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Environmental Justice, Planning and Oil and Gas Pipelines in the Niger Delta Region of Nigeria

A Thesis Submitted to the University of Newcastle upon Tyne for the Degree of **Doctor of Philosophy**

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To my wife, Suzy, who gave birth to our daughter Lisa in the course of this research.

ABSTRACT

This thesis analyses the impact of oil and gas pipelines on the environment and settlements from the perspective of environmental justice, using a case study of the oil-producing communities in the Niger Delta region of Nigeria. Within Nigeria, this region is most affected by oil and gas pipeline activities, in terms of both socio-economic and environmental impacts. This state of affairs raises issues of environmental justice among the stakeholders.

The research for this thesis took place in three case study areas, and included a total of 6 group discussions, 30 in-depth interviews and 2 workshops. Analysis of this data showed that the oil and gas pipeline network has not improved the environmental and economic conditions of the people in the communities it traverses. The empirical evidence equally suggests that the lack of community involvement and appropriate recognition given to some groups of stakeholders in the management of the oil and gas pipeline project is strongly related to the incidence of pipeline network sabotage.

The research advocates a new approach, based on the core principles of environmental justice that promotes inclusion of the necessary stakeholders, including the physical planners, and would incorporate local knowledge and experience into the environmental management of the region. Such a framework will not only protect the environment and people from the impacts of the pipelines, but will also protect the pipelines from vandalism and save Nigeria many billions of dollars, lives and livelihoods over the coming years.

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LIST OF ACRONYMS

ADB	African Development Bank
ANT	Actor Network Theory
BEN	Black Environmental Network
CBO	Community Based Organisation
CDC	Community Development Committee
CODEP	Community Development Partners
CZ	Coastal Zone
DEFRA	Department for Environment, Food and Rural Affairs
DPR	Department for Petroleum Resources
DPSIR	Driving Forces-Pressures-States-Impacts-Responses
EA	Energy Agency
ECC	European Economic Community
ECOWAS	Economic Community of West African States
EIA	Environmental Impact Assessment
EIA	Energy Information Administration
EJ	Environmental Justice
EPA	Environmental Protection Agency
FGN	Federal Government of Nigeria
FEPA	Federal Environmental Protection Agency
FoE	Friends of the Earth
GESAMP	Group of Experts on Scientific Aspects of Marine Protection
GIS	Geographic Information System
GPA	Global Programme of Action
ICZM	Integrated Coastal Zone Management
IFAD	International Fund for Agricultural Development
INC	Ijaw National Congress
LFN	Laws of Federation of Nigeria
MOSOP	Movement for the Survival of the Ogoni People
MOU	Memorandum of Understanding
NCF	Nigerian Conservation Foundation
NCWS	National Council of Women Society
NDBDA	Niger Delta Basin Development Commission
NDDC	Niger Delta Development Commission
NESRA	National Environmental Standards and Regulation Agency
NGO	Non-Governmental Organisation
NIOMR	National Institute of Marine Resources

NITP	Nigerian Institute of Town Planners
NNPC	Nigerian National Petroleum Corporation
NOA	National Orientation Agency
NOSDRA	National Oil Spill Detection and Response Agency
NOx	Nitrogen Oxides Particulates
NPC	National Petroleum Council
NRC	National Research Council
NURPA	Nigerian Urban and Regional Planning Acts
OFC	Oil Field Cooperation
OECD	Organisation for Economic Cooperation Development
OMPADEC	Oil Mineral Producing Areas Development Commission
OPEC	Organisation of Petroleum Exporting Countries
ppm	parts per million
PPP	Polluters Pay Principle
PTDF	Petroleum Technology Development Fund
PTS	Permit to Survey
RSEPA	Rivers State Environmental Protection Agency
SDCEA	South Durban Community Environmental Alliance
SO_2	Sulphur Oxides
SPDC	Shell Petroleum Development Company
TSGP	Trans-Saharan Gas Pipeline
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNICEF	United Nations International Children's Emergency Fund
U.S.	United States
USA	United States of America
WCBs	Water Community Boards
WRPC	Warri Refinery and Petro-Chemicals
WTO	World Trade Organisation

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CHAPTER ONE

1.0 INTRODUCING THE RESEARCH: CONTEXT, PROBLEM, AIMS AND METHODOLOGY

> *"The problem or question is the axis around which the whole research effort resolves. The statement of the problem must first be expressed with the utmost precision; it should then be divided into more manageable sub-problems. Such an approach clarifies the goals and direction of the entire research efforts"* (Leedy and Ormrod, 2006:43).

1.1 Introduction and Background to the study

Chapter one addresses three main themes. The first is the research focus, presented in outline. The second theme is the rationale for the research, which includes the research aim and objectives. The third theme is the structure of the research. The expositions of these themes provide a framework for the research project. This chapter sets out the study background and the motivation for conducting the research. It provides a brief overview of existing literature as a prelude to the exposition of the research aim and questions. The research methodology and methods of data collection are briefly described. A statement of the contribution to the knowledge of environmental justice expected to arise from the research is followed by a section that lays out the overall logical structure of the thesis. As a result, the purpose of this chapter is to provide an overview of how this research was initiated and conducted with the ultimate aim to explore the kind of environmental and socio-economic impacts of oil and gas pipelines on the Niger Delta region of Nigeria and the feasibility of developing and environmental justice framework for its management.

1.1.1 The Nigerian Oil Industry

By comparison with most countries globally, which depend heavily on importing oil for their energy requirements, Nigeria's economy is dominated by oil and gas production for export. For the past seven years, the sector has continued to account for about 95% of gross domestic product and the country is Africa's leading oil producer, ranking

among the top 10 oil producers globally (Olukesusi, 2005; OPEC, 2010). As at the year 2004, the Nigeria's oil and gas operations were comprised of assets and infrastructure including about 5,284 oil wells, 10 gas plants, 275 flow stations, 10 export terminals and 7,000km of pipelines (Joab, 2004). Nigeria has proven oil reserves of over 22.5 billion barrels, located within some 250 separate fields, sited mainly in the coastal area of the Niger Delta where most of Nigeria's oil and gas production takes place, presently defined by the political boundary of nine states: Abia, Akwa-Ibom, Bayelsa, Cross-Rivers, Delta, Edo, Imo, Ondo and Rivers. About 200 other fields are known to exist in the Delta and there have also been several deep water discoveries. Reserves of natural gas in Nigeria were estimated at some 2,480 million tons (3,305,840 cubic meters) in 1999, representing 2.4% of world reserves (Handasah, 2003).

