with nominal scale :, Unemployed 0 Employed 1.
- X_9 = membership of social organization (member (1); non-member (0))
- X_{10} = membership status (ordinary member (1), regular attendant to Meetings (2), Financial member (3), committee member (4) Executive (5)
- X_{11} = Distance of respondents' home from Development project site (Kilometer)
- X_{12} = Participation in project design and/ or implementation- participated (1), otherwise (0)
- U = Stochastic error term

It is expected *a priori* that the coefficients of $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12} > 0$

Hypothesis 3:

Hypothesis three states that there is no significant relationship between the socioeconomic variables of age, sex, income, education, marital status, employment status, membership of social organization and the distance of respondents' home from project site) and sustainability of development projects in the area under survey.

The explicit probit regression equation:

The dependent variable (Y) sustainability is represented as Willingness to Accept (WTA) development project since willingness to accept portends stakeholding and stakeholding increases Sustainability.

Here the dependent variable (Sustainability represented by Willingness to Accept) takes a discrete value of (Willing to accept =1, not willing to accept = 0) 0 or 1 which is also a binomial response.

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12}$$

Equation 3

Where

- Y = Sustainability of Development Project. This was represented by the Willingness to Accept (WTA) development project (willing to accept = 1, not willing to accept = 0)
- β_0 = Slope or intercept of the equation
- X₁ = age (number of years of respondents)
- X₂ = Education: This is measured by the no of years spent in school. It was nominally measured as : No formal education 1, Primary education 2, Secondary education 3, OND/HND/NCE 4, Tertiary education 5
- X₃ = Sex : male (1) female (0)
- X₄ = Occupation of respondents (measured on a nominal scale of Farming = (1), fishing (2) Transportation (3), Public/Civil service (4), Trading (5)
- X₅ = household size (number of persons in a household
- X₆ = Income (Monthly income of respondents measured in naira)
- X₇ = marital status : Single 1, Married 2, Separated/ Divorced 3, Widowed/Widowed 4.

- X_8 = Employment status : with nominal scale :, Unemployed 0 Employed 1,
- X_9 = membership of social organization (member (1); non-member (0))
- X_{10} = Membership status (ordinary member (1), regular attendant to Meetings (2), Financial member (3), committee member (4) Executive (5)
- X_{11} = Distance of respondents' home from Development project site (Kilometer)
- X_{12} = Participation in project design and/ or implementation- participated (1), otherwise (0)
- U = Stochastic error term

The probit Regression Model was estimated because the independent variable is binary

It is expected *a priori* that the coefficients of $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12} > 0$

Hypothesis 4:

The fourth hypothesis states that there is no significant relationship between conflicts and sustainable development.

To achieve this hypothesis, the first step was to establish the set of socio economic characteristics that are significant in relation with conflict in **hypothesis one**.

Second step was to establish the sets of socio economic characteristics that are significant in relation with sustainability in **Hypothesis 3** Then, two methods were then used to determine the outcome of this hypothesis test. The first is by inspection

to see the variables that were significant for both conflicts and sustainable development.

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12} + U) \text{ Equation (1)}$$

Hypothesis(1)

Where

$$Y = \text{Conflict in the study area.}$$

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12} + U) \text{ in}$$

hypothesis 3

Y = Represents the dependent variable of sustainability represented by willingness to accept (WTP).

Where X_1, X_2, \dots, X_n = Socioeconomic characteristics as shown in Hypothesis I and 3 above and U is the error term.

Second procedure was to look at the Spearman rho correlation Matrix showing the relationship between conflict and sustainability of development project to see if there is any relationship.

The Spearman's rank -order correlation is the non-parametric version of the Pearson product -moment correlation Agwu & Egbule (2014). Nonparametric test has assumptions that observations are independent and variables under study has underlying continuity. Spearman's correlation coefficient (P, also signified by r_s) measures the strength and direction of the monotonic relationship between your two

variables rather than the strength and direction of the Linear relationship between your two variables, which is what Pearson's correlation determines.

R—Rank coefficient of correlation

The value R lies between ± 1 such as

R= +1, there is a complete agreement in the order of ranks and move in the same direction.

R= -1, there is a complete agreement in the order of ranks, but are in opposite directions

$$R = \frac{(1 - 6 \sum D^2)}{N(N^2 - 1)} = \frac{(1 - 6 \sum D^2)}{N^3 - N}$$

D= Difference of ranks.

N =Number of observations

Hypothesis 5

Hypothesis five (5) states that there is no significant relationship between environmental justice and sustainable development in the study area.

To achieve this hypothesis, the first step was to establish the set of socio economic characteristics that are significant in relationship with Environmental justice **in hypothesis 2**. Second step was to establish the sets of socio economic characteristics that are significant in relation with sustainability **in hypothesis 3**.

Three methods were then used to determine the outcome of this hypothesis test.

The first is by inspection to see the variables that were significant for both environmental justice and sustainable development.

Second procedure was to look at the Spearman rho correlation Matrix showing the relationship between Environmental justice and sustainability of development project to see if there is any relationship.

The third procedure was to check to see if there is equality between the coefficients obtained from the two different samples- namely the coefficients derived from the environmental justice and the ones obtained for sustainable development using the Chow Test.

Gregory Chow Test was used which Tests equality Between sets of coefficients in linear Regressions (Econometrica, 1960).

The Chow test tells you if the regression coefficients are different for split data sets, Basically, it tests whether one regression line or two separate regression lines best fit a split set of data.

Step 1: Pool together the two samples thus forming a sample ($n_1 + n_2$) observations.

From this compute a “pooled” function.

$$Y_p = a_0 + a_1 x$$

and estimate the unexplained variation

$$\sum e_p^2 = \sum Y_p^2 - \sum \frac{Y_p^2}{y_p}$$

with $(n_1 + n_2 - K)$ degrees of freedom (n stands for “pooled” and K is the total number of b_2^1 including the intercept b_0 ; in the above example $K=2$).

Step 2: Perform the regression analysis on each sample separately.

From the sample

$$Y_1 = b_0 + b_1 X_1$$

$$\sum e_p^2 = \sum Y_p^2 - \sum Y_p^{\Lambda 2}$$

with $(n_1 - k)$ degrees of freedom from the second sample we obtain

$$Y_2 = b_0 + b_1 X$$

$$\sum e_2^2 = \sum Y^2 - \sum Y_2^{\Lambda 2}$$

with $(n_2 - K)$ degrees of freedom.

Step 3: Add together the unexplained variations of the two samples and form a total unexplained variation $(\sum e_1^2 + \sum e_2^2)$ with $(n_1 - K) + (n_2 - K) = n_1 + n_2 - 2K$ degrees of freedom.

Step 4: Subtract the above sum of residual variations from the “pooled” residual variance of step 1, and we obtain.

$$\sum e_p^2 - (\sum e_1^2 + \sum e_2^2)$$

With $n_1 + n_2 - K - (n_1 + n_2 - 2K) = K$ degrees of freedom.

Step 5: Form the ratio

$$F = \frac{[\sum e_p^2 - (\sum e_1^2 + \sum e_2^2)] / K}{(\sum e_1^2 + \sum e_2^2) / (n_1 + n_2 - 2k)}$$

Same as chow

$$= \frac{(RSS_p - (RSS_1 + RSS_2)) / K}{(RSS_1 + RSS_2) / (N_1 + N_2 - 2K)}$$

Where

RSS_p = Pooled (combined) regression Line

RSS_1 = Regression Line before break

RSS_2 = Regression Line after break

The null hypothesis is $b_1 = b_2$; that is there no difference in the coefficient obtained from the two samples. Compare the observed F with the theoretical value of F 0.05 (or other levels of significance) with $V_1 = K$ and $V_2 = (n_1 + n_2 - 2K)$ degrees of freedom which is the values expected for F if the null hypothesis ($B_1 = b_2$) were true. If F calculated > F critical 0.05 reject the null hypothesis that is accept that the two functions differ significantly or, the two samples give different relationships. The economic relationship being studied changes over time.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents and discusses the results/ findings of the study.

It is presented under the following subheadings:

Social-economic characteristics of the Respondents

Types and levels of conflicts existing in the study area.

Factors that predispose the respondents to conflicts in the study area.

Conflict Resolution in the study area.

Environmental injustice prevalent in the study area.

Constraints to Environmental justice in the study area.

Factors that contribute to sustainability of development projects in the study area

Stakeholders participation in the management of conflicts in the study area.

Community participation level on projects in the study area.

Factors common to both conflict and Environmental justice

Establishing the hypothesized relationships.

4.1: Socioeconomic characteristics of Respondents

The Socioeconomic characteristics of the respondents that were analysed included sex, age, marital status, Household size, employment, primary occupation, level of education, membership of social organization, income and distance of home to project location.

4.1.1 Sex of Respondents

Table 4.1: Distribution of respondents according to Sex

Sex	No	Percentage
Male	246	64.7
Female	134	35.3
Total	380	100.0

Source: Field survey data, 2019

The distribution of the respondents according to sex is presented in Table 4.1 above. The data show that 64.7% of the respondents were male while 35.3% of the respondents were female. This shows that the sample is dominated by male respondents. However, it is understandable because in community action and in terms of coming forward, the men are more likely to be proactive than the female population. Moreover, if compensations are involved, since the country is mainly patrilineal, the male population are likely to dominate, this agrees with the findings of Esor (2016). With the distribution skewed towards men, opportunities and benefits accruing are most likely to be high jacked by the men with the expectation that there will be triple down effects to the female.

4.1.2. Age of Respondents

Table 4.2 Distribution of respondents according to Age

Age (Years)	Frequency	Percentage
11-20	19	5.0
21-30	60	15.8
31-40	118	31.1
41-50	121	31.8
51-60	36	9.5
61 and above	26	6.8
Total	380	100

$\bar{x} = 38$ years

Source: Field Survey Data 2019

The distribution of the respondents according to age is presented in Table 4.2 above. Respondents in the 41-50 years age bracket were the highest at 31.8% closely followed by the respondents in the 31- 40 years category at 31.1%. When the two age categories are combined they form the preponderance of the respondents at 62.9%. Two hundred and thirty-nine respondents out of a total of three hundred and eighty respondents form the modal age group. The mean age is 38 years.

Further analysis of this age category show that the majority of the respondents are in their middle age, full of life and vigour and actively involved in the rural activities in the area. According to Essor (2016) and Antonioni (1998) this age group was significantly associated with integrating and avoiding conflict than the younger people (<30years) who are prone to conflict without estimating its cost in terms of sustainable development. This was corroborated by Chukuigwe & Albert (2015).

4.1.3: Marital Status of Respondents

Table 4.3: Distribution of Respondents according to Marital Status

Marital Status	Frequency	Percentage
Single	91	24.0
Married	219	57.6
Separated/divorced	32	8.4
Widowed/Widowed	38	10.0
Total	380	100.0

Source: Field survey data, 2019

Table 4.3. reveals the marital disposition of the respondents in the study area. The married constituted 57.6% while the single constituted 24 % of the respondents. The inference from these numbers would imply that issues that affect environmental justice and conflict disproportionately affect families more than singles. The implication for children and community could be enormous because families are microcosms of the community.

The married and single together constituted 81. 6% of the respondents and the implication is that issues of environmental justice and conflict affects virtually everybody within the community. One would also infer that community approach to solving problems of environmental justice, conflict and sustainable development may be preferable to other approaches particularly the individualistic approach. For example, solutions to amelioration of environmental degradation and compensations due to conflicts should be community based.

4.1.4 Respondents Household size

Table 4.4 Distribution of respondents according to Household size.

Household size	Frequency	Percentage
1-4	143	37.6
5-8	160	42.1
9-12	56	14.8
13 and above	21	5.5
Total	380	100.0

$\bar{x}=6$

Source: Field Survey data, 2019

The result of the household size of the respondents is shown in table 4.4 above. From the table, the family size of five to eight (5-8) members represents the highest frequency followed by a family size of one to four (1-4). However, the pertinent outcome is the average household size of six (6) which is one higher than the national average of five (5) (NPC; 2004).

The implication of this outcome is the expected impact on available resources; its impact on the environment essentially degradation and by implication on environmental justice and disposition of conflict and therefore sustainable development. The greater the number of human beings in a given environment, the greater the demand for environmental goods and greater the chances are for conflicts and therefore more pressure on development infrastructure. There would be the need for emplacement of more facilities and greater maintenance requirements (Aning & Attah-Asamoah; 2011). These sentiments are collaborated by Hendrick (2005) where large cities tend to be those with most unmanageable environmental conflicts especially in developing countries.

4.1.5: Employment Status of Respondents

Table 4.5: Distribution of Respondents according to Employment status

Employment status	Frequency	percentage
Not employed	320	84.2
Employed	60	15.8
Total	380	100.0

Source: Field survey data, 2019

Table 4.5 presents the distribution of respondents according to their employment status. The table shows a preponderance of unemployed (84.2%) and this seem to be particularly skewed to the youthful population. They are into fishing, farming, transportation and other small businesses while only 15.8% are employed. A cursory look at the data shows that the average person in the survey area is unemployed. This outcome should sound so surprising in spite of the seemingly large number of international oil and servicing companies in these areas. What should be borne in mind is that oil companies are capital intensive business, therefore the human labour absorption is abysmally low. The problem of low employment was exacerbated by environmental degradation which led to low returns on other endeavours such as fishing, crop production and animal husbandry. Even the forest (mangrove) were not spared of the consequences of environmental degradation.

The outcome of the above, is that the area has a youthful unemployed population with nothing to do which is a recipe for agitation and conflicts. The situation is also aggravated by lack or decaying educational infrastructure which did not allow the youths to be equipped to be employed by the oil companies. The result is the oil pipe blow-ups and the Niger Delta Avengers “phenomenon” (Essor, 2016). These assertions are corroborated by Aning & Attah-Asamoah, (2011) who stated that

competition for environmental resources add to social tension and the conflict arising therefore causes environmental damage. Nnoli, (2003) confirmed that the future of the region was threatened by incessant incident of militancy, kidnapping and insecurity as a result of unemployment and poverty which in essence has grossly affected the tremendous potential for growth and sustainable development in the area.

4.1.6: Respondents Primary Occupation

Table 4.6: Distribution of Respondents according to Primary Occupation

Primary Occupation	Frequency	Percentage
Farming	162	42.6
Fishing	138	36.3
Transportation	49	12.9
Public/ civil service	20	5.3
Trading	11	2.9
Total	380	100.0

Source: Field Survey Data, 2019

The distribution of the respondents according to Primary Occupation is presented in table 4.6 above. The study revealed that farming (42.6%) and fishing (36.3%) are the major employment of labour in the area. The public service which include schools, ministries and government parastatals (5.3%), transportation (12.9%) and trading (2.9%). This finding is in agreement with the rest of Nigeria and indeed many developing economies which shows that Farming and fishing constitute the relatively high occupation of the respondents. However, Duru, (2014) reported that the resultant effect of the activities of oil exploration is the destruction of the main sources of occupation of oil producing communities which are fishing and farming through their effluents throw back on their environment, hence bringing about untold hardship on the people.

Many of these government employees are also farmers and fishermen but may be unwilling to be identified as such. Transportation is an important occupation at 12.9% because of the difficulty of access from the rural areas to the urban areas especially in the riverine areas of the survey while 17.1% were unemployed an indication that they had no primary occupation and hence ready instruments of violence.

4.1.7: Level of Education

Table 4.7: Distribution of Respondents according to level of Education

Level of Education	Frequency	Percentage
No Formal Education	44	11.6
Primary Education	143	37.6
Secondary Education	99	26.1
OND/HND/NCE	75	19.7
University Education	19	5.0
Total	380	100.0

Source: Field Survey Data, 2019

Table 4.7 presents the distribution of the respondents according to their level of education. The result of the study showed that primary school recipients constitute the highest percentage of respondents (37.6%) followed by secondary school recipients (26.1%). While these figures may be acceptable for an agrarian society that requires adoption of modern technology. However, when secondary education (26.1%) is combined with primary education (31.6%) and non-formal education of 11.6% form a total of 75.3%, the data shows a literacy level not suitable for modern times with quantum leaps in technology.

Education is a veritable tool that enhances individual perception and analysis of a given conflict situation. An individual with low literacy level is more likely prone to

conflicts because of lack of understanding in the handling of issues. Those with adequate educational attainments, like university graduates are circumspect and cautious in handling any conflict situation. This finding is in line with Oyefusi (2007) that concluded that the level of education for example a unit increase in education such as a movement from no formal education to complete primary education reduces the odds that an individual participates in violent protest and associated criminality. Cocodia in Essor (2016) also agrees with this position and argued that equity, justice, literacy level and external threats are key factors which determine the likelihood of conflict.

4.1.8 Membership of Social Organisation

Table 4.8: Distribution of Respondents according to Membership of Social organisation

Membership of Social Organisation	Frequency	Percentage
Yes	238	62.6
No	142	37.4
Total	380	100.0

Source: Field Survey data, 2019.

Table 4.8 shows the respondents membership of social organisation. The majority (62.6 %) of members belonged to one or more social organisation while 37.4% do not belong to any social organisation. The implications of the findings are multidimensional. Firstly, membership of social organisation makes it easy for social mobilization towards environmental remediation but it also becomes a platform for the struggles for equity and agitation. The struggle for equity or environmental justice can also lead to agitation and conflict which has a deleterious effect on sustainable development. Again, in resource mobilization, land holdings in rural Nigeria are

fragmented so a group such as cooperative organisation are beneficial as they will pool their land and financial resources together in order to increase production. The biological and chemical components of the soil are also improved as the co-operators can afford fallow period instead of continuous cropping on their fragmented land (Asiabaka & Asiabaka, 2010).

4.1.9: Income of Respondents

Table 4.9: Distribution of Respondents according to monthly Income

Income	Frequency	Percentage
0-10000	108	28.4
10001-20000	29	7.6
20001-30000	48	12.6
30001-40000	46	12.2
40001-50000	93	24.5
50001 and above	56	14.7
Total	380	100.0

$\bar{x} = 24,658$

Source: Field Survey Data, 2019

Table 4.9 shows the income distribution of the respondents. The highest interval is those earning between N40,000 and N50,000 per annum. This figure is closely followed by those earning above N50,000 per annum, then those earning below N20,000 and below 50,000 and those earning between 30,000 and 40,000 respectively. The percentages are 28.4%, 7.6%, 12.6% 12.2% and 14.7% respectively. The mean income is ~~N~~24,658 in the study area. A few facts can be deduced from this set of data. Firstly, this income is far below one Dollar per day with the Dollar at N360/ Dollar. It is either that the income misrepresents the actual income as it may have excluded other sources of activities and transfers from relatives

and friends local and abroad. This means that very high percentage of the respondents are poor which breeds discontent, agitation and conflict including communal conflicts (Cramer, 2005)

The second point is that the area is home to many international and national oil companies with their workers who live in apparent opulence with the necessities of life such as water, electricity and segregated living quarters when they are on duty. This situation elicits envy, jealousy and predilection to agitation and conflict (Essor, 2016) McCoy (2008) even contended that disproportionate conflicts take place in poor countries because conflicts exacerbate poverty. According to Fadama/World Bank (2011) report, income as in almost every endeavour poses a constraint to sustainable development. In this age of partnership between donor agencies and communities for obvious reasons, income deters individuals from participation. Projects and programmes demand stakeholder's participation in the form of counterpart funding, so that when they withdraw it is hoped that the communities would continue. However, this was not always the case because of the poverty level of the rural dwellers in donor-supported community development projects that required beneficiary's contribution. The state of environmental degradation also led to low agricultural yield, destruction of aquatic life, home displacement, loss of fishing ground and extreme poverty as noted Oyefusi, (2008)

4.1.10 Distance from Respondents home to project location

Table 4.10: Distribution of Respondents according to Distance from Respondents' home to project location

Project location	Frequency	Percentage
0-5km	96	25.8
6-10km	106	27.9
11-15km	50	13.2
16-20km	45	11.8
>20	81	21.3
Total	380	100.0

Source: Field survey data, 2019

Table 4.10 presents the distribution of distance from respondents' home to project location. Respondents reported that some of the projects were sited very far away from where they live, thereby limiting their access to the project when desired. The result showed that 25.8% of the respondents reported a distance of 0-5 kilometers, 27.9% reported a distance of 6-10 kilometers while 13.2% of the respondents reported a distance of 11-15 kilometers. The result further showed that 11.8% respondents reported 16-20 Kilometers while 21.3% reported a distance of 20kilometers and less.

Theoretically it is assumed that a centrally- located project will make for good accessibility. Where this is not so utilization becomes more difficult and therefore communities are deprived of the utility of the project to them; of course, this has negative effect on conflict, Environmental justice and sustainable development. However, effect of distance on development project will also depend on the type of project. Residents will have negative perception on a noise/ pollution projects and would prefer to live away from the project. At the same time for social projects such

as markets and water borehole, residents would prefer to be closer to the project (Thompson, 2018). Utility of the project and its social consequences therefore depend on the type of project.

4.2. Types and Levels of conflicts that exist in the study area.

4.2.1: Existence of conflicts

Table 4.11: Distribution of Respondents according to responses on the existence of conflicts in the study area.

Conflict	Frequency	Percentage (%)
Absence of conflict	30	7.89
Presence of conflict	350	92.11

Source: Field survey data, 2019

Table 4.11 above shows the distribution of Respondents according to their response on the existence of conflict in the study area. Overwhelming majority (92.11%) of the respondents answered in the affirmative while only 7.89% indicated that there was absence of conflict in the area. This result paints a picture of an environment that is conflict ridden. The implication is that development will be retarded and may not be sustained.

4.2.2: Types of conflicts in the study area.

Table 4.12: Types of Conflicts common in the study Area

Types of Conflicts Common in the study Area	Frequency	Percentage
Political conflicts	66	18.86
Social conflicts	30	8.57
Religious	24	6.86
Environmental conflicts	42	12.00
Social, political& environmental conflicts	101	28.86
Political and Environmental conflicts	16	4.57
cultism	25	7.14
Social, political, Religious and environmental conflicts	14	4.00
Social and political conflicts	30	8.57
Social and Religious conflicts	2	0.57
Absence of conflict	30	7.89
Total	380	100.0

Source: Field survey data, 2019

Table 4.12 above presents the distribution of respondents according to types of conflicts common in the study area. In order to ascertain the effects of conflict on sustainable environment, respondents were asked to identify the types of conflicts that occur in their community before and up to the point of the field survey. There were ten types of conflicts isolated by the respondents.

The ones that had elements of social, political and environmental factors elicited the highest response at 28.86%. This was followed by political conflicts at 18.86 %.

Environmental conflicts came third at 12 % followed by political and /or political with a tinge of social factors at 8.57%. It also showed that most conflicts that start off as environmental or social conflicts also end up having some political coloration. Evidence from group discussions even if tenuous, suggest that cultists are used to actualize various types of conflicts especially those of political, social and environmental nature. While scientific evidence may be difficult since there are no court judgments or police records to show such relationship, some studies allude to the misuse and manipulation of rival gangs, known locally as ‘cults’, for selfish political and clandestine purposes. These cults have proven ties with political leaders in the Delta region who use them during elections to intimidate opponents and rig votes (Polgreen, 2007). The down turn of this arrangement has brought so much violence to the region. Odoemene (2011) points out that they are causing so much problem because they need to get even with the politicians who used them during the elections only to get into office and ignore them. They promise to kidnap both politicians and their relatives and make the area ungovernable. The hoodlums who are now kings of the territory acquired power and influence under the watch of political godfathers who used them as political thugs and armed them with sophisticated weapons (Odoemene, 2011). Some suggest that it is an emerging source of conflict in the survey area. The least in occurrence is social and religious conflicts while religious conflicts alone account for 6.86% of the total conflicts.

4.2.3: Level of Conflicts

Table 4.13: Levels of Conflicts in the study Area.

Types of conflict	Very serious	serious	Not serious	Mean	SD	Remarks
Social	40(11.43)	72(20.57)	238(68)	1.43	1.19	Not serious
Political	318(90.86)	18(5.14)	14(4)	2.86	0.81	Very serious
Religious	40(11.43)	70(21)	240(68.57)	1.43	1.18	Not serious
Environmental	142(40.57)	176(50.28)	32(9.14)	2.31	0.62	Serious
Social, political & environ.	216(61.71)	99(28.29)	35(10)	2.52	0.68	Very serious
Political & environmental	106(30.29)	143(40.87)	101(28.85)	2.01	0.52	Serious
Cultism	286(81.71)	46(13.14)	18(5.14)	2.76	0.83	Very serious
Social, political, religious & env.	121(34.57)	163(46.57)	66(18.85)	2.16	0.57	Serious
Social & political	118(33.71)	170(48.57)	62(17.71)	2.17	0.59	Serious
Social & Religious	46(13.14)	110(31.43)	184(52.57)	1.55	1.14	Serious
Absence of conflict	30					

Source: Field survey data, 2019

GRAND MEAN = 2.2

Accepted level = ($\bar{x} \geq 2.0$)

Figures in parenthesis are percentages of responses

Total Respondents = 380

The distribution of respondents according to level of identified conflicts prevalent in the study area is presented in Table 4.13 above. The result shows that social conflict was not serious in the area (68%) and the mean score was 1.43. The result also shows

that political conflict was very serious (90.86%) with mean score of 2.86. Political conflicts appears high in the study area and this finding agrees with the findings of Odoemene (2011) which states that the hoodlums who are now kings of the territory acquired power and influence under the watch of political godfathers who use them as political thugs and armed them with sophisticated weapons.

Religious conflict was not serious (68.57%) with mean score of 1.43. However, the result shows that environmental conflict was serious (50.28 %) with mean score of 2.31. This was corroborated by Sagay *et al.* (2011) who reported that the degradation of the Environment is one of the functional causes of acrimonious relationships between communities and oil prospecting companies. Cultism was also rated as very serious from the response of the respondents (81.71%) with mean score of 2.76. Others are combinations of the different types of conflict common in the study area. From the result majority of the conflicts are above the mean level. It shows that conflicts that are serious or very serious were quite high. The implications of this on health, education and other development projects can only be very negative. It paints a picture of communities that are perpetually in conflict and crisis in varying degrees of severity. It also implies that personal liberty is breached and justice breached be they environmental, political or social and will also be inimical to development or stymie development that cannot be sustained.

4.3: Factors that predispose the respondents to conflicts.

Table 4.14 Factors that predispose Respondents to conflicts.

Likely causes of conflict	Frequency*	percentage	Ranking
Land dispute	237	62.4	2nd
Environmental degradation	300	78.9	1 st
Compensation payment	191	50.3	4 th
Lack of social & physical infrastructure	150	39.5	5 th
Political exclusion	98	25.8	6 th
Corruption and Inept Leadership	74	19.5	7 th
Cultism	211	55.5	3rd

*Source: Field survey Data, 2019. *Multiple Response*

Table 4.14 shows the distribution of respondents according to factors that predispose them to conflicts. This section gives the analysis of the causes of conflicts in the research area. The likely causes of conflicts include land dispute, environmental degradation, compensation payment, corrupt and Inept Leadership, political exclusion and cultism. In terms of degree of importance. The result revealed that environmental degradation was a major (78.9%) cause of conflict in the study area. Land dispute was 62.4% while cultism ranked 3rd with 55.5% and this may be due to debilitating unemployment and under employment and the emergence of political gangsterism in the area. Conflicts arising due to compensation paid was also high at 50.3%.

Lack of social and physical infrastructure was another source of conflict with 39.5% rating and this was supported by Duru (2014) who described the Niger Delta region as poor and one of its main problems is the lack of infrastructure and remoteness of

villages from clinic, schools, shops and other essential services and that they are extremely hostile to both oil companies and the government due to deprivations and so resort to warring with oil companies who have taken over their lands and means of livelihood. Conflict caused by political exclusion was 25.8% and corruption and Inept Leadership was 19.5%, this finding was supported by Mustapha (2010) who noted that corruption of the Nigerian elite both past and present was partly the trigger point of the Niger Delta failings.

4.3.2 Conflicts arising from the operations of the multinational companies

Table 4.15: Distribution of respondents according to conflicts arising from the operation of the multinational companies

Conflicts arising from the operations of multinational oil companies (MNOCs)	Frequency	Percentage
Conflicts from MNOCs	196	56.00
Conflicts from non MNOCs	154	44.00
Absence of conflict	30	7.89
Total	380	100.0

Source: Field survey data 2019.

Table 4.15 presents the distribution of respondents according to conflicts arising from the operations of multinational oil companies (MOCs). Respondents reported 56 % of conflicts arise from the operations of the multinational oil companies and this agrees with the findings of Pavsic (2012) that most natural conflicts occur due to the disagreement about the way in which those resources are extracted, the distribution of revenues from exploration and the level of involvement of the local population in the development decisions. There is also income disparity between the migrant oil explorationists and indigenous population which is a veritable source of conflict. The

state of environmental degradation has led to low agricultural yield, destruction of aquatic life, home displacement, loss of fishing ground and extreme poverty (Oyefusi, 2008) and as a result Sagay *et al.* (2011) reported that the degradation of the environment is one of the functional cause of acrimonious relationships between communities and oil prospecting companies. Environmental Conflicts in the Niger Delta mostly stem from the oil industry’s activities, which have degraded the land, contaminated neighboring bodies of water and groundwater, and polluted the air as a result, many communities have become frustrated and some groups decided to take violent action against the onslaught of destruction of their communities without proper compensation (Ibeanu, 2000; Ukiwo, 2007).

4.4: Conflict Resolution in the Study Area.

Table 4.16: Conflict Resolution methods in the study Area.

Conflict Resolution Methods	Frequency	Percentage
Legal process	62	17.71
Community elders/chiefs	58	16.57
Community Development committee	17	4.86
Women group	28	8.00
Youth group	1	0.29
Government	5	1.43
Legal process and community elders/chiefs	18	5.14
Legal process and community Development committee.	12	3.43
Legal process, community elders/chiefs, Community Development committee	63	18.00

Legal process, community Development

committee, youth group and government.	35	10.00
Legal process, community Elders/chiefs/government	40	11.43
Community Development committee, youth group and Government	1	0.3
Legal process and women group	1	0.29
Legal process and youth group	9	2.57
Absence of conflict	30	7.89
Total	380	100.0

Source: Field Survey data, 2019

Table 4.16 shows the methods of conflict resolution. The table showed that most of the conflict resolutions were by legal process, community elders / chiefs and women groups. Together they represent 42.28% though the women group resolution method was only 8%. The youth group is only 0.29%. In effect the youths actually had little or no input in conflict resolution but are very active participants in conflicts in the research area.

The inference is that women and youths play insignificant role in the conflict resolution process in the research area. The implication is obvious for environmental justice as lack of representation can lead to conflicts and retard sustainable development. In fact, the youths are even the “tools” used to operationalise conflicts; getting them involved may help to reduce conflicts According to Ezeanyika, *et al.* (1994) women are often underrepresented in rural organizations and institutions, have low levels of education and are poorly informed. This prevents them from having an equal say in decision-making processes to influence policy and strategy at municipal

level which was a form of environmental injustice as a result of lack of representation. Community leadership structure should not be ‘closed’ despite the observation by Wall *et al.* (2005) who noted that the socioeconomic status of people often limits their access to the decision-making process, excluding them from community affairs was confirmed in this study.

Also, the level of women participation in the adjudication process can also lead to environmental injustice. In an era where sensitivity to gender inequality is taking pre-eminence because of documented and undocumented gender bias in development, we can safely assume that absence or low level of women participation in conflict resolution can also exacerbate already negative situation and can lead to environmental injustice and lack of sustainable development. The women play active socioeconomic roles in the harsh Niger Delta environment and form the first line of defense against socioeconomic deprivations in the region (Ihayere *et al.*, 2014). However, the women have benefitted least from employment in the oil companies and have been excluded from minimal compensation arising from acquisition, pollution, and destruction of farmlands and fishing waters Olankunle, (2010) noted.

4.5: Environmental injustice prevalent in the study area.

4.5.1 Incidences of environmental injustice in the study area.

Table 4.17 Incidences of environmental injustice identified by the Respondents in the study area.

Incidences of environmental injustice identified	Frequency*	Percentage (%)
Incidence of Gas flaring	320	84.2
Incidence of land and water pollution	308	81.1
Incidence of Criss cross maze of oil pipelines on farm lands.	260	68.4

Multiple Response*

Source: Field Survey data, 2019

Table 4.17 above shows incidences of environmental injustice identified by the respondents in the study area. The result revealed that incidence of gas flaring was highest with 84.2%. Closely followed by incidence of land and water pollution with 81.1% while incidence of Criss- cross maze of oil pipelines on farm land was 68.4%. This agrees with the findings of Kareem *et al.*, (2012) who stated that all stages of oil exploitation negatively affect the environment, and the greatest single intractable problem caused by crude oil exploration in the Niger Delta is oil spillage. Other identified causes of environmental degradation are gas flaring, seismic surveys, canalization, dredging, and poor waste disposal (Donwa, 2011; Effiong & Etowa, 2012). Agbakwuru, (2011) noted that in the Niger Delta there are over 30,000 kilometres of pipelines Criss crossing the region and linking some 275 flow stations to various export terminals. This Criss crossing maze of oil pipelines have laid waste substantial stretches of farmlands and destroyed natural vegetation and this is injustice to the residents of the Niger Delta region.