However, the discovery of oil in the Niger Delta region of Nigeria in the early 1950s has been attended with mixed blessings. Many indigenous communities have rewritten the government slogan of oil boom to fit their own experience of it, as oil doom (Chukwuali, 2008). That said, it would be difficult to exaggerate the role of oil in the Nigerian economy. Since the first oil price shock in 1974, oil has annually accounted for over 90% of Nigeria's export income. In 2000, Nigeria received 99.6% of its export income from oil, making it the world's most oil-dependent economy (Okecha, 2000). Oil production has also had a profound effect on Nigeria's domestic sector. One way to characterize its impact is by looking at the revenues produced by oil - that is, the returns in excess of production costs - in the Nigerian economy. According to Okecha (2000), from 1970 to 1999, oil generated almost $231 billion in revenues for the Nigerian economy, in constant 1999 dollars. Since 1974, these revenues have constituted between 21 and 48% of GDP (Joy, 2010).

The on-shore and off-shore exploitation of oil deposits in the Niger Delta region has led to significant degradation in the region's environment. Incessant oil spillages and deposits of the dangerous contents of crude oil into human residential environments, with their attendant socio-economic consequences, have combined to aggravate the environmental degradation of the coastal region of Nigeria. The indigenous mangrove swamps are disappearing; the spills have had adverse effects on marine life and are responsible for falling crop yield, poisoned waters, dying forests and vanishing wildlife. Fishing, which was the main indigenous occupation, is no longer profitable for local

people (Naagbanton, 2009). Soil contamination through bioaccumulation of dangerous heavy metals due to oil spills has had an adverse effect on both terrestrial and plant life. The disappearance of formerly vibrant human communities is indicative of the inability of the environment to support and sustain human life and human settlements (Chukwuali, 2008). Within such a context, this study aims to assess the impact of oil and gas pipelines on the socio-economic activities and environment of the Niger Delta region of Nigeria.

1.1.2 Origin and Expansion of Oil and Gas Pipelines in Nigeria

The evolution of oil and gas pipelines development in Nigeria is closely linked with oil exploration activities which started in the country in 1908 but was disrupted by the World War I (Nigerian National Petroleum Corporation, 2002). However, post-World War I oil exploration did not commence in Nigeria until decades after the 1914 amalgamation of the Southern and Northern Protectorates of Nigerian under the Colonial British Rule. This development culminated in the promulgation of the Mineral Oil Ordinance of 1947 (Nigeria National Assembly, 1967). The ordinance limited the granting of oil exploration licences and leases to British Subjects and Companies for the greater part of post-World War I period (NNPC, 2002). In 1973, a Dutch Company, which was then known as Shell D'Arcy was awarded exploration rights over the entire Nigeria, a development that restarted sustained aggressive exploration activities due to the hostilities of World War II, which lasted from 1939 to 1945. The post-World War II era experienced a boast in oil exploration activities in Nigeria (Freund, 1978). Consequently, Shell D'Arcy resumed exploration activities across Nigeria in collaboration with British Petroleum, in a joint venture known as Shell-BP. Shell-BP later partially relinquished its exploration rights, which limited its acreage to one sixth of the whole country by 1951, in an area that was mainly concentrated in the Niger Delta.

From this point, Mobil took advantage of the acreage of the country relinquished by Shell-BP to acquire exploration rights over the Sokoto Basin in 1955, using the trade name, Mobil Exploration Nigerian Incorporated (NNPC, 2002). Moreover, Mobil, like Shell-BP, initiated extensive exploration activities but these did not lead to the discovery of oil. Luckily for Nigeria and Shell, the activities of Shell-BP led to the first discovery of oil in commercial quantities in the Oloibiri Community of the Niger Delta region of

Nigeria in 1956 (Pinto, 1978). The discovery culminated a full scale commercial oil exploration, and in 1958, the associated building of pipelines to transport the crude oil produced. Construction activities for the network of pipelines started with the discovery of oil in commercial quantities in Oloibiri in 1956. According to Onuoha (2009), the subsequent full scale commercial exploration that followed in 1958 by Shell-BP then expanded to all parts of the country. For instance, in Oloibiri, production commenced to the tune of 5,000 barrels per day immediately after the discovery and this necessitated the construction of pipelines to transport the crude oil from the oil field to the coast for export (Jike, 2004). Pipeline laying for crude oil transportation at that time naturally created a buffer zone which is now protected statutorily and called the right of way for petroleum products pipelines in Nigeria (Brume, 2007).

The relative economic advantage and administrative convenience of oil transportation through pipelines, coupled with the speed of petroleum product transportation in countries like Britain, Canada and India by means of the pipeline gave the motivation for rapid post-oil-discovery pipeline expansion activities in Nigeria (Nwilo and Badejo, 2006). Today, Nigeria could be said to have a mono-product economy which largely depends on the petroleum industry for survival.

To enhance the distribution of crude oil products from the Niger Delta to other parts of the country, the network of oil pipelines has extended to link all the states at strategic locations. The network of pipelines consists of multi-product and crude oil pipelines, linking the twenty two petroleum storage depots, the four refineries at Port Harcourt (I and II), Kaduna and Warri, and the off-shore terminals at Bonny and Escravos. Other installations also connected by the network of pipeline include the jetties at Atlas Cove, Calabar, Okirika and Warri.

Around the world, the rate of failure owing to petroleum product transportation by rail and road was very high in the 1960s-70s with negative consequences to the environment and loss of life (Ikelegbe, 2006). As a result, the relative safety, efficiency and cost effectiveness of petroleum product transportation by pipeline over road and rail led to the rapid expansion and growth of pipeline networks in the Caspian region, India, USA and other parts of the world, including Nigeria (Brume, 2007).

1.2 Statement of the Problem

1.2.1 Pipeline Infrastructure and Environmental Justice

The Niger Delta region is the most spill-prone region in Nigeria. A great number of petrochemical spillage incidents have occurred in the area over the past decade due to the existence of a mass network of pipelines in the region. Naagbanton's (2009) review of a study conducted on oil spills in different parts of Rivers State of Nigeria has revealed some of the major oil spills that have occurred in the Niger Delta region. For example, he observes that in January 2007**,** a spill due to oil bunkering activities affected the entire Emo-Pepelye Creek resulting to a serious damage to aquatic life. Also, the review points out that on the 10th of January, 2008**,** another oil spill occurred at Well 9 at Awoba flow station (now Bille II), which led to a large quantity of crude oil discharged into the environment where the Sombriero River contributed immensely in conveying the sludge over a large area. More still, on the 29th of May, 2008, there was another major oil spill incidence at Eleme flow station. It occurred due to the explosion of an old pipeline which affected a very large area of the ecosystem. A month after the incident, both the affected facilities and areas were repaired and cleaned up, and compensation paid. However, the inhabitants of the area complained that the compensation was inadequate considering the high level of ecological damage caused (Naagbaton, 2009).