The effects that result from oil and gas extraction activities for people in the Niger Delta region are extreme poverty without the basic provision of infrastructure (Imobighe, 2011). While the demand for oil from industrialized nations intensified, environmental injustices in oil rich areas such as the Niger Delta of Nigeria were increasingly observed (Ndubuisi & Asia, 2007). It has not only promoted environmental degradation and public health consequences, it has reinforced poor conditions and poverty for Niger Delta residents Ndubuisi & Asia, (2007), noted.

Duru (2014), argued that Niger Delta region which account for over 90 percent of Nigeria's oil production is blessed with vast hydrocarbon reserves, yet the region remains poor with largely undeveloped infrastructure. The region remains

impoverished with basic amenities such as health centres, electricity, pipe borne water, schools and good roads among others lacking. He further argued that the situation is aggravated by rapidly increasing population growth, coupled with negligible employment opportunities in the rural and urban areas. The physical environment is degraded and damaged in the process of oil production, while the people lose their source of livelihood as they are mostly fisher men.

4.5.2 Respondents Perception of Negative Impact of oil companies' activities

Table 4.18: Respondents Perception of Negative Impact of oil companies's activities

Negative Impact of oil companies' activities	Frequency	Percentage
Very high negative impact	225	59.2
High negative impact	49	16.6
Minimal negative impact	92	24.2
Total	380	100.0

Source: Field Survey data, 2019

Table 4.18 above shows the Respondents perception of the negative impacts of oil companies' activities in the study area. As earlier reported most of the conflicts and accompanying environmental injustice stems from the activities of multinational oil companies. Respondents were asked to state relatively how these companies' activities negatively impact on the communities and their environment. Table 4.22 shows the distribution of the respondents. Majority (59.2%) of the respondents reported very high negative impact. Those who reported high negative impact were 16.6% while 24.2% of the respondents reported minimal negative impact.

Respondents reported that the negative impacts arise, not only physically or biologically in terms of environmental damage but also in terms engineering conflicts consequent of the sharing or distribution of the compensations. In a particular case brother killed a brother in the confusion that arose out of the distribution of the compensation paid by the oil companies. The compensation also led to legal litigations amongst the communities on one hand and between the communities and the oil companies on the other hand. Apart from destruction of farm lands, some health hazards occasioned by the poisoned fumes from oil exploration led to deleterious consequences on the communities. The removal of a non-renewable resource such as oil usually causes some environmental damage. For aboriginal peoples the effects on native fauna and flora, on which the subsistence component of their economy depends, are of concern. While catastrophic events such as the effects of the Exxon Valdez oil spill on wildlife of the Alaskan coast are widely published, smaller-scale problems of this type- the destruction of local fish stocks in small creeks near oil field, occur more often (Ebeku, 2005). Angaye (2003) also stated that the impacts of oil exploitation on the oil mineral producing communities are in three folds. First, that it leads to environmental pollution, second, that it destroys the ecosystem and the ways of life of the people and that thirdly, the oil producing communities are generally underdeveloped.

The effects that result from oil and gas extraction activities for people in the Niger Delta region are extreme poverty without the basic provision of infrastructure (Imobighe, 2011). Oil spillage is the leading environmental hazard caused by crude oil exploration in the Niger Delta and constitutes significant economic, ecological, health, social, and political problems in Nigeria, and the Niger Delta in particular (Aro *et al.*, 2010; Atakpo & Ayolabi, 2009). Oil spills may result from operational

mishaps, equipment failure, and sabotage. In an environment that is aquatic, the oil sometimes flows on the water surface, encroaching shorelines by wind and wave actions invariably affecting the soil.

According to Ikporukpo, (2004) exploration and exploitation of oil reserves are two of the most destructive activities to the environment. They usually include the clearing of trees and the installation of drilling equipment and pipelines. Within this process, seismic activities and drilling are the most harmful to the environment. Seismic activities involve deforestation and the use of explosives to produce sub-surface maps, these have serious ecological impacts, with disruption of soil structure, vegetation, flora and fauna, and increases in deforestation and erosion rates. Drilling includes 'bush clearing' to make space for access roads and water pits (Ikporukpo, 2004) added. In mangrove areas, dredging is done to provide access routes, which creates major hydrological changes and ground water pollution. Furthermore, when oil is spilled in rivers or contaminates groundwater, it has a toxic effect because it enters the food chain through consumption of fish, agricultural crops, and drinking water (Essoka *et al.*, 2006; Ndubuisi & Asia, 2007).

According to Uyigue & Agho (2007) fish accumulated trace metals at a hundred-fold even when petroleum waste products were treated. Fish are very important to local livelihoods and the local economy in the Niger Delta. Such toxic chemicals in fish can be harmful to populations that consume these on a daily basis. Furthermore, some studies have found that bioaccumulation of these metals by plants and animal can occur, which can create more health consequences. Metals in crude oil have also impacted food crops in certain areas in the Niger Delta. One study found that food crops that were harvested in oil-producing areas had higher concentrations of these

metals than other areas (Ajayi *et al.*, 2006). This affects the mainstay of the rural economy of the Niger Delta, which is agriculture (Essoka *et al.*, 2006).

Nigeria is at the top of the list for countries that contribute to global emissions from gas flared around the world (Abdulkareem & Odigwre, 2006). Most of these flare sites are localised in the Niger Delta region, with over 100 flare sites that are almost never turned off. In some communities, there are so many flares that the villages are illuminated throughout the night, which have detrimental effects on people's livelihood and health (Dung *et al.*, 2008). There is also much evidence that gas flares stunt the growth of certain crops and release chemicals, which are then found in neighboring land and bodies of water. This is detrimental to the local economy because most Niger Delta residents are either involved in farming or fishing (Dung *et al.*, (2008) noted.

4.6 Constraints to environmental justice in the study Area.

The respondents mentioned the following factors as constituting constraints to environmental justice in the survey area. The government policies, community leadership structure, Lack of awareness, Low level of education, lack of political power, inadequate environmental laws and poor enforcement of available laws.

4.6.1 Government policies that constrain environmental justice

Table 4. 19: Government policies that constrain environmental justice.

Government policies that constrain	Frequency*	Percentage (%)
Environmental justice		
Lack of implementation of statutory requirement for local employment	251	66.1
Lack of sanctions on non-implementation of memorandum of understanding	229	60.3

Source: Field Survey Data, 2019

***Multiple responses**

Table 4.19 above shows government policies that constrain environmental justice in the study area. Majority (66.1%) of the respondents agreed that lack of implementation of government policies with respect to employment of the local population was a constrain to environmental justice. Policies that stipulate the required cadre of local employees are not fully implemented. Where there are Memorandum of Understanding (MOU), they are not implemented as when due or to the letters of the MOUs. Majority (60%) agrees that lack of sanctions on non - implementation of these memorandum of understanding pose as constrain to environmental justice. Litigations especially over a long period regarding non-implementation memorandum of understanding constitute another variant of environmental injustice. The length of court process and the cost of legal retainership which the respondents can ill afford also constitute a plank in the environmental injustice milieu; of recent however (2017/18) state government seem to be wading into communal disputes with the MNCs with a view to encouraging the MNCs to meet their corporate social responsibilities with respect to the local communities. There is also a perception that government officials sent to arbitrate between the

MNCs and the local populace most of the time dance to the tune of the MNCs or seem to have been compromised by the MNCs.

4.6.2: Community Leadership structure that constrain environmental justice

Table 4.20: Community Leadership structure that constrain environmental justice

Community leadership structure that constrain environmental justice	Frequency	Percentage (%)
Skewed Leadership against women and youth	304	80
Skewed Leadership against the poor	76	20

Source: Field survey data, 2019

Table 4.20 above shows the Community Leadership structure that constrain environmental justice in the study area. In most Niger Delta communities, the leadership structure is such that at the top of the leadership hierarchy is the Traditional or paramount ruler and he is assisted by Elders in council who are mainly family heads. These people have the traditional rights of decision making concerning the affairs of the community. Generally, the key elements of successful community-driven development projects have been identified to be participation, sustainability, social inclusion and enabling policy environment (Dahl-Ostergaad *et al.*, 2003). However, one major problem frequently encountered in rural communities especially in the Niger Delta is that of leaders' not conceding decision-making roles to other people especially in different development project situations. Some feel they could perform effectively in all situations thereby arrogating the roles of initiators, legitimizers, planners and executors to themselves alone for all projects. Community

leadership structure should not be 'closed' despite the observation by Wall *et al.*, (2005) that the socioeconomic status of people often limits their access to the decision-making process, excluding them from community affairs. Williams (1989) posits that by striving to involve new people in the leadership structure of a community, one may introduce new ideas and reach a broader segment of the community.

From the findings of the study, majority emphasized the skewed leadership structure as a source of environmental injustice. A total of 80% of the respondents suggest that the structure is skewed against women and youths while 20% of the respondents indicated that the structure is skewed against the poor. In spite of the relative equality and in some cases higher percentage in the population count, the women are not even represented at the highest echelon of the community leadership. Decisions are taken without recourse to the women and youth. This agrees with the findings of Ajayi & Otuya (2006) in Delta State which revealed that majority of women were socially, culturally and politically barred from participating in community development planning and decision-making process. This is particularly true of situations that bother on inheritance as women are still treated as chattels to inherit from their male children. Daughters are even worse off as they were expected to inherit from their husbands. While this situation is being tempered in some communities elsewhere but in the survey area the situation is still static. This was corroborated by Ezeanyika *et al.*, (2004). In the case of the youths, the lack of representation and enfranchisement coupled with unemployment and poverty has given rise to youth restiveness, cultism and the so-called militants and avengers phenomenon (Chukuigwe *et al.*, 2015).

4.6.3: Lack of Awareness as constraint to Environmental Justice

Table 4.21 Lack of Awareness as constraint to Environmental Justice

Lack of awareness as constraint Environmental justice	Frequency*	Percentage (%)
Lack of awareness of deteriorating effects of oil pipeline vandalization	215	56.6
Lack of awareness of agencies set up by government to monitor and ameliorate issues that deal with environmental damage	248	65.3
Lack of awareness of avenues of redress in case of environmental damage	224	59.0

Source: Field Survey data, 2019

***Multiple responses**

Table 4.21 above shows Lack of Awareness that constrain Environmental Justice. Lack of awareness of their environment can also lead to constraints to environmental justice and conflict as well as deter sustainable development. While awareness is not exactly education, however education can bring about awareness. A total of 56.6% of respondents were not aware of the effects of their own activities that deteriorates the environment such as oil pipeline busting. Their focus on the compensation to be received beclouds their appreciation of the environmental damage caused by these activities. Most of the respondents were also not aware of agencies set up by government such as Ministry of Environment which oversees the Environmental Protection Agencies that monitor and ameliorate issues that deal with environmental damage. Of course, references were made to legal aspects of environmental management and litigation consequences or recourse which the respondents were not even aware of. In other words they were not even aware of the avenues of redress if their environment is damaged. Lack of awareness also contributed to conflicts and negative effects on sustainable development, some, if not many conflicts could have

been averted if the communities realized or appreciated the negative consequences of conflicts on their communities and sustainable development.

4.6.4 Low level of Education as constraint to Environmental justice

Table 4.22: Low level of Education as constraint to Environmental justice

Low Level of education as constraint to environmental justice	Frequency *	Percentage (%)
Lack of appreciation of environmental facilities and laws due to low level of education	261	68.9
Lack of ability to seek for environmental information and remedies where there is infringement	232	61.1

Source: Field Survey Data, 2019

**Multiple Response*

Table 4.22 above shows Low level of Education as constraint to Environmental justice. Another constraint to environmental justice, reduction of conflicts and sustainable development is the low level of education. The result shows that 68.9% of the respondents agree that low level of education contributes to the lack of appreciation of environmental facilities, because education leads to appreciation of environmental facilities and laws. Majority (61.1%) also agree that low level of education was a hindrance to seeking environmental information and remedies where there is infringement. Education leads to the awareness of the need for the conservation of the environment for example the need to avoid excessive logging and forest conservation. Education improves awareness of the environment and the need to avoid environmental degradation. Appreciation of the need for parks and gardens is also enhanced by education. It is not just formal education but also informal education that can enhance environmental justice.

The same inference is made for the role of education in conflicts, Education leads to mutual understanding of the causes and solutions to conflicts and can help to ameliorate contentions that lead to conflict. Lack of sufficient education can also lead to activities that are not sustainable. For example, when people vandalise projects meant to improve the living standards of the communities development is retarded. Lack of education leads to self-disenfranchisement.

4.6.5: Lack of Political Power as constraint to environmental justice

Table 4.23: Lack of political power as constraint to environmental justice

Lack of political power as constraint to environmental justice	Frequency*	Percentage (%)
Lack of political representation	196	51.6
Lack of participation in the political process	202	53.2

Source: Field Survey Data, 2019

**Multiple response*

Table 4.23 above shows Lack of political power as constraint to environmental justice. In spite of the fact that the country is in a democratic political dispensation, respondents reported that lack of political power was a constraint to environmental justice. From the result above 51.6% agree that lack of political representation pose as constraint to environmental justice. In the current dispensation where representation is flawed by lack of democratic norms, people who are not from the zone may not appreciate the need for environmental laws to check environmental degradation. For over five years the petroleum Industry bill to seek for best practices in petroleum industry environment had been stalled in the National Assembly. They cite the reluctance or delay over the years in the passage of the Petroleum Industry Bill (PIB) which contains aspects of environmental protection in areas where oil prospection goes on. By simple percentages of 53.2% in the affirmative majority of

the respondents mentioned lack of participation in the political process as being responsible for lack of environmental justice implying that either their votes don't count or their voices are not taken cognizance in the shaping of environmental laws and implementation.

4.6.7 Inadequate Environmental Laws that constrain environmental justice

Table 4.24: Inadequate Environmental Laws that constrain environmental justice

Inadequate environmental laws that constrain environmental justice	Frequency*	Percentage (%)
Lack of provision in the Nigerian constitution for the inhabitant of the area to have appropriate control over the resources in their land	270	71.1
Silence in the Nigerian constitution pertaining to the right of fair hearing in respect to the environmental rights	222	58.4
Lack of adequate provision in the Nigerian constitution on who can prosecute where there is a breach in environmental rights	194	51.1

Source: Field Survey Data, 2019

**Multiple Response*

Table 4.24 above shows Inadequate Environmental Laws that constrain environmental justice. Another factor militating against environmental justice in the study area is inadequate Environmental laws. Majority (71.1%) agreed that lack of provision in the Nigerian constitution for control of their resources was a constraint to Environmental justice. This was corroborated by Uyigue & Agho (2007) who stated that the weakness in the Nigerian constitution to administer environmental justice and bestow the control of resources from the Niger Delta to the local people

is a major limiting factor to development in the Niger Delta. There is no provision in the constitution that allows the inhabitants of the area to have control over the resources from their land. Thus, the Nigerian constitution allows the Nigerian state and the oil companies to have total control of the oil resources from the region. The environmental commitments provided in the Nigerian constitution are not justiciable. The result also showed that 58.4% agree that pertaining to the right of fair hearing in respect to the environmental rights, the constitution is silent. Majority (51.1%) agree that the question as to who can prosecute when there is a breach in environmental rights is unresolved in the constitution. According to Onyeagucha, (1999) of Environmental Rights Action/Friends of the earth, Nigeria there cannot be enjoyment of environmental rights if people do not control their resources in order to determine how it is exploited; he further stated that only people who will directly suffer the negative impact of the activities should reserve the power to make the environmental laws guiding those activities.