Oil spills can affect the ecosystem in several ways. For example, in relation to fish and other aquatic organisms, they use the food-rich estuaries and creeks as a nursery for their young and as feeding grounds, spending their adulthood further out in the ocean. The oil spills have reportedly driven them away, although oil spills may not cause any significant direct mortality to pelagic fish, according to some experts. Another finding is that some species may avoid the polluted area for periods of a few weeks. Furthermore, species which spawn in the estuary may suffer mortality in their eggs or larvae (Naagbanton, 2009).With regard to bottom-feeding, predatory species, oil spills were not normally expected to have a direct impact on them, as they are sub-tidal. However, fishing activity is affected by damage to organisms used as bait. Crude oil contamination of inter-tidal mangrove swamps results in high mortalities of crabs and certain fish, including their eggs, mudskippers, and so on. The effects of spills will persist for periods of at least several months. Polluted mangrove mud will also pollute inter-tidal puddles and shorelines for weeks or months, affecting fishes that inhabit the puddles, such as

tilapia and mullet. The residual oil can cause fin rot and consequent mortality in tilapias and topminnows for up to several months (John and Drew, 1977).

In human terms, the main local occupations in the region were fishing and farming, and the spills and their effects are likely to have long-term impacts on these. It is possible that it could take as long as 15 years or more for spill-impacted soils to regain their fertility (John and Drew, 1977).

According to Croxal (1977), an oil spill affects the value of an area in several ways. Contamination of coastal amenity areas is a common feature of many oil spills, leading to disquiet and interference with recreational activities such as bathing, angling and diving. Hotel and restaurant owners and others who earn their living from the tourist trade, can also be affected. Because of their visual impact, persistent oils and their residues cause the most nuisance and concern, with the greatest effect likely to be just before or during the main local tourist season. Any effect on tourism is largely a question of restoring public confidence once the clean-up has been completed. The spills also affect household income as the destruction of terrestrial and aquatic organisms has led to significant fluctuation in living conditions. Apart from having to pay out for basic foodstuffs from other farmers, instead of being able to grow them domestically, it is also evident that people's diets are prone to serious adjustment. An oil spill can also cause a loss of market confidence, whereby the public may be unwilling to purchase aquatic products from the region, irrespective of whether the seafood is actually tainted (Thomas *et al.*, 1980).

Oil and gas production has thus come at a great environmental cost to about 1,500 communities in the Niger Delta where the Nigerian National Petroleum Corporation (NNPC) oil venture partners operate; however, until the tragic events of Odi, Ogoni and Umuechem, many Nigerians remained unaware of the environmental degradation, pollution and neglect in oil producing communities.

According to Ibaba (2011), in more recent times, the environment in the Niger Delta has been at the centre of discourse in many seminars, conferences and government circles. The trend has been helped by recognition in the international arena from 1990 onwards, through the re-activation of UN Summits and Conferences such as the World

Conference on Education for All, the UN World Summit for Children and, the UN Conference on the Least Developed Countries, to the Millennium Development Goals Review of 2010 in New York (Ibaba, 2011). At present, the environment is on the agenda in a range of forums, from local oil producing communities to states and the national level.

The concept of environmental justice is mobilised in this context to help attain the main aim of this research stated in section 1.3, in doing so, the core principles of participation, public discourse, inclusion and recognition are utilised. The practical and potential role of physical planners as part of the core team of professionals who regulate and monitor oil pipelines in Nigeria is also assessed.

The focus of this research is on pipelines which are used to transport petroleum products from oil refineries and import-receiving jetties to storage depots in Nigeria. Petroleum pipelines traverse the whole extent of the country's geo-political zones, ranging from swamp forest and rain forest to savannah grass lands, and are exposed to diverse climates and soil conditions, with varying consequences including leakages and seepages of petroleum products, with damaging implications for communities and the environment (Agbaeze, 2002; Ekwo, 2011). Pipelines are part of the major infrastructure of oil and gas production. They are necessary for the transportation, storage and marketing of natural gas, crude oil, and refined petroleum products. Available data put the nation's pipeline network at over 7,000 km. A large part of this network runs across the rivers, creeks, swamps and farmland of the Niger Delta.

Outside the Niger Delta Region, oil and gas pipelines run to petroleum product storage depots in Aba, Enugu, Gombe, Gusau, Ibadan, Ikorodu, Kaduna, Kano, Lagos, Ilorin, Maiduguri, Markurdi, Ore and Yola, and the refinery at Kaduna. Furthermore, the pipeline has undergone further significant expansion with the associated Gas Gathering programmes at Bonny, Soku and Brass.

According to Nnah and Owei (2005), the petroleum pipeline is an essential mode of transport and is an infrastructure of a highly specialized nature. Unlike some other modes of transport, such as roads, pipelines do not improve access for people living in

the communities through which they pass. Rather, they impose constraints on interactions and, when located close to houses, pose a hazard to life.

Ogwu (2011) argues that even when a pipeline is no longer in use it is left to rust in the open field as the oil companies are not willing to pay the cost of dismantling it. After the construction phase, there is usually a lack of periodic monitoring. Graham and Thrift (2007) emphasise the importance of repair and maintenance in modern society, but lament that this is usually overlooked. They underscore the way the culture of repair and maintenance has helped to sustain the activities of electricity and communication as well as auto-mobility. Monitoring is an important activity to ensure the integrity of pipelines and the safety of people in the vicinity. Whereas oil companies attribute most spillages to sabotage, the communities argue that they are as a result of structural failure of the pipeline and consequent leakages (NDDC, 2001; Ekwo, 2011).

1.2.2 The Legislation

Whilst there are statutory regulations that require a Development Permit for any new project and a Permit to Survey (PTS) for pipeline routes, obtained by oil companies from the Department of Petroleum Resources (DPR), in Nigeria, impact assessment is not up to international standards.

There are a number of regulations and laws that control oil pipeline operation in Nigeria. Some of these laws have a direct bearing on oil pipeline construction. An example is the Oil Pipeline Act of 1956, amended by the Oil Pipeline Act of 1965 drafted into CAP 338 of the Laws of the Federation of Nigeria (LFN). This legislation governs the grant of licences for the establishment and maintenance of pipelines (Rivers State of Nigeria, 2005).

Furthermore, Nnah and Owei (2005) observe that the Department of Petroleum Resources specifies under part VIII Section A 1.4.3 of its guidelines that an Environmental Impact Assessment Report is mandatory for some activities, including drilling operations, construction of crude oil production facilities, tank farms and terminal facilities, oil and gas pipelines (in excess of 50km), hydrocarbon processing facilities and product processing. Nnah and Owei (2005) note the environmental impact

assessment process covers three areas of impact – the bio-physical, the socio-economic and health impacts.

At its inception in 1977, the Nigerian National Petroleum Corporation paid compensation for portions of land acquired for its projects but, with the promulgation of the Land Use Decree of 1978, compensation payment by the Corporation was limited to economically productive trees and structures. The decree excluded compensation for land acquired for projects such as pipelines. This has generated agitation in pipeline host communities, often leading to vandalisation of pipelines and other oil and gas installations (Essiens, 2004).

It might be important to mention that one of the key objectives of physical planning, whether in the area of development control, plan preparation or programme implementation, is the management of land for the benefit of all. In pipeline activities, this objective ought to be brought to the fore since land is a major subject of most of the conflicts and litigations between oil companies and host communities. Therefore, policy makers, communities and oil and gas companies need to be aware of the potential input of land use planners to the activities of oil companies, especially in pipeline route planning, impact assessment and monitoring. Thus, this research assesses what impact physical planners currently have on the oil and gas companies' activities and considers what their role might be especially with regard to ensuring environmental justice.

1.2.3 Theoretical Contribution

The underlying interest in this research concerns the multiple and divergent interpretations of environmental justice. For example, Harvey (1996) alludes to the need to recognise the varied ideas within environmental justice discourse and brings recognition into an understanding of environmental justice. This is the basis from which Walker (2011) builds his work on the three fold dimensions (distributive justice, procedural justice and justice of recognition) of environmental justice. In applying this approach to the thesis, the research explores how the issues of recognition, procedural and distributive justice are manifest at local level with a view to strive for the goal of environmental justice.

1.3 Research Aim and Questions

The main aim of this research is to develop a management framework that could lead to a more sustainable development of the Niger Delta region of Nigeria through the principles of environmental justice that explores the roles that physical planners might play in the activities of oil and gas companies in Nigeria, using the specific example of pipeline construction and suggests ways of integrating physical planning into the workings of the petroleum industry in Nigeria through the involvement of all the necessary stakeholders, in managing the oil and gas pipelines for the good of communities.

To meet the necessary aim, the thesis will address the following questions:

(i) What are the main impacts of oil and gas pipelines on the environment and socio-economic activities of the Niger Delta communities?

(ii) To what extent do the government and oil companies comply with regulations in relation to oil and gas pipeline construction in the Niger Delta region and what are the economic and social impacts?

(iii) How should the socio-economic problems and issues around environmental inequalities in the region be dealt with by the government and the oil companies through involving stakeholders?

(iv) What roles can physical planners play in promoting environmental justice in the region?

(v) How useful is the concept of environmental justice in exploring oil pipeline impacts in a context such as Nigeria?

1.4 Methodology

The main philosophical position that underpins the methodological approach to this research is social constructionism, which according to Gergen (1999) assumes that the world is understood through concepts that are entirely social artefacts and produced in

the course of historical interactions. To address the research questions, qualitative methods are used within a comparative case study framework. Specifically, the research utilises in-depth interviews and group discussions with various stakeholders including local residents, local planning authorities, oil company staff, government departments and agencies, non-governmental organisations, and academia. Three case study areas are chosen in Bayelsa, Delta and Rivers States. The use of these conventional methods of analysis has been helpful in exploring understandings of the three forms of environmental justice – "distributive justice", "procedural justice" and "justice as recognition" (Walker, 2011).

Through analysing how the construction of oil and gas pipelines can impact negatively on the local communities they traverse, a better understanding of these forms of environmental justice will emerge. This understanding may help to devise more appropriate strategies for the adoption and implementation of environmental justice measures that consequently, could lead to a reduction in environmental degradation and coastal settlement pollution.

1.5 Summary and Conclusions

This thesis examines the procedures and politics surrounding the regulation of pipeline risks, assesses the regulatory mechanisms and highlights the specific context for physical planning input and the involvement of all other stakeholders in pipeline route planning and monitoring of impacts. Drawing from the research findings, the study makes several recommendations that could help reduce the level of environmental injustice found in the study area. It further outlines the role and responsibilities of the various stakeholders toward achieving a successful implementation of the proposed environmental justice (EJ) framework for a sustainable development of the oil rich region.

1.6 Structure of the Thesis

Chapters one, two, three and **four** form **part one** of this thesis. Following this introductory chapter, **Chapter two** reviews the current literature on environmental justice. The chapter presents the emerging themes within this field of research. Focusing on the barriers to the effective implementation of EJ from the literature and

situates them in relation to oil and gas pipeline networking. In doing so, the research seeks to unpack the conceptualisation of EJ academic debates surrounding its implementation and use. In addition, this chapter presents the main argument on EJ applicability to countries outside of USA. This is followed by a critique of these studies in light of recent developments in the social sciences on environment as well as studies drawn from theoretical perspectives in the social sciences and globalisation of EJ.

Chapter three presents the unique nature of the coastal settlements and environment of the Niger Delta and provides an overview of the many pressures exerted on the coastal zone. It examines the overarching challenge of sustainable development of the coast with reference to the burdens inflicted by the oil and gas pipelines' activities on the natural resources of the Niger Delta coastal zone, outrunning their capacity to absorb deleterious impacts. Chapter three goes further to formulate an EJ approach towards the environmental pollution and the resulting broad range of social and environmental problems in the Niger Delta, as outlined in Chapters one and two. In doing so, the chapter outlines the utility of EJ as a means of promoting sustainable development and utilization of coastal resources, and of restoring and maintaining the integrity of the coastal ecosystem of the Niger Delta region. Apart from discussing some of the challenges of managing the Niger Delta environment, this chapter also discusses the roles and responsibilities of the government agencies, various stakeholders including the oil and gas companies and the local people of the region. Chapter three concludes with a programme for the development and implementation of EJ in the region.

Chapter four outlines the methodology adopted in this study and provides some information about the study area. After introducing the main philosophical position that has shaped the analytical framework: social constructionism, it revisits the research questions and discusses the methodological implications of the theoretical approaches presented in Chapters two and three. This is followed by an overview of the concepts behind the research method used in this thesis, the case study method. The three case studies that constitute the empirical aspect of the research are then presented, followed by an outline and description of the data collection tools used. The Chapter also discusses the techniques used in the analysis of the data and provides some basic information about the study area.