4.6.8 Poor Enforcement of Available Environmental laws that constrain environmental justice

Table 4.25: Poor enforcement of available environmental laws that constrain environmental justice

Poor enforcement of environmental laws that constrain environmental justice	Frequency	Percentage (%)
Poor enforcement of laws requiring oil companies to set up gas utilization plants to use the “associated gas” from their operations to avoid gas flaring which is a major cause of environmental degradation.	264	69.5
Poor enforcement of laws against indiscriminate dumping of solid waste.	116	30.5

Source: Field Survey Data, 2019

Table 4.25 above shows Poor Enforcement of Available Environmental laws that constrain environmental justice. Another factor militating against environmental justice as noted by the respondents is poor enforcement of laws requiring oil companies to set up gas utilization plants to use the “associated gas” from their operations to avoid gas flaring (69.5 %) while 30.5% of the respondents agrees that poor enforcement of laws against indiscriminate dumping of solid waste constitute a constrain to environmental justice. These agree with the findings of Ugochukwu (2008) who stated that in 1969, Nigerian legislation required oil companies to set up facilities to use the “associated gas” from their operations within five years of commencement of production. In 1979, further legislation set a time limit of April 1980 for companies to develop gas utilization projects or face fines. However, without any gas utilization projects of its own, the government could not credibly enforce this legislation. World Bank information on the adverse effect of particulates, suggests that gas flaring from just one part of the Niger Delta (Bayelsa State) would likely cause annually 49 premature deaths, 4,960 respiratory illnesses among children and 120, asthma attacks (World Bank, 1995). This exposure violates Nigerian constitutional provision, for example, of the fundamental rights to life (Article 33) and to human dignity (Article 34), an environmental injustice. It also violates the rights guaranteed in the African Charter on Human and Peoples' Rights, for example, of every individual to enjoy the best attainable state of physical and mental health (Article 16) and of all peoples to a general satisfactory environment favorable to their development (Article 24). These literatures suggest that there are environmental laws but poorly enforced by the Nigerian Government and this is militating against environmental justice in the Niger Delta.

4.7 Factors that contributed to the sustainability of projects in the study environment.

Various development projects in the study area were analyzed to determine factors that facilitated the sustainability of the projects. The projects ranged from borehole, school building, craft centres, hospitals or health centres, markets, provision of agricultural inputs such as fertilizer and seeds to building of farm structure such as processing centres. These projects cut across agriculture, education, health and rural infrastructure.

The respondents were asked to identify by themselves the type of projects situated in their communities.

4.7.1 Types of Project

Table 4.26: Distribution of Respondents according to types of projects identified in the study area

Types of Projects	No of Respondents*	Percentages (%)
Borehole	114	30.0
School Building	128	33.7
Craft centres	84	22.1
Hospitals or health centres	27	7.1
Market	127	33.4
Provision of agricultural input(Fertilizers, seeds)	58	15.3
Building of farm structure like processing centres	29	7.6

Source: Field Survey Data, 2019

**Multiple Responses*

Table 4.26 above shows the distribution of Respondents according to types of projects identified in the study area. These projects cut across agriculture, education,

health and rural infrastructure. The projects identified by respondents were Borehole (30%), school Building (33.7%), craft centres (22.1%), Hospitals and Health centres (7.1%), Markets (33.4%), Provision of agricultural inputs (Fertilizers, seeds (15.3%), and Building of Farm Structure e.g Processing centres (7.6%).

4.7.2: Factors that contributed to the Sustainability of projects in the study Area.

Table4.27: Distribution of Respondents according to factors that contributed to sustainability of development projects in the study

Factors that contributed to sustainability of Development projects	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	SD	Remarks
Sensitization	124(32.6)	143(37.6)	85(22.4)	28(7.4)	2.96	0.73	Agree
Perception of the project fulfilling justice	90(23.7)	123(32.4)	70(18.4)	97(25.5)	2.54	1.02	Agree
Elite participation	44(11.6)	62(16.3)	166(43.7)	108(28.4)	2.11	1.15	Disagree
Broad based community support	101(26.6)	130(34.2)	59(15.5)	90(23.7)	2.63	0.96	Agree
Training	101(26.6)	118(31.1)	81(21.3)	80(21.0)	2.62	0.96	Agree
Non-complexity of Technology	142(37.4)	159(41.8)	41(10.8)	38(10.0)	3.06	0.70	Agree
Transmission Mechanism	106(27.9)	117(30.8)	81(21.3)	84(22.1)	2.69	0.89	Agree
Type of project (cultural sensitivity)	124(32.6)	131(34.5)	77(20.3)	48(12.6)	2.87	0.66	Agree
Distance from home to the project site	151(39.7)	178(46.8)	21(5.5)	30(7.9)	3.18	0.62	Agree
Income	191(50.2)	73(19.5)	65(17.1)	51(13.4)	3.06	0.66	Agree
Completion of project	203(53.4)	87(22.9)	46(12.1)	44(11.6)	3.18	0.69	Agree
Participation from scoping	233(61.3)	74(19.5)	32(8.4)	41(10.8)	3.31	0.99	Agree
Gender Participation	113(29.7)	117(30.8)	85(22.4)	65(17.1)	2.73	1.08	Agree

Source: Field Survey Data, 2019

GRAND MEAN 2.84

Accepted Level = ($\bar{x} \geq 2.5$)

Total Number of respondents = 380

Figures in parenthesis are percentage responses

Table 4.27 above shows the distribution of Respondents according to factors that contributed to the sustainability of projects in the study area. The result showed that

participation from scoping stage ($\bar{x} = 3.31$), completion of project ($\bar{x} = 3.18$), Distance from project site ($\bar{x} = 3.18$) were the most significant factors the respondents agreed that contributed to the sustainability of development projects in the study area. Where the community members were involved or participated from the scoping stage the projects were successful. Also, Projects that were centrally located enjoyed continuous use and maintenance while projects located especially outside the vicinity of the town or village were abandoned and fall into disuse. Example were a modern market and state of the art secondary school built by a local government and the shell Petroleum Development Company (SPDC) were abandoned and underutilized with lack of maintenance. Uncompleted projects were abandoned. From the table above complexity of technology ($\bar{x} = 3.06$), income ($\bar{x} = 3.06$), sensitization ($\bar{x} = 2.96$), Type of project (cultural sensitivity, $\bar{x} = 2.87$), Gender participation ($\bar{x} = 2.73$), Transmission mechanism ($\bar{x} = 2.69$), Broad based community support ($\bar{x} = 2.63$), training ($\bar{x} = 2.62$), perception of the project fulfilling justice ($\bar{x} = 2.54$) were all significant factors that contributed to sustainability of development projects in the study as rated by the respondents.

Income and financial considerations were found to be important factors in the realization of sustainability in community development projects. While this may sound obvious, three important variables were significant. The first is the amount of income at the disposal of participants. Respondents noted that their low income did not allow them to contribute required beneficiary contribution to enable them to participate in the project. The second which is derived from the first is the size of the project. Where the project was of a certain size, the respondents were unable to participate because they were expected to maintain projects after the promoters have left the scene for sustainability to hold. The low-income level did not allow them the

continuity requirements. Since the respondents agreed that sensitization was a contributory factor to sustainability, the obverse or corollary is that absence of sensitization can lead to conflict, environmental justice and lack of sustainable development.

Another factor identified as critical to sustainability is cultural sensitivity (Gittinger, 1985). Projects that are in tandem with local culture were more sustainable. For example, in some communities that are riverine fish production was more sustainable than crop production while in communities that are upland crop production were more sustainable. This was confirmed by Somiari (2016). From the table above a factor that contributed significantly to the success/ sustainability of the community development project in the study area is the consideration given to gender participation. Custom and tradition tends to constrain the participation of women in certain developmental activities and while some projects such as periwinkle gathering and cassava production allow mainly women participation. Where women were included the projects were significantly successful such as the example given above. This finding corroborates that of Deji (2007) who reported that the participation of women is inevitably significant to the success and sustainability of rural development projects and that the level of their participation determines the extent to which the project succeeds.

Yet another factor identified as contributed to the sustainability of the project was the transmission mechanism. During the Focus Group Discussion (FGD) it was discovered that projects that provided for adequate monitoring and evaluation such as the Fadama project monitored and supervised by the World Bank were more sustainable than the state government projects. The situation was worst with the local

government. The notion that government sponsored projects are for party stalwarts made their projects to rank the least in terms of sustainability. Broad base of community support was also important. For example, because of cultism activities villagers abandoned their farms be they livestock, fisheries or crops. However, in communities which stood up against the cultists, peace reigned and farmers returned to their farming activities. Provision of security by the community or neighboring watch also stalled or prevented cases of vandalism of projects such as bridges, schools and poultry farms. It was also reported that the perception of the projects fulfilling justice to the community helped the project to last longer. It was found out that vandalism and destruction of projects were minimized or absent when the project was perceived as filling the gap denied the community by previous administrations. This was the case for infrastructural facilities such as markets, bridges and boreholes.

From the table above, the only factor that was not accepted by the Respondents as a contributory factor to sustainability of projects in the study area is elite participation ($\bar{x} = 2.11$). The result is obvious because elite participation while being a stimulant to project creation may not be very necessary for project sustainability.

4.8: Stakeholder’s participation in the management of conflicts in the study area

Table 4.28: Distribution of respondents according to stakeholder’s Participation in the management of conflicts;

Sources of conflicts	Rating of stakeholders in the management of conflicts							
	Fed/state /local govt	Judiciary	Elders council	Women Group	Men’s group	Youth grp	Age grp	Non-govt org (NGO)
Communal/land rights	16(4.2)	120(31.6)	280(73.7)	2(0.5)	25(6.6)	25(6.6)	12(3.2)	0(0)
Fishing ground rights	155(40.8)	146(38.4)	45(11.8)	0(0)	10(2.6)	7(1.8)	5(1.3)	12(3.2)
Compensation from oil companies	161(42.4)	102(26.8)	56(14.7)	3(0.8)	10(2.6)	6(1.6)	2(0.5)	40(10.5)
Environmental degradation	196(51.6)	134(35.3)	20(5.3)	2(0.5)	7(1.8)	9(2.4)	7(1.8)	5(1.3)
Political disagreement	172(45.3)	160(42.1)	52(13.7)	8(2.1)	32(8.4)	10(2.6)	4(1.1)	2(0.5)
Grazing rights	161(42.4)	80(21.1)	43(11.3)	2(0.5)	15(3.9)	12(3.2)	36(9.5)	31(8.2)
Social disagreement (custom & Tradition)	11(2.9)	39(10.3)	106(27.9)	50(13.2)	16(4.2)	42(11.1)	61(16.1)	9(2.4)

N = 380

Figures in Parentheses are percentages of responses

Source: Field Survey Data, 2019

Table 4.28 above shows the distribution of Respondents according to Stakeholder’s participation in the management of conflicts. All over the world, it is now an accepted norm for stakeholders or citizens to participate in management of their environment

be it in governance, agriculture or business (Buckingham, *et al.*, 2005; Treves, *et al.*, 2006). The incessant conflicts in the Niger Delta region of Nigeria calls for solutions and one that is often touted because of its success is the stakeholder's participation in the management of conflicts in the research area.

In all the conflict management activities, the stakeholders were not active participants in the resolution of the conflicts. In most of the conflicts, the actual stakeholders were not direct participants in the resolution of the conflicts. It is either that the conflict was resolved through police action and the judiciary probably by sending some of the stakeholders to prison or remanded to be of good behaviour. Where the Traditional ruler and his cabinet were involved respondents felt that they have been compromised. The successes identified involved a multiparty involvement in the resolution of the conflict for example, the police, the judiciary in conjunction with the traditional rulers made what looks like peace no matter how temporary. That was true of communal land dispute and oil company compensations. Federal and state government participation in environmental conflict seemed to bring succor but that was only when a lot of money had been thrown at the conflict and the resource which was far above what the local stakeholders could afford had been lost or expended.

It is tempting to localize the stakeholdership as in the case of oil and environment, even the federal government is a stakeholder and they seriously participate in the resolution of environmental (oil) conflicts because oil remains a life wire for the country. For the relatively low level of conflicts such as oil company social responsibility, constraints seem to be the non-incorporation of the local stakeholders in the need assessment process (scoping) and the corrupt tendencies inherent in the distributions of financial components. Local stakeholders in the conflict management

could not or did not participate because *ab initio* they were not involved in the initialization of the projects and many did not even know the advantages of projects and the disadvantages of conflicts in such an environment. For example, most of the conflicts are self-destructive such as loss of investment, deterioration of the environment with its attendant health and economic costs.

Cultural disposition of the research area precludes women from occupation of leadership roles until recently (Ajayi & Otuya, 2006). This disposition also hampers effective dispensation of local justice which accelerate conflicts. In a particular case, women resorted to praying at the city centre every month and cultists subsequently joined and renounced cultism. While there may be no scientific proof as to the cause and effect of the prayer sessions, the women were given credit for their prayer intervention.

4.9: Community participation level in projects in the study area.

This objective was addressed under the following sub headings:

Responses on Participation in Development projects

Willingness of the Respondents to accept Development projects (WTA).

Level of community participation in development projects

4.9.1: Responses on Participation in Development projects

Table 4.29: Distribution of Respondents according to Participation in Development projects

Responses on participation in development project	Frequency	Percentage (%)
Participated	198	52.11
Did not participate	182	47.89
Total	380	100

Source: Field survey data, 2019

Table above shows the Responses of the Respondents on participation in the development project in the study area. From the table above 52.11% participated and 47.89% did not participate. The result shows that almost half of the respondents did not participate in development projects. Community participation can make services responsive to demand expressed by poor men and women as a result can enhance sustainability. As consumers, community members are the most legitimate, informed and reliable source of information about their own priorities. Participatory community-developed facilities such as health centers, schools and water supply systems tend to have higher utilization rates and are better maintained than when investment decisions are made by actors outside the community. This was corroborated by Nkom (1995). Therefore, there is need for increased participation of beneficiaries of development project to enhance sustainability.

4.9.2: Willingness of the Respondents to accept Development projects (WTA).

Table 4.30: Distribution of Respondents according to willingness to accept (WTA) Development projects.

Willingness to accept Development project(WTA)	Frequency	Percentages
Willingness to accept	338	88.5
Not willing to accept	42	11.5
Total	380	100

Source: Field survey data, 2019

Table 4.30 shows the willingness of the respondents to accept development project in the area of study. In order to examine the level of community participation on projects the respondents were asked to indicate their willingness to accept development project to ensure sustainability. Majority of the respondents (88.5%) were willing to accept development project and that is very important as it increases the potential for development projects cited in the area to be sustained. This is because acceptance increases the possibility of participation and participation which implies stakeholdership is expected to lead to sustainable development project in the area.

It can also be inferred that with acceptance leading to stakeholding and participation, environmental justice is enhanced as enfranchisement is promoted.

4.9.3: Level of Community Participation in development projects

Table 4.31: Distribution of Respondents according to level of participation in Development Projects.

Development projects	Not participated	Partially participated	Fully participated	Mean	SD	Remark
Agricultural projects	182(47.89)	6(1.58)	192(50.52)	2.03	1.71	Participated
Educational projects	182(47.89)	120(31.58)	78(20.53)	1.70	0.52	Not Participated
Health projects	182(47.89)	109(28.68)	89(23.42)	1.73	1.81	Not Participated
Market projects	182(47.89)	8(2.11)	190(50.00)	2.02	0.77	Participated
Rural Infrastructure (Roads& Electricity)	182(47.89)	168(44.21)	30(7.89)	1.60	1.64	Not Participated
Rural Micro credit programme	182(47.89)	9(2.37)	189(49.74)	2.02	0.61	Participated

Accepted level $\bar{x} = \geq 2$

GRAND MEAN = 1.85

Source: Field Survey data, 2019.

Figures in parentheses are percentages

Total Respondents is 380

The distribution of Respondents according to levels of participation in development projects in the study area is presented in table 4.31. The result shows that majority of the respondents (50.52%) fully participated in Agricultural projects and the \bar{x} score was 2.03; which indicates high level of participation. The people of the Niger Delta are predominantly farmers and fishermen and any development project targeted towards improving agriculture is likely to attract high participation. There was also high level of participation in market project (50%). The \bar{x} score was 2.02. This is

understandable because as stated earlier the people under survey have farming and fishing as their major occupation and as such are likely to be interested in market projects where they can market their produce and purchase inputs.

Rural micro credit programme \bar{x} score for participation was 2.02. This implies that some of the respondents participated in rural micro credit programme. Being mainly farmers and fishermen, access to finance was also lacking so any project tailored towards improving their asset base elicited a higher level of interest and participation. However, from the table above, there was low participation in health project ($\bar{x}=1.73$). The respondents reported that due to the negative activities of the hoodlums in the communities, most of the health workers including Medical doctors who were supposed to attend to patients in the hospitals and health centres abandoned the place for safety and security reasons and that elicited low participation and this is a form of disenfranchisement and hence injustice.

From the table above, there was also low participation in Educational project ($\bar{x}=1.70$) and rural infrastructural project ($\bar{x}=1.60$). This could be due to educational status of the respondents where the importance of education was not exactly valued as agricultural production. Building of schools and health centres seem to have been imposed from above and their locations did not take cognisance of the residence of respondents and cost constraints imposed because of the distance between where they live and where the school project was located. Often school and health projects are located where sufficient land may be available and it is most times on the outskirts of the community settlement. The next observation was that projects that was of technical nature such as roads and building of schools elicited lower levels or no participation because these projects may require the employment of contractors most

of who may not come from the community. Lack of participation did not allow for choice as to the type of development project for the community which is a form of disenfranchisement. The implications for environmental justice lies in the lack of participation or low level of participation even where the projects were meant for the community residents. For development to occur there is need for a greater participation of local people in development process which will change the nature and direction of development intervention as well as result in a type of development which will have local people's support and recognition (CASSAD, 1994)).