Part two of the thesis consists of **Chapters five** and **six. Chapter five** presents the empirical data collected from the three case studies during the course of the research and discusses how the results affect the study's interpretation of environmental justice, as well as demonstrating how the evidence supports a response to the first question raised in section 1.3 of the introductory chapter. This chapter analyses the socio-economic and environmental impacts of pollution in terms of distributive justice, as evinced by effects of the oil and gas pipelines and borne by Niger Delta communities. Thus, in line with research question 1, "What are the main impacts of oil and gas pipelines on the environment and socio-economic activities of the Niger Delta communities?", the chapter underscores the drastic consequences of these practices and advocates pursuance of environmental justice.

Chapter six analyses the various procedures and policies, particularly but not only with regard to environmental management, in terms of the procedural justice and justice of recognition, juxtaposed with the systematic way that the costs of the oil and gas pipelines have been borne by the oil producing region of Nigeria. The discussion combines information from the empirical data and from the literature review.

In order to provide a glimpse of the various ways the government and oil and gas companies' policies have affected the development potentials and environmental protection of the area, this chapter analyses some of the Nigerian laws that are directly concerned with environmental protection, especially those that relate to the Niger Delta region, and the practical nature of enforcement of these laws. It discusses the manner in which communities perceive and respond to the issues of information exchange, recognition of stakeholders, public involvement and access to legal recourse, in relation to the construction and maintenance of oil and gas pipelines, as one of the major infrastructure projects in the region. The chapter considers this as of particular interest, in view of the existing conflicts between major oil companies and their oil-producing host communities.

Part three of the thesis consists of **Chapters seven** and **eight. Chapter seven** recommends a management framework using EJ principles, which if put in place, could help reverse environmental pollution trends and move the Niger Delta region towards environmentally sustainable development. It outlines the principles and functions of the

environmental justice framework. The final chapter (chapter eight) revisits the main themes that have emerged from this research study, providing answers to each of the research questions set out earlier in the introductory chapter, based on the analysis of the data collected. The chapter outlines the implications of this study on oil and gas pipelines networking and what it means for the implementation of EJ principles in general; thereby enabling the proposal of a set of policy, management and institutional recommendations. This is followed by a discussion on the position of the research with respect to the existing literature on EJ. The chapter then discusses the practical implications of the study before concluding with some general remarks about the study and its wider applications within social science research relating to oil and gas infrastructure.

CHAPTER TWO

2.0 LITERATURE REVIEW

"...Agenda 21, following the 1992 Earth Summit in Rio, calls for integrated policy, decision-making processes and institutions for environmental justice and sustainable development of coastal and marine areas and their resources"(Cicin-Sain, 1993:20).

2. 1 Introduction

The statement of the research problem in the introductory chapter has indicated an increasing interest from the academic, activist and policy communities in the environmental and socio-economic impacts of petroleum pipelines, and their associated management challenges.

This growing interest has prompted this chapter's goal of formulating a holistic and theoretically-informed understanding of the nature of the challenges involved in managing pipelines and their human and natural environments. The chapter provides a review of theoretical approaches to the implementation of environmental justice framework. Furthermore, through examples from across the globe, the chapter explores the environmental impacts of industrial activities, and in particular, oil exploration and transportation, alongside emerging environmental justice concerns.

The chapter begins with an explanation of the concept of environmental justice within the framework of environmental sustainability, which comprises the theoretical underpinnings of this study. Environmental justice has been identified by Walker (2011) as an element within the goal of sustainable development. This chapter argues that inclusive procedures, participation and public discourse, that will as far as possible involve all the necessary stakeholders at grass roots level, are desirable avenues through which various socio-economic and environmental contracts between an industry and its host community can be delivered. A further argument of this thesis is that justice as a concept has many interpretations. An exclusive attention to the distributive form of justice seems limited and fails to encompass the whole issues of environmental justice. Quests for socio-cultural recognition and full involvement are vital parts of justice, and

are deeply implicated in distributional concerns. The thesis also takes the position that for environmental justice to survive as a concept, it must go global and embrace peoples and events outside its birthplace in the USA, because the causes of environmental injustice have worldwide incidences and implications. Thus, the thesis observes that the socio-economic and environmental obligations of industries in pursuit of environmental justice − for instance, the oil and gas companies operating the pipeline networks in the Niger Delta − can be realised through the combined instruments of recognition, public discourse, participation and inclusive procedures at the local level.

2.2 The Emergence and Definition of Environmental Justice Versus Walker's Seven-fold Typology

The origin of environmental justice is often traced back to the siting of toxic waste and polluting industries in areas inhabited predominantly by minority population in South-Eastern USA in 1982. The incidence led the United Church of Christ Commission to publish Toxic waste and Race in the U.S. in 1987 (Agyeman, 2003). According to Gordon and Harvey (2005), the year of 1982 was remarkable for the emergence of progressive local-level movements aimed at racial equality and environmental protection. By the years of 1990s, the environmental justice cause had continued to organise communities and extend its geographical impact and coverage of various issues.

Current research on the nature of environmental hazards has continued to show more concentration of the minorities around commercial hazards (Bullard *et al.,* 2007). Because the scenario might have been worse without the attempts of environmental justice activists, it is not possible to conclude from this that their efforts have failed. However, it raises issues around the way we should view and weigh the objectives of the environmental justice discourse. Some scholars, for example, have argued that activists have not managed to address the necessary changes required to handle different forms of bias (Cable *et al.,* 2005; Faber, 2007), and see this as a failure to pursue a critical rethinking of the processes of industrial activities (McGurty, 2007). Those who are concerned about the radicalism of the discourse, have argued that it would be better advised to focus on particular public health objectives such as reducing exposure to harmful substances or providing treatments for the sick in disadvantaged communities

(Foreman 1998). Environmentalists have issue with the movement, contending the fact that the movement is over emphasising the social needs whilst it distracts attention from crucial and challenging environmental concerns (Benford, 2005; DeLuca, 2007). In particular, the environmental justice movement's call for more of public involvement could seriously affect the steps for mitigating environmental problems. Having introduced the concerns and ambit of environmental justice discourse, this section also seeks to define environmental justice, drawing from academic, policy and activist documents.

From the foregoing, we can see that there are many ideas circulating about what environmental justice is. Efforts to give a universally acceptable definition of environmental justice may not succeed because of different socio-economic, cultural, environmental and political factors affecting individual nations. With such argument that there is no universally acceptable definition of what constitutes environmental justice, the point of view from which one might attempt to define environmental justice is therefore important. When comparing several definitions of environmental justice, however, little consensus over its meaning leaps out; there is, rather, a range of options. Some of the definitions of environmental justice taken from varied sources and contexts and its principles are presented in the text boxes in the next 5 pages, to show how new issues and concepts have been added to the definition over time.

BOX 1: Some Selected Definitions of Environmental Justice

Environmental justice is forcing certain minority populations, through their lack of access to decision making processes, to live with a disproportionate share of environmental bads and suffer the related public health problems and quality of life burdens. (Bullard, 1994: 578).

Environmental justice refers to those cultural norms, values, rules, regulations, behaviours, policies and decisions to support sustainable communities, where people can interact with confidence that their environment is safe, nurturing and productive. Environmental justice is served when people can realise their highest potential, without experiencing the 'isms'. Environmental justice is supported by decent paying and safe jobs, quality schools and recreation; decent housing and adequate health care; democratic decision making and personal empowerment; and communities free from violence, drugs and poverty. (Bryant, 1995:6).

Environmental justice is the idea that everyone has the right to a decent environment and a proportionate amount of the natural resources. (Friends of the Earth, 1999).

Environmental justice means 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; that responsibilities are on this current generation to ensure a healthy environment exists for future generations, and on countries, organisations and individuals in this generation to ensure that development does not create environmental problems or distribute environmental resources in ways which damage other people's health. (Stephens *et al.* 2001:3).

Environmental justice is the equal protection and meaningful involvement of all people with respect to the development, implementation and enforcement of environmental laws, regulations, policies, and equitable distribution of environmental benefits. (Commonwealth of Massachusetts, 2002:2).

Environmental justice is the stressing of the need to evaluate power in driving the distribution of benefits and costs of industrial activities (O'Rourke and Connolly, 2003*).*

*Environmental justice is a demand to recognise the unique cultural positions and participation of community groups in the development of environmental policy (*Dryzek, and Schlosberg, 2005).

A condition of environmental justice exists when environmental risks, hazards, investments and benefits are equally distributed without direct or indirect discrimination at all jurisdictional levels and when access to environmental investments, benefits and natural resources are equally distributed; and when access to information, participation in decision-making, and access to justice in environmental related matters are enjoyed by all. (Steger, 2007).

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... It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live learn and work.* (U.S. Environmental Protection Agency, 2008).

A critical look at the nine definitions in Box 1 reveals that the central theme running through them is justice to people. This, according to Schlosberg (2007), is what differentiates environmental justice from concept of ecological justice. Furthermore, the specific ways in which society is divided into groups is a particular matter of interest to this research. For instance, with the US EPA (2008), it is race, colour, national origin or income that are emphasised; while Stephens et al. (2001) dwell on future generations, the second and third generations in particular, as well as the issues of empirical derivation in environmental justice theory, such as gender and age aspects which seem to have been underemphasised by many of these authors. In terms of the implications of implementing environmental justice, for the Commonwealth of Massachusetts (2002), these are 'the distribution of environmental benefits', whereas for Bryant (1995) these are 'safe, nurturing and productive' places where people can interact; and for the

condition for environmental justice, according to Steger (2007), there are emphases on equal distribution of environmental risks, hazards, investment and benefits. Thus, the few definitions that consider the issue of responsibilities to others are Stephens et al. (2001) who argue that we should not 'distribute environmental resources in ways which damage other people health' and Scottish Friends of the Earth (1999), which draws attention to issues around a 'proportionate amount of the natural resources. In terms of the three basic concepts of environmental justice (distributive, procedural and justice as recognition) as identified by Walker (2011), all of the above mentioned nine definitions all contain the first element, distributive justice (the distribution of environmental 'goods' and 'bads'). Notions of procedural justice crop up in several, not with equal emphasis though ('access to information, participation in decision-making, and access to justice'). The third notion of justice as recognition is, importantly, discernable in both Bryant (1995)'s expressions of 'cultural norms and values' and Dryzek and Schlosberg (2005)'s expressions of recognition of unique cultural positions and participation. Also, a look at the Box 2 below, and paragraph 11 of the principles of environmental justice in particular, shows a clear affirmation of the idea of justice of recognition.

BOX 2: Principles of Environmental Justice Adopted at the First National People of Colour Environmental Leadership Summit, Washington DC, October 1991

1. **Environmental justice** affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from all ecological destruction.
2. **Environmental justice** demands that public policy be based on mutual respect and justice for all people, free from any form of discrimination or bias.
3. **Environmental justice** mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for human and other living things.
4. **Environmental justice** calls for universal protection from nuclear testing, extraction, production and disposal of toxic/hazardous wastes and poisons and nuclear testing that threaten the fundamental right to clean air, land,

(Dryzek and Schlosberg, 2005:429-430).

5. **Environmental justice** affirms the fundamental right to political, economic, cultural and environmental self-determination of all people.
6. **Environmental justice** demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.
7. **Environmental justice** demands the right to participate as equal partners at every level of decision-making including needs assessment, planning, implementation, enforcement and evaluation.
8. **Environmental justice** affirms the right of all workers to a safe and healthy work environment, without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.
9. **Environmental justice** protects the rights of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.
10. **Environmental justice** considers governmental acts of environmental injustice a violation of international law, the Universal Declaration on Human Rights, and the United Nations Convention on Genocide.
11. **Environmental justice** must recognise a special legal and national relationship of Native People to the US government through treaties, agreements, compacts and covenants affirming sovereignty and self-determination.
12. **Environmental justice** affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honouring the cultural integrity of all our communities, and providing fair access for all to the full range of resources.
13. **Environmental justice** calls for the strict enforcement of the principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of colour.

14. **Environmental justice** opposes the destructive operations of multi-national corporations.

15. **Environmental justice** opposes military occupation, repression and exploitation of lands, people and culture, and other life forms.

16**. Environmental justice** calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.

17. **Environmental justice** requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritize our lifestyles to insure the health of the natural world for present and future generations.

Environmental justice in this context means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal and commercial operations or the execution of federal, state, local and tribal programs and policies.

To tackle these issues, governments are encouraged to set national environmental protection policies that will ensure victims of environmental inequalities have the same protection as others; the victims should have ample participation in environmental affairs; and the need for public advocates to represent minorities and low income communities should not be neglected (Camacho, 1998).

According to Agyeman and Evans (2004), the current environmental justice framework of the U.S. centres on four main objectives outlined by EPA in 2000 which are the adoption of a public health model of prevention (i.e., elimination of the threat before harm occurs) as the preferred strategy; shifting the burden of proof to polluters/dischargers who do harm, who discriminate, or who do not give equal protection to people of colour, low-income persons, and other protected classes; allowing disparate impacts and statistical weight or an "effect" test, as opposed to "intent" to be used to infer discrimination; and redressing disproportionate impact through targeted action and resources. In general, this strategy would target resources where environmental and health problems are greatest (as determined by some ranking scheme but not limited to risk assessment).