4.9.4: Areas of Participation in Development projects

Table 4.32: Distribution of respondents according to areas of Participation

Project	Area of participation	Frequency	Percentage
Agricultural project	Need Assessment	167	43.95
	Priority setting	120	31.57
	Programme planning	88	23.16
	Programme execution	134	35.26
	Financial contribution	146	38.42
	Programme evaluation	58	15.26
	None	182	47.89
Educational project	Need Assessment	115	30.26
	Priority setting	–	–
	Programme planning	–	–
	Programme execution	153	40.26
	Financial contribution	–	–
	Programme evaluation	–	–
	Need Assessment	–	–
Health project	None	182	47.89
	Priority setting	–	–
	Programme planning	–	–
	Programme execution	81	21.32

		Financial contribution	–	–
		Programme evaluation	–	–
		None	182	47.89
Market project		Need Assessment	164	43.16
		Priority setting	120	31.58
		Programme planning	110	28.95
		Programme execution	101	26.58
		Financial contribution	–	–
		Programme evaluation	–	–
		None	182	47.89
Rural Infrastructure (Roads & Electricity)		Need Assessment	109	28.68
		Priority setting	70	18.42
		Programme planning	–	–
		Programme execution	–	–
		Financial contribution	–	–
		Programme evaluation	–	–
		None	182	47.89
Rural micro credit programme (e.gAnchor Borrowers)		Need Assessment	167	43.95
		Priority setting	105	27.63
		Programme planning	70	18.42
		Programme execution	88	23.16
		Financial contribution	93	24.47
		Programme evaluation	106	27.89
		None	182	47.89

Source: Field Survey data, 2019* Multiple response

Table 4.32 presents the distribution of the respondents according to the areas of their participation in development projects. The areas of participation were in Need assessment. Priority setting, programme planning, programme execution, financial contribution and programme evaluation. The table shows multiple responses by the

respondents. The highest area of the respondents' participation in Agricultural projects was in need assessment (43.95%). Other areas were financial contribution (38.47%), programme execution (35.26%), priority setting (31.57%), programme planning (23.16%) and programme evaluation (15.26) while 47.89% of the respondents did not participate in Agricultural Development projects.

For Educational projects, the highest area of participation was in programme execution (40.26%) while 30.26% participated in Need assessment. However, 47.89% of the respondents did not participate in Educational projects.

In Health projects, the only area of participation by the respondents was in programme execution (21.32%) while (47.89%) did not participate in any area.

In market projects, the areas of participation were in need assessment (43.16%), priority setting (31.58%), programme planning (28.95%), programme execution (26.58%) while 47.89% did not participate in market projects.

In rural infrastructure (Roads and Electricity) the areas of participation were in Need assessment (28.68%), priority setting (18.42%) while 47.89% did not participate in rural infrastructural projects.

In Rural Micro Credit programme, the areas of participation were Need Assessment (43.95%), priority setting (27.63%), programme planning (18.42%), programme execution (23.16%), Financial contribution (24.47%), programme evaluation (27.89%) while (47.89%) did not participate in Rural Micro Credit Programmes.

Lack of participation in most of these areas of participation which could be attributed to several reasons including poor sensitization as reported by the respondents did not allow for choice as to the type of development projects for the community.

4.10: Factors that are common to both conflicts and environmental justice in the study area for policy formulation and implementation

To actualise this objective, a set of Probit regression analysis were undertaken with conflicts and environmental justice variables as dependent variables and socioeconomic variables earlier identified as the independent variables. (see hypotheses 1 and 2). These factors were then linked to determine how they relate to sustainable development. To operationalise objective 10 three methods were adopted

Firstly, the variables that were significant in both environmental justice equation and conflict equation were identified by inspection. The following socioeconomic variables were significant in both environmental justice and conflict equations. They were X_1 (age), X_2 (educational level), X_3 (sex), X_4 (Occupation/farming), X_6 (Income) X_8 (employment), X_{11} (distance of respondents' home to the development projects), X_{12} (participation of respondents in the design/implementation of the development project).

Table 4.33 Result of Correlation Matrix showing the relationship between conflicts, environmental justice and sustainability of development projects.

Correlations

Type	Variable	Statistics	Sustainability of development projects	Environmental justice	conflicts	
Spearman's rho	Sustainability of development projects	Correlation	1.000			
		Coefficient sig.(2-tailed)				
		N	380			
	Environmental justice	Correlation			1.000	
		Coefficient	0.67**			
		Sig.(2-tailed)	.006			
	Conflicts	Correlation				1.000
		Coefficient	-0.17**	-0.72**		
		Sig.(2-tailed)	.001	.622		
		N	380	380	380	

** Correlation is significant at the 0.05 level (2-tailed)

Source: Field Survey data, 2019

The second analysis was by the use of Spearman, rho correlation matrix.

Table 4.33 above presents the Result of Correlation Matrix showing the relationship between conflicts, environmental justice and sustainability of development.

The correlation matrix showed the relationship between Conflicts, Environmental Justice and Sustainable development. The correlation index between conflicts and environmental justice was -0.72 significant at 5% level. This implies an inverse relationship between conflicts and environmental justice. The inference is that

conflicts negatively affects environmental justice. This conclusion is rational in the sense that an environment of conflict affects negatively the welfare of the community. It affects women that do most of the farming; It affects children that are not directly involved in the conflicts and it retards the community development by scaring away developers in all aspects. It also even inhibits the community members from seeking legal and other individual right infringement redress. The correlation index between conflicts and sustainable development was -0.17. Even though its low, an atmosphere of peace promotes sustainable development, though conflict does not promote sustainable development.

From Table 4.33 it was also observed that there was a positive correlation between environmental justice and Sustainable development (0.67 significant at 5% level). This was also expected in that an environment of social justice will engender Sustainable development. Also, sustainable development projects vice-versa promotes an atmosphere of environmental justice. Projects will generate economic activities which will promote family wellbeing and educational improvements as Parents are able to put their ward through school with enhanced income.

Table 4.34: Chow Test outcome showing the relationship between conflict and Environmental justice in the study area.

RSSp	RSSc	RSSej	F*-Cal	F-Tab	Decision
3035	948	1030	1.53	1.83	F*cal < Ftab @5%. There is no difference. The coefficients are stable in the sets of equation.

Source: Field Survey data, 2019

$$F^*_{cal} = 1.53 < F_{tab} 1.83$$

Table 4.34 above presents the Chow Test outcome showing the relationship between conflict and Environmental justice in the study area. The third analysis was to confirm that the variables used in the two equations of environmental justice and conflicts emanated from the same population. To test this assumption the Chow Test (1960) was used to test the equality of coefficients from two sets of equations. From the result, F-calculated 1.53 is less than F-tabulated 1.83.

The conclusion is that same coefficients are being dealt with, implying that the variables that are significant in environmental justice are also significant in conflict. The inference is that any policy that reduces conflict also promotes environmental justice. The conclusion is that these sets of variables are from the same population. That the variables that are significant in the environmental justice equation are also significant in the equation of conflicts. Therefore, it can be inferred again that any policy prescription that targets the variables in conflicts also captures environmental justice . It is like using one stone to kill two birds.

4.11: Test of Hypotheses

4.11.1: Hypothesis 1:

Ho₁ Hypothesis 1 states that there is no significant relationship between socioeconomic characteristics (variables) and conflicts in the research area.

Table 4.35 Result of Probit regression analysis showing the relationship between the socioeconomic variables (X_s) and conflicts (Y) in the research area.

Variable	Coefficient	Std Error,	Z-Statistic,	Prob
C	-2.059098	0.615697	-3.344337	0.0008
X ₁	0.162237	0.057025	2.845013	0.0044 *
X ₂	-0.004640	0.051301	-1.990455	0.9279*
X ₃	-0.530350	0.137858	-3.847081	0.0001 *
X ₄	-0.008154	0.045429	-2.821470	0.0048*
X ₅	0.037323	0.027738	0.034653	0.3199
X ₆	-0.004290	0.099000	-2.128706	0.8936*
X ₇	0.023154	0.010681	0.001063	0.9195
X ₈	-0.210747	0.032078	-2.213375	0.0333*
X ₉	0.162945	0.139111	0.011328	0.2415
X ₁₀	-0.043058	0.038142	-1.128886	0.2589
X ₁₁	-0.042949	0.043672	-1.983450	0.3254*
X ₁₂	-0.041258	0.073928	-2.558077	0.5768*

Source: Field Survey data 2019

Sample size 380
 $R^2=0.5446697$ F =5.75
 *=Significance @5% level

Table 4.35 Presents the Result of Probit regression analysis showing the relationship between the socioeconomic variables (X_s) and conflicts (Y) in the research area. Its F ratio of F =5.75, and $R^2=0.54$ @ 5% level of significance.

The Pseudo R^2 is the value that gives R^2 obtained from the analysis which indicates the extent to which the various independent variables influence the dependent variable and being an index when multiplied by 100 it will show the percentage influence (Agwu & Olaolu, 2014). From table 4.35, $R^2 = 0.54$. From this value, the extent of influence is equal to 54%. This is the extent to which the model explains

the extent of influence of the socioeconomic characteristics of the respondents on conflicts in the study area leaving the remaining 46% unexplained due to the error term in the model. A fifty-four percent (54%) explanation suggests a moderate relationship between the dependent and independent variables.

F-ratio -This is the predictive power of the model and it is given as 5.75 on the table at 5% level of significance meaning that the cumulative effect of all the independent variables under study contributed significantly to the overall outcome of the study. This level of F-ratio confirms the accuracy of the predictive power of the model used in analyzing the objective. This implies that there is a significant relationship between the socioeconomic variables and conflicts.

From the results of the probit regression eight socioeconomic variables were significant at 5% levels which immediately debunks the null hypothesis that states that there was no significant relationship between the socioeconomic characteristics (variables) and conflicts in the research area. The variables that were significant are age, educational level, sex, income level, occupation, employment, distance of respondent's home from development project site and participation in project design and/ or implementation.

Age was positively significant to conflict ($Z=2.85$). The inference is that the older the population, the greater the conflicts. It may seem like a contradiction because we expect the mature people to shy away from conflicts because of known deleterious effects of conflicts. Moreover, where conflicts are observed, it looks as though the younger, energetic population are the ones involved but in actuality, the older, richer, politically- motivated population are the ones that fund these conflicts and mobilise the younger ones. The weapons of conflict are often procured by the older population

because they also tend to be richer; so it is not just enough to characterise conflicts in the survey area as a youthful phenomenon. In fact, everybody seems to be involved. However, solutions targeted to the youthful population such as employment creation may be segregated to cater for the adult population in terms of sensitization and orientation. The finding is at variance with the findings of Nyandiko (2017) which suggest that since Africa/Nigeria has a youthful population, it is the youth that are prone to conflicts. It therefore suggests that at least a way to resolution must target the adults mainly the leadership of the communities including paramount rulers and in fact the elites that are the financial barons. They are the ones in a position to acquire sophisticated weapons that are often used to fuel these conflicts. They are also to be consulted for effective conflict resolution. This finding agrees with the findings of Odoemene (2011) which states that the hoodlums who are now kings of the territory acquired power and influence under the watch of political godfathers who use them as political thugs and armed them with sophisticated weapons. He further states that the militants who are involved in illegal oil bunkering are equally sustained by higher and older powers making the country to lose billions of dollars' worth of revenue, as well as sea piracy.

Having made the observations above, it is no rocket science to infer that if these youths are gainfully occupied, the sponsors of conflicts may not have the willing tools to perpetuate their agenda. Provision of gainful employment will ameliorate the incessant conflicts in the area under survey.

Education is negatively significant to conflicts ($Z = -1.99$). The inference is that the more educated, the less the individual is prone to conflict. Education is akin to information and awareness so it can be inferred that educated people are better

informed and are likely to employ alternative conflict resolution process that does not lead to further conflicts. They are also likely to make informed judgements on issues of potential conflict. These include legal remedies and non-legal arbitration process that lead to peaceful resolution of potential conflict situation.

The dummy sex variable (women = 0) is significantly negatively correlated with conflicts. ($Z = -3.84$). The inference would be that women are not actively involved in conflicts. However, studies by Ihayere *et al.*, (2014); Odoemene, (2011) have shown that even when women are not actively involved in conflicts they and their children bear the greater brunt of conflicts especially conflicts resulting from environmental degradation. In other words, conflicts disproportionately affect women. Olankunle, (2010) noted that women have benefited least from employment in the oil companies and have been excluded from minimal compensation arising from acquisition, pollution, and destruction of farmlands and fishing waters; Often, the women are custodians of resources such as food, water, and firewood used for cooking. Fishing and gathering of seafood, and farming in the forest areas represent the primary sources of financial livelihood for rural women in the Niger Delta (Olankunle, (2010). During conflicts women are physically abused by local and invading combatants. According to Ibeanu (2000), the violent men in guise of frustration and deprivation fighting for their right are known to have been involved in criminal sexual acts that leave many women violated, dehumanised and broken. Odoemene (2011) noted that security forces sent by the government or petro businesses to contain insurgency in the Niger Delta used women's bodies as their battle fields; invade private homes, terrorise residents with beating and raping women and girls. The above-mentioned activities exacerbated by cultic youths who do the same to women who go to farms scaring them away from their farms, reducing

cultivation and harvests leading to food insecurity and more conflicts. The solution lies in women protection and empowerment which will likely fence the predatory disposition of their attackers. Women empowerment will enhance their families and lead to proper education of children devoid of cultic tendencies.

Variable X_4 (occupation of respondents) is negatively significantly related to conflict ($Z = -2.82$). This agrees with a priori expectations. The people under survey are in the Niger Delta and their major occupation include farming and fishing, as mentioned earlier and supported by literature (Dung *et al.*, 2008) whose farm lands are depleted and degraded by the activities of oil producing companies. These result in low yields and since they do not seem to have alternatives they resort to violence and conflicts.

The same is true of fisheries where the environmental degradation has led to loss of fish catch in quantity and quality. Fish and other sea food habitats are deluged with oil spillage and production is drastically reduced. When main occupation is deprived the result is conflict generation and exacerbation. There are also these aspects of carbonfluoro - emmission and photoperiodism that gives constant light (gas flaring) leading to loss of yield as photosynthesis is lost amongst the plants (Dung *et al.*, 2008).

The aspect that should not be lost is that this loss according to Odoemene (2011) of income makes their children to be continually dependent without appropriate education needed for upward mobility. The tendency is alienation and susceptibility to conflicts as they become willing tools.

The variable (X_6) income was again negatively significant ($Z = -2.13$) implying the higher the income, the less the respondent is prone to participate in conflict. This is

in agreement with known theories of income and risk preference (Chukuigwe & Albert, 2015). With higher income, people shy away from conflict and are actually risk averse. The obverse of this inference is that poverty breeds conflicts. Poverty is also associated with unemployment and therefore a high propensity to join the conflict crowd. Like the cliché' says "an idle mind is the devil's workshop". This agrees with the findings of Uyigue & Agho, (2007), Ibeanu (2000) that the dramatic increase of cases of pipeline vandalization is suggestive that the more the people are deprived of their means of livelihood, the more restless they become. Hence the poorer the people become, the more the cases of pipeline vandalization. Again, improvement in the economic environment in the research area will reduce the tendency for conflict.

Another significantly negative variable in this model is that of X_8 (employment. With the dummy 1 for employment and 0 for unemployment and a $Z = -2.21$. The fact remains that unemployment is high and rising and seem to fuel conflicts. All the cult leaders used to do to acquire followers is to give them food and guns follow. Several authors (Uyigue and Agho, 2007) suggest that unemployment is actually the root cause of conflict in Nigeria and particularly in the research area. The other inference is the impact of this environmental degradation on increase in unemployment. The loss of income engenders unemployment and as has been inferred earlier, idleness is the devil's workshop. These unemployed now trade their wars in conflicts and are ready tools to the elites especially the political class.

X_{11} which is distance of respondents' home from development project site in kilometers is barely significant ($Z = -1.98$). The variable is also negatively significant. It can be inferred that the farther away from the development project site the less the

utilization and therefore the less the interest in what happens as regards the project. Therefore, communities far from the point of negative impact may not be aggressive in settling scores as regards the project. Communities near a gas flaring site or an oil well or pipeline blow out are likely to be more piqued and react negatively in such event. They may not even be bothered about the utilization of such project which can go into disuse or moribund because they live far away from the project site.