Recent review on implementation of Environmental Justice in the U.S. asserts that the impetus behind the environmental justice movement did not come from within government, academia, or largely white, middle-class, national based environmental and conservative groups. The impetus for change came from people of colour, grassroots activists, and their "bottom-up" leadership approach. Grassroots organised themselves, educated themselves, and empowered themselves to make fundamental change in the way environmental protection is administered in their communities (Bullard and Johnson, 2000).

This is partly so and probably due to inabilities of governments of some countries to ask the questions of who gets helped and who does not, who can afford and who cannot, why some contaminated communities get studied whereas others get left off research agenda, why industry poisons some communities and not others, why some contaminated communities get cleaned up whereas others do not, why some population are protected and others are not protected, and why unjust, unfair, and illegal policies and practices are allowed to go unpunished.

Agyeman (2003) argues that many of these problems could be eliminated if existing environmental, health, housing, and civil right laws were vigorously enforced in a non-discriminatory way. Not many people may be opposed to this argument because industries and governments have often exploited the economic vulnerability of poor communities, poor states, and poor regions for their unsound and risky operations. Environmental justice leaders are demanding that no community or nation, rich or poor, urban or suburban, black or white, be allowed to become a sacrifice zone or dumping grounds. By this, governments are being pressed to live up to their mandate of protecting public health and the environment.

Therefore, the call for environmental and economic justice does not stop at the U.S. borders but extends to communities and nations that are threatened by the exports of hazardous wastes, toxic products, and other industrial externalities. For instance, according to Agyeman (2003), the publication of the People of Colour Environmental Group Directory in 1992 and 1994 illustrates environmental justice organisations are found in the U.S. from coast to coast, in Puerto Rico, in Mexico, and in Canada. Lee

(1992) shows the 1991 First National People of Colour Environmental Leadership four-day Summit in Washington, D.C. was attended by over 650 grassroots and national leaders from around the world. Delegates came from all the 50 states, including Alaska (oil producing region) and Hawaii, as well as from Puerto Rico, Chile, Mexico, and as far as the Marshall Islands.

Walker (2007) argues that environmental justice is presently a travelling, far-reaching, and developing discourse for interpreting and debating on social and environmental justice, considering re-contextualization sometimes might be highly problematic. However, he raised the question as to what extent the superimposition of this new rhetoric can add recognition to the struggles that existed before the origin and practice of environmental justice. Within these concepts, the research reviews the way environmental justice discourse was introduced in the U.S.

Drawing on this review and taking into account the origin of environmental justice campaign in the U.S., Walker (2009) identifies some important characteristics in his seven-fold typology. Firstly, there is an identity perception of race that reflects the origins of environmental justice in a historical and political civil rights. Not only has this made an innovative meaning to environmental justice but a brand of environmentalism that involves a far broader realm of movements than the local environmental activist, a development that is seen to have expanded to encompass different groups (Schlosberg, 1999; Taylor, 2000). It may not be correct to describe the US environmental justice discourse exclusively linked with the issue of race, as it has also involved other forms of class politics, including age and gender (Kurtz, 2007 and Stein, 2004). In so doing, it reflects a broader opposition of racial arguments in the present dispensation. Secondly, Walker (2009) mentions that there is a need to give a steady attention to the issues of justice for people and their environment (Agyeman *et al.*, 2003), instead of attending to a largely politicized issue of justice, which is seen as a separate matter of ecological concern according to Low and Gleeson (1998). This approach of placing communities and people at the heart of the discourse − particularly those who are disadvantaged politically, economically and environmentally − can also help to differentiate environmental justice from what it was originally (Shrader-Frechette, 2002). Thirdly, another interesting thing is about its environmental boundary, the initial discourses of environmental justice were limited to some forms of risk and

pollution – particularly the forms of environmental burdens that were related to the siting of pollution facilities. However, this restricted focus has since paved way for a wider coverage of environmental awareness (Taylor, 2000), expanding its purview from environmental concerns to include accessibility to different forms of benefits and resources provided by the environment (Mutz *et al.*, 2002), coupled with the worries that other scholars have argued that those resources ought to be classed as social instead of environmental benefits (Benford, 2005). These expansions have surpassed the borders of many activist groups and have widened the coverage for interesting intercourse between social and environmental movements.

Fourthly, Walker (2009) maintains that the concept of environmental justice has moved beyond the original insistence on the ideas of distributive justice, to involve various kinds of assertion. The environmental justice campaign has always shown interest in other issues apart from distribution, including, in particular, quest for participation (Schlosberg, 2007; Wenz, 1988). However, distributive theories have tended to dominate the discourse. This is due in part to the close link between the initial stages of movement and case study research which examined the distribution of environmental burdens in relation to social status of the given communities. There were evidences of some forms of bias towards the Afro-American settlements (Mohai and Saha, 2006); consequently legal actions were sought to question the decisions about siting that produced the bias. Fifthly, in identifying the causes of injustice, or apportioning blames and roles, Walker (2009) focuses the spotlight on industrial and corporate decision makers, who, for instance, make decisions to site or operate facilities, and regulate the processes in a manner that completely excludes those concerned, a view supported by Gouldson (2009). Sixthly, Walker (2009) further argues that environmental justice involves a diverse interplay of different levels of analysis, even though, recently, this has been confined within the U.S. borders. A major component of environmental justice meaning has been provided by the horizontal interplays between numerous grassroots campaigns within the U.S. as well as the movement that links the regulatory and national settings (Kurtz, 2002 and Towers, 2000).

Moreover, irrespective of references to the broader international claim of justice for all, as laid out, for example, in the 1991 principles of Environmental Justice (Bullard, 1999), these various connections have continued to remain strongly bounded within the

borders of many nations notwithstanding. Nevertheless, the seventh and last point made by Walker (2009) is that a broadly environmental justice movement has been situated in a flourishing social campaign and among the academics that are closely connected to the movement (see also Cable *et al.*, 2005 as cited in Walker 2007). Interestingly, different forms of environmental justice argument have been developed among the U.S. government and agencies, partly due to some levels of successes recorded by activists in agitating for policy change. According to Walker (2011), important milestones in the process included the U.S. government's creation of the Office of Environmental Justice and the signing in 1994 of Executive Order 12898, mandating the regulatory agencies to view environmental justice as a part of their duties. The result has led to the formation of a managerial concept of environmental injustice, resulting in a frame that is largely complex when compared with the movement community, and difficult to conceptualize and implement (Block and Whitehead, 1999 and Holifield, 2004). Whereas the list is not exhaustive, these dimensions of environmental justice have helped to provide a basis for reviewing the way the environmental justice concept has emerged elsewhere, within new movements and at both local and global scales.