Lastly the variable X_{12} which is participation in the project design and / or implementation is negatively correlated to conflicts ($Z = -2.56$). The implication is that if community members participate or are represented in the design and / or implementation of development project, there will be little room for conflicts or conflicts are minimised. When community members are properly sensitized or are made to be stakeholders in activities within the community such stakeholdership helps to minimize conflicts. These may be in the form of scoping and needs assessment before sitting development projects. It may also be cogent when blowouts occur and the community members are carried along before clean-ups. Such inclusion lead to reduction in conflict. For development to occur there is need for a greater participation of local people in development process which will change the nature and direction of development intervention as well as result in a type of development which will have local people's support and recognition (Centre for African settlement studies and Development (CASSAD, 1994).

4.11.2: Hypothesis 2:

Ho₂: Hypothesis 2 states that there is no significant relationship between the socioeconomic characteristics and environmental justice in the survey area.

Table 4.36: Result of the Probit regression analysis showing the relationship between the socioeconomic variables (X_s) and environmental justice (Y₂) in the research area. Environmental justice represented by participation

Variable	Coefficient	Std. Error	Z-Statistic	Prob
C	-2.059098	0.615697	-3.344337	0.0008
X ₁	-0.078951	0.074730	-1.986493	0.2907 *
X ₂	0.071383	0.068517	1.9811835	0.2975 *
X ₃	0.323179	0.061630	1.963779	0.0531*
X ₄	0.277786	0.104723	2.652595	0.0080*
X ₅	0.114332	0.100089	1.142305	0.2533
X ₆	-0.007715	0.042259	-2.12561	0.8551*
X ₇	0.091933	0.129951	0.082595	0.9342
X ₈	-0.011046	0.176285	-1.972523	0.0669 *
X ₉	-0.432819	0.182170	-2.375912	0.0175 *
X ₁₀	0.017488	0.048679	0.359257	0.7194
X ₁₁	-0.098456	0.060128	-2.637445	0.1015 *
X ₁₂	0.601120	0.098461	6.105150	0.0000 *

*: Significant @5% $R^2 = 0.56$ 'F' = 4.30

Source: Field Survey Data, 2019

Table 4.36 above presents the result of Probit regression analysis showing the relationship between the socioeconomic variables (X_s) and environmental justice (Y₂) in the research area. From table 4.36 the R² value equals 0.56. So from this value, the extent of influence is equal to 56%. A fifty six percent (56%) explanation suggests a moderate relationship between the dependent and independent variables.

F-ratio -This is the predictive power of the model and it is given as 4.30 on the table at 5% level of significance meaning that the cumulative effect of all the independent variables under study contributed significantly to the overall outcome of the study. This level of F-ratio confirms the accuracy of the predictive power of the model used

in analyzing the objective. This implies that there is a significant relationship between the socioeconomic variables and environmental justice.

From the estimated equation, nine variables were significant positively or negatively at 5% level of significance. Variable X_1 (age) is moderately significant at 5% level and is negative ($Z = -1.99$). There is an inverse relationship between environmental justice and the age of the respondents. Environmental justice is a relatively recent phenomenon that the older folks are not likely to be abreast with it. Since level of participation is given in this study as a surrogate for environmental justice, it is easily seen that as people age participation in project activities just like in any human endeavour diminishes. In fact older people are likely to be excluded or uninvolved in matters relating to environmental justice as they are excluded in social justice in general in this part of the world. This agrees with the findings of Day (2010) which called for more attention to be paid to the disconnect of age and environmental as well as the social justice system. In addition, the term 'justice' is becoming more inclusive and now comprising gender and age differences, and the rights of future generations (Buckingham-Hatfield *et al.*, 2005; Dobson, 1998).

Variable X_2 (educational level) is positively significant at 5% ($Z = 1.98$). Most of the literature reviewed (Hallinger *et al.*, 2013; Ames *et al.*, 2014) agree with low level relationship between education and environmental justice. Low level is not unconnected with the low level of literacy in the area under research. There seem to be a vicious circle going on in this area. The community members complain about marginalization while the oil company complain that there are no skilled community members that can take up jobs that are available. The conclusion is not that the community members should be ignored as that will amount to a recipe for conflict

but rather companies and governments should intensify the educational and skill acquisition programmes which are already in place in some of the communities to increase the probability of absorption into the oil companies or enable skills that lead to self-employment.

The next variable that is significant at 5% level is sex (X_3) ($Z= 1.96$). The literature is replete with the deleterious consequences of gender neglect (particularly the women) on justice and development. This subject has elicited substantial attention that even the United Nations designate aspects of her activities especially in research and development to women (Ihayere *et al.*, 2014). The subject matter assumes even greater significance in developing countries of Africa and Nigeria and in particular the area of research. With reference to the result of the probit regression, the coefficient for sex (X_3) is positive which implies that environmental justice is improved if the lot of the gender is improved. This is particularly true of women. The cliché that if you educate a woman you educate a nation and if you develop a woman, you develop a nation is relevant here. The reasons are that in the setting under consideration, most of the women which constitutes almost fifty-one percent of the population are hampered, socially, economically, politically and even culturally (NPC,1991).

In some parts of the riverine areas under consideration, women are indeed the breadwinners. All that the men do is to buy boats and nets and give to as many wives that go for the actual fishing and other sea food gathering. The men stay at the shore to await their arrival and get the fish ready for market. In other areas, the core aspect of farming such as land preparation including bush clearing is done by women. Most of the marketing especially plantain and banana are done by women under very risky

conditions. It is not uncommon site to see women hanging out of banana and plantain trucks from and to 'bush' markets.

Women are also disenfranchised in the area of access to capital acquisition from local commercial funds market. In leadership and social structure of the communities even when given a place, women are expected to play the second fiddle and politically they cannot muscle enough financing to go into this male dominated arena without male sponsorship (Otuya, 2006). Therefore, any suggestion that would enhance the capacity of women in all the areas mentioned are likely to reduce environmental injustice in the survey area.

The significant relationship between environmental justice and occupation (X_4) ($Z=2.65$) gives a lot of insight into the environment of farming and degradation in the research area. While improvement in the farming environment can positively improve the environmental injustice system, the low level of the coefficient at 0.27 shows that farming and farmers are on the receiving end of unfairness in the outcome of political and more importantly the economic consequences of the environmental degradation in the research area. Environmental degradation lead to low yield of the flora and fauna population which translates into low income which invariably translates into low participation in the political process and the vicious circle continues. Access to the justice system is also impaired, poverty level is increased, education is compromised and the resultant activities lead to restiveness, cultism and oil companies asset vandalization (Uyigue & Agho, 2007). It therefore implies that if the occupation (which is mainly farming and fishing) is enhanced, environmental justice is also enhanced the political environment will be open to many with increased

participation in the political and economic processes (Baghebo *et al.*, 2012; Bayode *et al.*, 2011).

The variable X_6 (income) was negatively significant at ($Z= -2.13$). The general perception of the negative or inverse relationship between wealth and justice holds sway in this study. Low level of income would not allow respondents access justice because as the cliché says “justice is costly”. With low level of income, respondents are not able to afford litigations cost even the environment is degraded. The low level of income and the high cost of remediation is beyond the reach of the relatively poor respondents. With the loss of sources of livelihood due to environmental degradation, they are also disenfranchised because they are unable to source the remedies to their disabilities.

Variable X_8 (employment) with the dummy 1 for employment and 0 for unemployment and a $Z= -1.97$ unemployment seem to be the order of the day. Unemployment is inversely related to environmental justice. Without employment, and with lack of social infrastructure, the basic necessities of life cannot be afforded. The study only confirms the obvious.

The variable X_9 (membership of social organisation) was negatively significant at ($Z=-2.38$). The implication is that lack of membership of social organisation will foster environmental injustice. It is expected that one of the gains of membership of social organisation is to enhance both individual and community social gains. Therefore, if respondents do not actually participate in their social organisations like village or women meetings, the ability to muster effort for social, economic and political gains is hampered. The obverse is that participation in or membership in social organisation will enhance environmental justice (Esor, 2016).

The next negatively significant variable in this model is X_{11} (distance of respondents home from development project site in kilometres) ($Z = -2.64$). If for example we use market or borehole for water as typical of development project, it will not be far-fetched to realise that if this site is far from the abode of utilizers, utilization will be compromised or it will lead to underutilization. Lack of utilization or underutilization is a form of disenfranchisement which in itself is an injustice. Examples exist in some rural local government areas where a modern market touted as a development project is sited at the outskirts of the village and for many years the market was not utilized and coercion has to be used to force the villagers to utilize the market to no avail (Essor, 2016). Another example of negative impact of distance of respondents' home from development project site is the siting of a borehole meant for the community in the compound of the leader of the community which was neither centrally located nor easily accessible at all times, Respondents lack of accessibility particularly at night which is also a form disenfranchisement leading to environmental injustice (Somari, 2016). Solution would therefore be to take the twin factors of accessibility and distance to homesteads into cognisance to improve environmental justice.

X_{12} which is the variable representing participation in project design and implementation is highly significant, ($Z = 6.1$). Studies by world bank subsidiaries (ADP, FADAMA etc) have shown that projects are not successful without stakeholders' participation and ownership. The Fadama project has gone ahead to implement this aspect of sustainable development by insisting on counterpart funding by participating farmers and governments. Absence of participation in the area of project design and implementation leads to project failure which in itself is equivalent to equity or consumer loss which translates to environmental injustice as beneficiaries lose the opportunities to maximize their welfare as a result of the presence of the

developmental project. By participation, projects are relatively assured of continuity in the absence of the initial project promoters Kuentzel (2005), Nelson & Wright (1995).

4.11.3: Hypothesis 3

Ho₃: Hypothesis 3 states that there is no significant relationship between the socioeconomic characteristics and sustainability of development projects in the study area.

Table 4.37: Result of Probit regression analysis showing the relationship between the socioeconomic variables (Xs) and sustainability of developmental project/programme (Y₃) in the study area. (Y=willingness to accept)

Variable	Coefficient	Std. Error	Z-Statistic	Prob
C	1.531223	0.801844	1.909626	0.0562
X ₁	0.006939	0.096660	0.071771	0.9428
X ₂	-0.198782	0.079384	-2.504062	0.0123
X ₃	-0.236527	0.225403	-1.969352	0.2940
X ₄	-0.255063	0.143544	-1.976901	0.0129
X ₅	0.103201	0.129916	0.794370	0.4270
X ₆	-0.104925	0.051651	-2.031438	0.0422
X ₇	0.181707	0.073086	0.486206	0.0756
X ₈	-0.125413	0.163394	-0.767550	0.4428
X ₉	-0.417348	0.228233	-1.973605	0.0675
X ₁₀	-0.174897	0.063627	-2.748783	0.0060
X ₁₁	-0.131257	0.065863	-1.992876	0.0463
X ₁₂	-0.140092	0.112731	-2.961271	0.2140

R² = 0.53 *Significant @5%
 'F' = 4.30

Source; Field Survey data, 2019

Table 4.37 Presents the result of Probit regression analysis showing the relationship between the socioeconomic variables (Xs) and sustainability of developmental project/programme (Y₃) in the study area. The Pseudo R² is the value that gives R² obtained from the analysis which indicates the extent to which the various independent variables influence the dependent variable and being an index when multiplied by 100 it will show the percentage influence (Agwu & Olaolu, 2014). From table 4.38 R² = 0.53. So from this value, the extent of influence is equal to 53 percent. This is the extent to which the model explains the influence of the socioeconomic characteristics of the respondents on the sustainability of development projects in the study area leaving the remaining 47percent unexplained due to the error term in the model. A fifty three percent (53%) explanation suggests a moderate relationship between the dependent and independent variables.

F-ratio -This is the predictive power of the model and it is given as 4.30 on the table at 5% level of significance meaning that the cumulative effect of all the independent variables under study contributed significantly to the overall outcome of the study. This level of F-ratio confirms the accuracy of the predictive power of the model used in analyzing the objective. This implies that there is a significant relationship between the socioeconomic variables and the sustainability of development projects in the area.

Eight variables were significant at 5% level of significance; the first variable that was significant at 5% is X₂ which is the educational level of respondents measured by the number of years in school. The Z= (-2.50). That is lack of education negatively affects sustainability. This result barely needs interpretation as education is important in terms of awareness and in the context of the development project. If the people are

educated it enables them to understand the importance of the project and if satisfied would buy into it leading to sustainability even when the promoters exit from the project. It is also easier to get the local people to participate in the project in terms of employment and maintenance of the project facilities if they have the requisite educational qualification. It leads to less vandalization of project assets. For example they would understand why it is detrimental to the local community to burst pipelines that result in health hazards to the immediate community, (Elaine, 2008) Posit that their acts of criminality are largely due to lack of education. One of the sore points between the communities and the international oil companies is the lack of competence to fill available employment opportunities, therefore, increase in education make it possible for local people to be recruited leading to a harmonious relationship between the communities and the companies which will ultimately lead to the sustainability of the project.

Sex (X_3) ($Z = -1.96$) is negatively significant at 5% level. That is sustainability of development project is negatively affected by gender inequality. Men and women participation increases the chances of the sustainability of projects. The literature is replete with the existence of gender inequality in the world and particularly in the developing countries. Equality of men and women are constrained by culture, legal, religious and biological considerations. As articulated by Robinson (2015) gender equality is the key to sustainable development. Increasingly it is being realized that increased women participation without prejudice to men's participation in development projects improves the sustainability of such projects.

X_4 (Occupation of the respondents) mainly farming, fishing and trading was negatively, significant as it relates to the sustainability of the project. ($Z = -1.98$) This

is especially so if the project has no relevance to their occupation. In other words, improper needs assessment within the community can undermine the sustainability of the development project (World Bank/Fadama 2008) as members of the community will have a non-challant attitude to the project.

X_6 (Income) is significant at 5% level ($Z = -2.03$). There are participatory costs associated with project promotion and sustainability. A higher income level enables respondents to take ownership of development projects by meeting the anticipated participatory costs. For example, a provision of borehole in a rural community will require generator to pump water. However, the generator will require fuel and servicing (maintenance). Income (X_6) is negatively significantly related to sustainable development ($Z = -2.03$) in four dimensions. Firstly, in terms of income inequality, where income is skewed against the poor, sustainability is deterred. The reason is that the poor cannot sustain the projects when the promoters hand it over to the community. However, when the income inequality is less skewed projects are sustained. The example from Rivers State Fadama shows that when the local government chairman undertakes to pay the beneficiary contribution the projects are sustained or where the political representative undertakes to write off the beneficiary contribution, the projects are sustained (Somiri, 2016) but where the beneficiary contribution are left to the farmers to contribute the projects are not sustained.

The second point is in terms of aggregate income. Where aggregate income is high enough, demand for productive service will exist. Therefore, for example if the demand for egg/broiler exists production of egg/broiler will be sustained because there is a ready market. The third aspect of the relationship of income and sustainable development project again lies in the ability of stakeholders being able to sustain the

project by being able to pay for incidental costs like fuel for generators in a bore hole project when the promoters leave. The World Conference on Agrarian Reform and Rural Development (WCARRD) declared that participation of the people in the institutions and systems which govern their lives is a basic human right and also essential for the realignment of political power in favour of the disadvantaged groups and for social and economic development (Asiabaka, 2010). Mikkelsen (2005) also contend that it is a widely held belief among development professionals that a higher level of income among community members will lead to more sustained projects and better long-term results. Financial Participation increases the monitoring of the decision-making process and from a social point of view, participation is a central element of Sustainability (Becker, 2014). Fourthly aggregate higher income level implies reduction in unemployment and consequent reduction in conflict which in turn leads to sustainable development.

X₉ (membership of social organisation) is negatively significant ($Z = -1.97$) which may be an indirect consequence. It could be that while membership is important, members are not carried along sufficiently to make greater impact, it may also be that membership of cultural groups are not given any special role in the execution, and maintenance of development projects or are not sufficiently involved in the initiation and implementation of development projects in the survey area.

X₁₀ (Membership status of respondents) is another significant variable at 5% level ($Z = -2.7$). Being a member of social organisation is not just good enough but being a member in substance is much more important. That is financial membership, portfolio holders in the organisation enhance participation and participation enhances

sustainability (Willard, 2009). Therefore, lack of effective participation in social organisations such as cooperative groups leads to loss of sustainability.

X₁₁ (Distance of respondents home from development project site in kilometres) is another significant variable at 5% level (Z= -1.99). Instances abound in the research area of markets built at the outskirts of the city ostensibly due to lack of space in the centre of town. These structures have remained unutilized or underutilized because community members found it more expensive to utilize them. In some cases, the development project is located in the vicinity of the paramount ruler and is not accessible if the ruler lives outside the immediate community as seems to be the case these days or if entry to the palace is regulated.

X₁₂ (participation in project design/Evaluation), this variable was negatively significant at 5% (Z= -2.96). The essence of participation in the project design and evaluation of project is to acquaint the stakeholders of the requirements of the projects including risks and funding requirement. This will enable the community members appreciate what is involved in any particular project and either ginger them or enable them seek for alternatives that are more acceptable because of their felt need. Acceptability will enable the communities to buy into the projects and reasonably act as stakeholders in terms of preservation and sustenance of the project.

If the community members are involved in the needs assessment and in the monitoring and evaluation of the projects, they would be able to assess the bottlenecks and seek answers that will enable the project to continue or be sustained after the promoters leave. This will also enable the community members to follow-up the Memorandum of understanding (MOU) between the companies and the communities which in turn leads to avoidance of conflict that promotes sustainability.

(Nkom, 1995). The low level of significance may be due to the fact that hitherto community members or respondents were not carried along in project design, implementation and evaluation in the research area. In other words, there was low participation of respondents in development project in the research area.

4.11.4 : Hypothesis 4

Ho₄: Hypothesis 4 states that there is no significant relationship between conflicts and sustainable development.

Two methods were used to determine the outcome of this hypothesis test.

The first is by inspection. By inspection the following Socioeconomic variables were significant for both conflict and in sustainable development project. (see Hypotheses 1 & 3) These were educational level (X₂), sex (X₃), Occupation (farming) (X₄), Income (X₆), the distance of respondents home to the development project site(X₁₁) and participation of respondents in the design/ implementation of development projects (X₁₂).

Table 4.38 Correlation Matrix showing the relationship between conflicts and sustainable Development

Correlations

Type	Variable	Statistics	Sustainability of development projects	conflicts
Spearman's rho	Sustainability of development projects	Correlation	1.000	
		Coefficient		
		sig.(2-tailed)		
		N	380	
		Correlation		
	Conflicts	Coefficient		
		Sig.(2-tailed)		
		N		
		Correlation		
		Coefficient	-0.17**	1.000
	Sig.(2-tailed)	.001		
	N	380	380	
	N			

** Correlation is significant at 0.05 level (2-tailed)

Source: Field data, 2019

Table 4.38 presents the Correlation Matrix showing the relationship between conflicts and sustainable Development. The second procedure is to look at the correlation Matrix showing the relationship between conflict and sustainability of development project. The correlation index is -0.17 on the scale of 0 and 1. This implies a negative relationship between conflict and sustainable development. It is negatively significantly correlated at 5% level of significance. The null hypothesis on the basis of this outcome is rejected. That is there is significant relationship between conflict and sustainable development. The inference is that any policy that reduces conflicts also promotes sustainable development.

4.11.5: Hypothesis 5

Ho₅: Hypothesis 5 states that there is no significant relationship between environmental justice and sustainable development.

Three methods were used to determine the outcome of this hypothesis test.

The first is by inspection. By inspection the following Socioeconomic variables were significant for both environmental justice and in sustainable development project (hypotheses 2&3). These were educational level (X₂), sex (X₃), Occupation (farming) (X₄), Income (X₆), the distance of respondents home to the development project site(X₁₁) and participation of respondents in the design/ implementation of development projects (X₁₂).

Table 4.39 Correlation Matrix showing the relationship between environmental justice and sustainable of development.

Correlations

Type	Variable	Statistics	Sustainability of development projects	Environmental justice
Spearman's rho	Sustainability of development projects	Correlation Coefficient	1.000	
		sig.(2-tailed)		
		N	380	
	Environmental justice	Correlation Coefficient	0.671**	1.000
		Sig.(2-tailed)	.006	
		N	380	380
		Correlation Coefficient		1.00
		Sig.(2-tailed)		0
		N		380

** Correlation is significant at 0.05 level (2-tailed)

Source: Field Survey data, 2019

Table 4.39 presents the Correlation Matrix showing the relationship between environmental justice and sustainable development. The second procedure is to look at the correlation Matrix showing the relationship between environmental justice and sustainability of development project. The correlation index is 0.671 on the scale of 0 and 1. This implies a positive relationship between environmental justice and sustainable development. It is also significantly correlated at 5% level of significance. The null hypothesis on the basis of this outcome is rejected. That is there is significant relationship between environmental justice and sustainable development. The implication is that where development projects are sustained, the welfare of the people will be improved.

Table 4.40: Chow Test outcome showing the relationship between Environmental Justice and Sustainable Development in the study area.

RSSp	RSSej	RSSsd	F*-Cal	F-Tab	Decision
3120	1033	1118	1.58	1.83	F*cal < Ftab @5%. There is no difference. The coefficients are stable in the sets of equation.

Source: Field Survey data, 2019

$$F^*_{cal} = 1.58 < F_{tab} 1.83$$

Table 4.40 presents the Chow Test outcome showing the relationship between Environmental Justice and Sustainable Development in the study area. The third procedure was the use of Chow test (1960) to see if there is equality between the

coefficients obtained from the two different samples- namely the coefficients derived from the environmental justice and the ones obtained for sustainable development (see chapter 3) From the result, F-calculated 1.58 is less than F-tabulated 1.83.

The conclusion is that same coefficients are being dealt with, implying that the variables that are significant in environmental justice are also significant in sustainable development. The inference is that any policy that promotes sustainable development also promotes environmental justice. The goal of sustainability is to guarantee unrestricted production, and trigger social, political, and financial innovations that would create new opportunities for previously impoverished and marginalized people (Odoemene, 2011).

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In conclusion there are observations that are made. Firstly, the study found that there are important variables of socioeconomic characteristics of the research respondents such as income, education, employment, sex, participation and location of project that are common to community conflicts, environmental justice and sustainable development projects in the research area.

Secondly, conflicts and environmental justice have an inverse relationship. That is environmental justice will not thrive in an atmosphere of conflicts. While conflicts have an inverse relationship with sustainable development, environmental justice has a positive relationship with sustainable development.

The third conclusion is that since the same variables that reduce conflicts promotes environmental justice, and also promote sustainable development, identification of those variables for one scenario or set of policy objectives can also be used to achieve the three objectives of conflict reduction, promotion of environmental justice and engendering sustainable development.

5.2 Recommendations

Based on the findings and conclusion of this work, the following recommendations are made:

Emanating from objective one, two, three and four the following recommendation are made:

Since the variables of education, income, participation and employment were significant in all the three areas, policy activities geared to improve these variables are likely to reduce conflicts, improve environmental justice and advance sustainable development activities. The variable of location of projects was also important in sustaining projects. In light of the examination, the accompanying suggestions were made:

1. First, there is the need to strengthen the educational infrastructure and management in the study area. The multinationals are doing something in this regard but since this is not their core business objective, it is done half-heartedly. It is the responsibility of both Local, State and Federal governments to carry out this social responsibility. This policy will reduce potentials for conflict, improve environmental justice and accelerate sustainable development activities in the survey environment.
2. The second plank of the recommendations is in the area of participation in activities in which community residents are related. For example, lack of participation in conflict management can escalate the conflicts with untold consequences. Also lack of participation in development projects also lead to unsustainability of the projects. It is therefore suggested that communities should be encouraged by development agencies to participate in projects which concerns them. This could be done by getting them involved from scoping to final evaluation of the projects. By this process environmental

justice is enhanced, development projects are sustained and conflicts avoided or minimized.

3. An aspect of participation which is always touted in memoranda of understanding but haphazardly applied is employment/ occupation. Some of the agencies argue that their outfits are capital-intensive with few openings for local employment, while others argue that the level of local education makes it impossible for them to absorb local residents. However, efforts geared towards improving the level of local content of education and employment even at the lower cadre can go a long way to achieving sustainability of development projects, improve environmental justice and reduce tendencies for local conflict. Low income is always given as an excuse for conflict and lack of participation, the recommendation is same as above. If the education milieu is improved, participation is enhanced, to improve the income level of the community is to suggest entrepreneurial schemes to enhance the income of the individuals and the communities at large. moreover, participating in Development programmes as corporate groups could also enhance the income of the group since resources can be pooled together. When income is improved maintenance of development projects is enhanced and sustained.
4. Gender (sex) discrimination can also be a barrier or constraint to sustainable development. As the cliché goes “develop a woman, you develop a nation” seems to capture the constraint that can follow because of absence of ladies cooperation in the advancement procedure. In most of these communities there is gender bias in education, financial matters, leadership structure, inheritance, and involvement in the political process. Limited opportunities

given to women by culture and law limit the participation of a significant percentage of the population in the development process. Men and women participation increases the chances of the sustainability of projects, there is therefore the need for increased women participation without prejudice to men's participation.

Also, even though women are not actively involved in conflicts, result shows that they and their children bear the greater brunt of conflict especially conflicts resulting from environmental degradation. The solution lies in women protection and empowerment which will likely fence the predatory disposition of their attackers. Women empowerment will enhance their families and lead to proper education of children devoid of cultic tendencies.

5. An aspect of the results that was negatively impacting in sustainable development projects was the location of the projects. Lack of space always lead to citing of the projects away from the community centre, however efforts should be made by development agencies to cite development projects where community members have access. Citing of projects in the palace of the chiefs or monarch should be avoided to enable access to all and sundry.
6. From objectives five, six and seven the following recommendations are made
7. From the study a major constraint to environmental justice was poor enforcement of available environmental laws requiring oil companies to set up gas utilization plants to use the "associated gas" from their operations to avoid gas flaring which is a major cause of environmental degradation, therefore it is recommended that these environmental laws be enforced by the

relevant authorities to minimize the damage caused by gas flaring in the study area.

8. Considering the negative impact of oil exploration and exploitation on the health of the people of Niger Delta region, it is important that oil companies operating in this area establish functional cottage hospitals in their host communities where adequate healthcare will be provided. This intervention will reduce the amount spent on healthcare by the people, promote harmonious relationship and reduce conflicts.
9. The study showed that oil exploration and exploitation in the study area is major causes of environmental degradation leading to reduction in crop yield and fish caught in quantity and in quality, resulting in the loss of their primary sources of livelihood, hence should be adequately compensated by government and the oil companies to ameliorate the effects of environmental degradation.
10. From the result, the married and single together constituted 81.6% of the respondents, an indication that issues of environmental justice and conflict affects virtually everyone within the community, therefore solutions to amelioration of environmental degradation and compensation due to conflicts should be community- based instead of the individualistic approach.

5.3 Suggestions for further studies

1. It is also recommended for further studies that there is the need to intensify the quantification of social variables such as justice, sustainable development, willingness to accept (WTA) and willingness to pay (WTP) concept. These

qualitative variables are transformed by surrogate which may not necessarily capture all the variable characteristics.

2. There is need for further studies to develop a systems approach programme to be able to determine levels of sustainability of development enterprise This will be particularly useful for investors into the area of development projects.

5.4 Contributions to Knowledge

1. Studies in conflict, justice and sustainability of projects have always been segmented but this study tried to bring the three phenomena together in a systematic analysis; the study tried to isolate the interconnectivity between conflict, environmental justice and sustainability of developmental projects.
2. The study also identified the constraints to environmental justice, which could guide policy makers and executors in making policy decision that may bring about equitable distribution of scarce resources in order to reduce incidence of conflicts and enhance sustainability of development projects.
3. Another contribution to knowledge is the attempt in this study to quantify social phenomena of conflict, environmental justice and sustainability of development.
4. Conflicts were resolved mainly through the legal process, therefore the need to make the legal process more available to the communities by making it cheaper and with improved infrastructures for efficiency to be achieved.
5. A significant contribution to knowledge is the realization from this study that it is possible to achieve desirable development objectives of absence of

conflicts, absence of social injustice and development sustainability using the same set of policy variables. For example, improvement in education can reduce injustice, conflicts and sustain development targets. In the same vein, improvement in education can improve employability, improve justice and sustain development activities.

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APPENDIX I

**FEDERAL UNIVERSITY OF TECHNOLOGY OWERRI
SCHOOL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY
DEPARTMENT OF AGRICULTURAL EXTENSION
RESEARCH QUESTIONNAIRE**

Dear Respondent,

I am a Ph.D Student of the above named University and Department, currently carrying out a study on “Assessment of the Effects of Conflicts Reduction and Environmental justice on Sustainable Development in the Niger Delta region, Nigeria”.

This research at the end would proffer recommendations that could help in the sustainable planning and development of the region.

I therefore, kindly solicit your cooperation in filling out the questionnaire, while assuring you that all furnished information would be treated with utmost confidentiality and strictly for academic purpose.

Thank you.

Chukuigwe Orokwu

Research Student.

Please fill in the blank spaces provided and tick the box(es) whose information applies to you.

Part A: Demographic Data

1. Name of Community
2. Name of Senatorial Zone
3. Name of Local Government Area.....
4. State
5. What is your Sex: Male Female
6. How old are you(Years)
7. What is your marital status ‘
 Single Married Separated/Divorced
 Widowed/Widowed
8. What is your household size.
 (a) 1-4 (b) 5-8 (c) 9-12 (d) 13 and above
9. What is your employment status.
 Employed Not employed
10. What is the range of your income per month? Please tick
 (a) 0-10,000 (b) 10,001-20,000 (c) 20,001-30,000
 (d) 30,001-40,000 (e) 40,001-50,000 (f) 50,001 and above
11. What is your primary occupation
 Farming Fishing Transportation
 Public Services Trading
12. What is the level of your formal education
 No formal education Primary Secondary
 OND/HND/NCE University
13. What is the distance from your home to project location?
 0-5km 6-10km 11-15km 16-20km >20
14. Are you a member of any social organization. Yes No
15. If yes tick as appropriate
 (a) Woman Association Youth Association
 Community Development Association Elders-in-council
 Cooperative Society Others specify
16. What is your membership status?
 Ordinary member Regular Attendant to meetings

Financial Member Executive Member

Part B :Questions Relating to Conflicts

17. Are there conflicts in your community. Yes No

18. What types of conflicts are common in your community?

Social conflicts Political Conflicts Environmental Conflict

Religious Cultism

19. How will you rate the level of conflict in your area?

(a) Social conflicts

Very serious serious not serious

(b) Political Conflicts

Very serious serious not serious

(c) Environmental Conflict

Very serious serious not serious

(d) Religious Cultism

Very serious serious not serious

(e) Cultism

Very serious serious not serious

(f) Social and Political

Very serious serious not serious

(g) Social and Religious

Very serious serious not serious

(h) Social, Political, Religious and Environmental

Very serious serious not serious

(i) Political and Environmental

Very serious serious not serious

(j) Social, Political and Environmental

Very serious serious not serious

20. What are the likely causes of conflicts in your community?

Land Dispute Environmental Degradation

Compensation Payment Lack of social & Physical Infrastructure

Political exclusion Corruption and Inept leadership.

Cultism

- 21 Have you witnessed any conflict arising from the operation of the multinational oil company(ies) operating in your village / area as a result of environmental degradation? Yes No.
- 22 How are conflicts resolved in your village/Area?
- Legal process Community Elders/Chiefs CDC
- Woman group Youth group
- Combination of legal process & community Elders/Chiefs
- Legal process & CDC members Legal Process/Community
- Elders/Chiefs/ CDC
- Legal process/CDC/Youth group/Government
- Legal process/community Elders/Chiefs/government
- CDC/youth group & government
- Legal process & women
- Legal process & youth group
- 23 Are there compensations paid? Yes No

Please tick as appropriate stakeholders that are involved in the management of the following conflicts in your area.

- 24 Community/land rights:
 Fed/State/local Govt. Judiciary
 Elders Council Women group Men's group
 Youth group Age group Ngo.
- 25 Fishing ground rights:
 Fed/State/local Govt. Judiciary
 Elders Council Women group Men's group
 Youth group Age group NGO.
- 26 Compensation from oil companies:
 Fed/State/local Govt. Judiciary
 Elders Council Women group Men's group
 Youth group Age group NGO.
- 27 Environmental degradation:
 Fed/State/local Govt. Judiciary
 Elders Council Women group Men's group
 Youth group Age group NGO.
- 28 Political disagreement:
 Fed/State/local Govt. Judiciary
 Elders Council Women group Men's group
 Youth group Age group NGO.
- 29 Grazing rights:
 Fed/State/local Govt. Judiciary
 Elders Council Women group Men's group
 Youth group Age group NGO.
- 30 Social disagreement (customs and tradition):
 Fed/State/local Govt. Judiciary
 Elders Council Women group Men's group
 Youth group Age group NGO.

Part C: Questions Relating to Environmental justice

Please tick as Appropriate:

31 What incidences of Environmental injustice are prevalent in your area.

Incidence Gas flaring Incidence of land and water pollution

Incidence of Crises Cross maze of oil pipelines on farm land

Others specify

32 Are there negative impacts of oil companies activities in your area.

Yes No.

33 If your answer is yes above, how do you perceive the negative impact of oil companies in your area?

Very high negative impact High negative impact Highs impact

Minimal negative impact

34 Are you aware of any environmental management programmes put in place in your community? Y No

35 Is there presence of memorandum of understanding between your community and the oil exploring companies in your commy? Ye
No

36 If there is, to what extent is the MOU being adhered to

37 Highly adhered:

Moderately adhered Adhered Fairly adhered

Not adhered

38 What factor(s) do you think is (are) constraints to environmental justice in your area.

(A) Government policies (B) Community Leadership structure.

(C) Lack of Awareness (D) Lack of political power

(E) Low level of Education (F) Inadequate environmental laws

(G) Poor enforcement of available environmental laws.

39 If your answer is yes in 26(a) above, tick as appropriate.

(a) Lack of implementation of statutory requirement for local
employment

(b) Lack of sanctions on non-implementation of memorandum of understanding

40 If your answer is yes in 26(b) above, tick as appropriate

a. Skewed leadership against women and youth

b. Skewed leadership against the poor

- 41 If your answer is yes in 26(c) above, tick as appropriate.
- a. Lack of awareness of deteriorating effects of oil pipeline visualization
 - b. Lack of awareness of agencies set up by government to monitor and ameliorate issues that deal with environmental damage
 - c. Lack of awareness of avenues of redress in case of environmental damage.
- 42 If your answer is yes in 26(d) above, then tick as appropriate.
- a. Lack of appreciation of environmental facilities and laws due to low level of education
 - b. Lack of ability to seek for environmental information and remedies where there is infringement
- 43 If your answer is yes in 26(e) above, then tick as appropriate.
- a. Lack of political representation
 - b. Lack of participation in the political process
- 44 If your answer is yes in 26(f) above, then tick as appropriate.
- a. Lack of provision in the Nigeria constitution for the inhabitant of the area to have appropriate control over there sources in their land
 - b. Silence is the Nigerian constitution pertaining to the right of fair hearing in respect to the environmental rights.
 - c. Lack of adequate provision in the Nigeria constitution on who can prosecute where there is a breach in environmental rights.
- 45 If your answer is yes in 26(n) above, then tick as appropriate.
- (i) Poor enforcement of law requiring oil companies to set-up gas utilization. Plants to use the “associated gas” from their operations to avoid gas flaring which is a major cause of environmental degradation.

Part D: Questions Relating to Developmental activities

- 46 Are you aware of any developmental project initiated in your community?
 Yes No
- 47 Who initiated the project(s)
 Govt. Oil company(ies) IDA NGOS Others specify
- 48 If your answer is Yes to (35) above would you please tick. The developmental project (s) that are initiated in your community:
 Borehole, school building, craft centre, Hospital or Health centre, Market, Provision of Agricultural inputs (seed, fertilizer etc); building of farm structures like processing centres, poultry pens etc.
- 49 Are the projects completed or on-going .completed on-going
- 50 What is the distance from yours home to project location
 0-5km 6-10km 11-15km 16-20km >20km
- 51 Did you participate in development projects/programmes. Yes No
- 52 In which area did you participate

NAME OF PROJECT	NEED ASSESSMENT	PRIORITY SETTING	PROGRAMME PLANNING	FINANCIAL CONTRIBUTION	PROGRAMME EVALUATION

Part E: Questions relating to sustainable development

- 53 Are you willing to accept development projects.
 Willingness to accept State reason
 Not willing to accept State reason.....
- 54 Are you willing to pay for the maintenance of development projects.....
- 55 If yes state reasons.....
- 56 If No state reasons

Please tick as appropriate:

63. The following factors contribute to sustainability of development projects in your area.
1. Sensitization of the community by project promoters.
 Strongly agree Agree Disagrees
 Strongly Disagree

2. Perception of the project fulfilling justice.
 Strongly agree Agree Disagrees
 Strongly Disagree
3. Elite participation. Strongly agree Agree Disagrees
 Strongly Disagree
4. Broad based community-support. Strongly agree Agree
 Disagrees Strongly Disagree
5. Complexity of technology . Strongly agree Agree
 Disagrees Strongly Disagree
6. Transmission Mechanism. . Strongly agree Agree
 Disagrees Strongly Disagree
7. Type of project (cultural sensitivity) Strongly agree Agree
 Disagrees Strongly Disagree
8. Completion of project. Strongly agree Agree Disagrees
 Strongly Disagree
9. Participation from scoping. Strongly agree Agree Disagrees
 Strongly Disagree
10. Gender participation. Strongly agree Agree Disagrees
 Strongly Disagree

Please tick as appropriate your level of participation in the following developmental projects.

1. Agricultural projects. Not participated Partially participated Fully participated
2. Education projects. Not participated Partially participated Fully participated
3. Health projects. Not participated Partially participated Fully participated
4. Market projects. Not participated Partially participated Fully participated
5. Rural Infrastructure (Roads & Electricity).
Not participated Partially participated Fully participated
6. Rural micro credit programme. Not participated Partially participated
Fully participated

APPENDIX II

Results of data analysis Showing the following:

Table 1: Probit regression analysis showing the effects of socioeconomic characteristics on conflicts (Y₁)

Dependent Variable: Y1 (conflicts)
 Method: ML - Ordered Probit (Quadratic hill climbing)
 Date: 11/29/18 Time: 13:13
 Sample: 1 380
 Included observations: 380
 Number of ordered indicator values: 5
 Convergence achieved after 5 iterations
 Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.059098	0.615697	-3.344337	0.0008
X1	0.162237	0.057025	2.45013	0.0044
X2	-0.004640	0.051301	-1.990455	0.9279
X3	-0.530350	0.137858	-3.847081	0.0001
X4	-0.008154	0.045429	-2.821470	0.0048
X5	0.037323	0.027738	0.034653	0.3199
X6	-0.004290	0.099000	-2.128706	0.8936
X7	0.023154	0.010681	0.001063	0.9195
X8	-0.210747	0.032078	-2.213375	0.0333
X9	0.162945	0.139111	0.011328	0.2415
X10	-0.043058	0.038142	-1.128886	0.2589
X11	-0.042949	0.043672	-1.983450	0.3254
X12	-0.041258	0.073928	-2.558077	0.5768

Limit Points

LIMIT_2:C(13)	0.365886	0.462117	0.791761	0.4285
LIMIT_3:C(14)	1.395734	0.464988	3.001660	0.0027
LIMIT_4:C(15)	2.941379	0.491369	5.986094	0.0000
LIMIT_5:C(16)	3.156671	0.503908	6.264379	0.0000

Pseudo R-squared	0.5446697	Akaike info criterion	2.335512
Schwarz criterion	2.501414	Log likelihood	-427.7473
Hannan-Quinn criter.	2.401343	Restr. log likelihood	-448.7002
LR statistic	41.90573	Avg. log likelihood	-1.125651
Prob(LR statistic)	0.000035		

ORDERED(D=N) Y1 C X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12

Estimation Equation:

$$Y1 = C(1)*X1 + C(2)*X2 + C(3)*X3 + C(4)*X4 + C(5)*X5 + C(6)*X6 + C(7)*X7 + C(8)*X8 + C(9)*X9 + C(10)*X10 + C(11)*X11 + C(12)*X12$$

Substituted Coefficients:

$$I_Y1 = 0.162*X1 - 0.005*X2 - 0.530*X3 + 0.008*X4 + 0.077*X5 - 0.004*X6 + 0.128*X7 + 0.211*X8 + 0.163*X9 - 0.043*X10 - 0.043*X11 - 0.041*X12$$

Table 2: Probit regression analysis showing the effects of socioeconomic characteristics on environmental justice (Y₂)

Dependent Variable: Y2 (environmental justice)
 Method: ML - Binary Probit (Quadratic hill climbing)
 Date: 11/29/18 Time: 14:06
 Sample: 1 380
 Included observations: 380
 Convergence achieved after 5 iterations
 Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.059098	0.615697	-3.344337	0.0008
X1	-0.078951	0.074730	-1.986493	0.2907
X2	0.071383	0.068517	1.981183	0.2975
X3	0.323174	0.061630	1.963779	0.0531
X4	0.277786	0.104723	2.652595	0.0080
X5	0.114332	0.100089	1.142305	0.2533
X6	-0.007715	0.042259	-2.125612	0.8551
X7	0.091933	0.129951	0.082595	0.9342
X8	-0.011046	0.176285	-1.972523	0.0669
X9	-0.432819	0.182170	-2.375912	0.0175
X10	0.017488	0.048679	0.359257	0.7194
X11	-0.098456	0.060128	-2.637445	0.1015
X12	0.601120	0.098461	6.105150	0.0000
McFadden R-squared	0.569151	Mean dependent var		0.268421
S.D. dependent var	0.443722	S.E. of regression		0.418633
Akaike info criterion	1.058268	Sum squared resid		64.31800
Schwarz criterion	1.193063	Log likelihood		-188.0709
Hannan-Quinn criter.	1.111755	Deviance		376.1418
Restr. deviance	442.0784	Restr. log likelihood		-221.0392
LR statistic	65.93652	Avg. log likelihood		-0.494923
Prob(LR statistic)	0.000000			
Obs with Dep=0	278	Total obs		380
Obs with Dep=1	102			

Estimation Command:

=====
 BINARY(D=N) Y2 C X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12

Estimation Equation:

=====
 $I_Y2 = C(1) + C(2)*X1 + C(3)*X2 + C(4)*X3 + C(5)*X4 + C(6)*X5 + C(7)*X6 + C(8)*X7 + C(9)*X8 + C(10)*X9 + C(11)*X10 + C(12)*X11 + C(13)*X12$

Substituted Coefficients:

=====
 $Y2 = -2.060 - 0.079*X1 + 0.071*X2 + 0.323*X3 + 0.278*X4 + 0.114*X5 + 0.008*X6 + 0.119*X7 + 0.011*X8 - 0.433*X9 + 0.017*X10 - 0.098*X11 + 0.601*X12$

Table 3: Probit regression analysis showing the effects of socioeconomic characteristics on sustainability of developmental projects/programmes (Y₃)

Dependent Variable: Y3 (sustainability of developmental projects/programmes)
 Method: ML - Binary Probit (Quadratic hill climbing)
 Date: 11/27/18 Time: 16:50
 Sample (adjusted): 1 379
 Included observations: 258 after adjustments
 Convergence achieved after 5 iterations
 Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.531223	0.801844	1.909626	0.0562
X1	0.006939	0.096660	0.071771	0.9428
X2	-0.198782	0.079384	-2.504062	0.0123
X3	-0.236527	0.225403	-1.969352	0.2940
X4	-0.255063	0.143544	-1.976901	0.0129
X5	0.103201	0.129916	0.794370	0.4270
X6	-0.104925	0.051651	-2.031438	0.0422
X7	0.181707	0.073086	0.486206	0.0756
X8	-0.125413	0.163394	-0.767550	0.4428
X9	-0.417348	0.228233	-1.973605	0.0675
X10	-0.174897	0.063627	-2.748783	0.0060
X11	0.131257	0.065863	1.992876	0.0463
X12	-0.140092	0.112731	-1.961271	0.2140
McFadden R-squared	0.533908	Mean dependent var		0.267442
S.D. dependent var	0.443485	S.E. of regression		0.424318
Akaike info criterion	1.129879	Sum squared resid		44.11113
Schwarz criterion	1.308904	Log likelihood		-132.7544
Hannan-Quinn criter.	1.201866	Deviance		265.5088
Restr. deviance	299.6401	Restr. log likelihood		-149.8200
LR statistic	34.13128	Avg. log likelihood		-0.514552
Prob(LR statistic)	0.000643			
Obs with Dep=0	189	Total obs		258
Obs with Dep=1	69			

BINARY(D=N) Y3 C X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12

Estimation Equation:

$$I_Y3 = C(1) + C(2)*X1 + C(3)*X2 + C(4)*X3 + C(5)*X4 + C(6)*X5 + C(7)*X6 + C(8)*X7 + C(9)*X8 + C(10)*X9 + C(11)*X10 + C(12)*X11 + C(13)*X12$$

Substituted Coefficients:

$$Y3 = 1.531 + 0.007*X1 - 0.199*X2 - 0.237*X3 - 0.255*X4 + 0.103*X5 - 0.105*X6 + 0.182*X7 - 0.125*X8 - 0.417*X9 - 0.175*X10 + 0.131*X11 - 0.140*X12$$

Table 3: Probit regression analysis showing the effects of socioeconomic characteristics on willingness to accept compensation for damages (Y₄)

Dependent Variable: Y₄ (willingness to accept compensation for damages)
 Method: ML - Binary Probit (Quadratic hill climbing)
 Date: 11/29/18 Time: 15:24
 Sample: 1 380
 Included observations: 380
 Convergence achieved after 4 iterations
 Covariance matrix computed using second derivatives

Variable 1)=0,1	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.928793	0.776524	-1.196090	0.2317
X1	0.030676	0.089955	0.341018	0.7331
X2	0.139276	0.082251	1.693312	0.0904
X3	0.157754	0.223887	0.704618	0.4810
X4	0.307261	0.142553	2.155410	0.0311
X5	-0.059420	0.121630	-0.488528	0.6252
X6	-0.037337	0.053517	-0.697673	0.4854
X7	0.049145	0.067103	0.732377	0.4639
X8	0.241964	0.169259	1.429548	0.1528
X9	0.404559	0.225801	1.791667	0.0732
X10	0.076518	0.060324	1.268453	0.2046
X11	-0.209942	0.063801	-3.290575	0.0010
X12	0.068207	0.116730	0.584316	0.5590
McFadden R-squared	0.101152	Mean dependent var		0.889474
S.D. dependent var	0.313958	S.E. of regression		0.306847
Akaike info criterion	0.693326	Sum squared resid		34.55500
Schwarz criterion	0.828121	Log likelihood		-118.7319
Hannan-Quinn criter.	0.746813	Deviance		237.4639
Restr. Deviance	264.1869	Restr. log likelihood		-132.0934
LR statistic	26.72301	Avg. log likelihood		-0.312452
Prob(LR statistic)	0.008468			
Obs with Dep=0	42	Total obs		380
Obs with Dep=1	338			

Estimation Command:

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BINARY(D=N) Y4 C X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12

Estimation Equation:

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Y4 = C(1) + C(2)*X1 + C(3)*X2 + C(4)*X3 + C(5)*X4 + C(6)*X5 + C(7)*X6 + C(8)*X7 + C(9)*X8 + C(10)*X9 + C(11)*X10 + C(12)*X11 + C(13)*X12

Substituted Coefficients:

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Y4 = -0.929 + 0.031*X1 + 0.1393*X2 + 0.158*X3 + 0.307*X4 - 0.059*X5 - 0.037*X6 + 0.049*X7 + 0.242*X8 + 0.405*X9 + 0.077*X10 - 0.21*X11 + 0.068*X12

Table 4: Correlation Matrix showing the relationship between conflicts, environmental justice and sustainability of development project

Correlations					
Type	Variables1	Statistics	Sustainability of development Projects	Env: Conflicts	Severity of conflicts
Spearman's rho	Sustainability of development Projects	Correlation Coefficient	1.000		
		Sig. (2-tailed)	.		
		N	380		
	Environmental Justice	Correlation Coefficient	0.67**	1.000	
		Sig. (2-tailed)	.006	.	
		N	380	380	
	Severity of conflicts	Correlation Coefficient	-0.17**	-0.72	1.000
		Sig. (2-tailed)	.001	.622	.
		N	380	380	380

** Correlation is significant at the 0.05 level (2-tailed)

Table 5: Chow Test outcome showing the relationship between conflict and Environmental justice in the study area.

RSSp	RSSc	RSSej	F*-Cal	F-Tab @5%sig.	Decision
3035	948	1030	1.53	1.83	F*cal<Ftab @5%. There is no difference. The coefficients are stable in the sets of equation.

$F^*_{cal} = 1.53 < F_{tab} 1.83$

Table 6: Chow Test outcome showing the relationship between Environmental Justice and Sustainable Development in the study area.

RSSp	RSSej	RSSsd	F*-Cal	F-Tab @5%sig.	Decision
3120	1033	1118	1.58	1.83	F*cal<Ftab @5%. There is no difference. The coefficients are stable in the sets of equation.

$F^*_{cal} = 1.58 < F_{tab} 1.83$