2.3. The Objectives, Scope and Processes of Environmental Justice

The research begins by exploring the meanings of the two (distributive and participatory) more commonly cited forms of justice with regard to environmental issues. The former, distributive justice is understood as the fair apportioning of environmental bads, such as the hazards from waste materials, and the latter, participatory justice, implies an equitable privilege to speak and participate in decisions that concern them. Some environmental justice concerns originated from where an undesirable project is planned for a community, or when a settlement is aware of a threat coming from a project. The argument is that the disadvantaged communities are often the target for these undesirable land uses (distributive injustice); furthermore, they are not included in the decision making process (participatory injustice). Thus, such communities bear most of the environmental bads (environmental injustice).

The assertion of distributive injustice compares favourably with statistical investigation – and for this reason, it has attracted attention from many scholars. Are there any forms of bias in siting of projects? The conflicting results of the various studies suggest that

the associations identified will depend on the type of land use in question and the methodology used (Cutter 2006). There is a nevertheless ample evidence to suggest that some forms of bias may be influencing location decisions. A study by Bullard et al. (2007) shows that neighbourhoods hosting harmful facilities are found with disproportionate numbers of disadvantaged groups: in all, the study showed an average of 55% of the population from an ethnic minority who lived with waste facilities; while it was only an average of 30% ethnic minority population that were found in communities without the waste facilities. Host communities were also noted for high rate of poverty. The findings of Bullard et al. (2007) have met some criticisms. Bullard's study examines only harmful waste facilities, rather than the whole issue of environmental harms; it also avoids conclusions about what might have caused this waste distribution. Supporters of the market forces have argued that market forces are the main cause of siting undesirable projects in poor-income neighbourhoods; some of these communities are commonly seen as minorities for the mere fact that low-income is associated with disadvantaged status (Walker 2011).

Environmental justice campaigners have offered two simple replies to this argument that yield a clearer understanding of how they diagnose the problem they attempt to solve. Firstly, although the responsibility for unequal environmental justice lies with class, rather than race, it remains unfair because everyone has the right to a protected environment, and these types of harmful activities produce unacceptable public threats. However, the whole argument of environmental justice campaigners is somewhat difficult to establish in a political context where class distinction is commonly accepted as the normal and fair product of a capitalist economy – and thus where superior wealth is expected to be related to all kinds of advantages, including health and choice of location. The literature nevertheless asserts that at some point, environmental injustice is something of an assault, one that should not be imposed on anyone if human dignity is to be upheld (Walker, 2010). The environmental justice movement is perceived as making efforts to see that there is less of class inequality in relation to the environments. The second straightforward point made by the activists, however, is that it is unfair for elected officials to continue to discount or ignore the health problems of the local residents on the grounds of those residents' impoverishment, disadvantage and political marginalization. Representatives ought to actually represent all groups, not only those

persons who buy their ideas. Everybody should be treated with equal environmental rights, irrespective of their status (walker 2011).

Hence, the discussion so far suggests that the environmental justice is more than just a legitimate branch of the environmental movement: it is a vital component. However, in some regards, the goal of participation and empowerment might raise some concern for environmentalists. For example, if disadvantaged neighbourhoods gain the access to the management of the environment, they might begin to exploit natural resources for their use. How much will the needs of generations yet unborn and other aspects of nature weigh with those communities? Democracy is not entirely without some levels of risk: no one can make accurate prediction of what decision the people will take with their power. However, this study contends that environments are more likely to be liveable places with greater implementation of the core principles of environmental justice.

So how do the goals of distributive justice fit into this review? This study concurs with those authors who insist on the core principles of participatory justice and recognition, rather than relying on distributive justice alone, as key to the goals of the environmental justice movement (Schlosberg 2007).

At this point, some conclusions can be drawn about the implications of this review for policy makers; the conclusions are merely suggestive though. Obviously, the goals of environmental justice are unlikely to be met if all emphasises go to the top-down procedures and policies of environmental management. They need to be formulated from the grass-roots by mobilizing the neighbourhood in a way that they see themselves as responsible stewards to the environment; this should involve people with expertise in community movements and organizations. Such individuals would already be aware of the kinds of policy changes for effective public involvement in making decision about the environment.

This section of the study also explores some of the various ways in which social indices, such as race or gender and the environment interrelate. As the environmental justice debate has travelled around the globe and across scales to address global concerns, so has it diversified and expanded in its scope (Holifield *et al.* 2010; Sze and London, 2008). In its early evolution in the U.S. in the 1980s, environmental justice research and

activism were narrowly focused on the relationship between poverty and race on the one hand, and pollution impacts from industrial sites on the other. As part of this focus, it interrogated the spatial distribution of waste – resulting in the accusation that a form of environmental racism deliberately targeted poor black communities in decisions about where to locate polluting sites. Although this study upholds this as a theme of continuing importance and distinctiveness, over the past 30 years, the range of issues addressed has multiplied.

A review by Benford (2005) examining the content of the various environmental justice activist group websites in the US identified 50 different environmental themes, some of which include transportation issues, deforestation, food justice, bio piracy and lead poisoning. Prior researches reveal similar expansive panoply of issues. For example, Taylor (2000) observes that the forms of social difference that have continued to feature in recent environmental justice literature include issues of gender, the environmental and participatory concerns of disadvantaged and disabled people, age differences, the environmental rights of indigenous people and responsibilities to future generations.

The conceptualisation of environmental justice in terms of a process is considered helpful for the study. For example, it might be seen as a process of working hard in order to attain a clearly defined environmental justice objective, in opposition to the cumulative forces that generate or maintain an existing pattern of injustice. However, a number of authors have made serious moves in this direction (Pellow 2001; Pulido 1996, 2000). Pellow (2001), for instance, argues for a process-based interpretation of how environmental inequalities and injustice are generated. He contends that the way present day situations of injustice and inequality have arisen is best understood through a historical perspective. He further points out that:

> "*like all forms of stratification, environmental inequalities are relationships that are constituted through a process of continuous change that involves negotiation and often conflict among multiple stakeholders"* (Pellow, 2001:589).

Here he presents the current dynamics of environmental justice and offers a strong argument against static thinking. While the scholars in this group have argued for the

need to focus on the process through which injustice and inequalities are produced, the research also considers efforts towards challenging, revealing and countering injustice as an ongoing and dynamic process. This process not only involves the benefits of environmental justice in terms of political activity and community action, but also in addressing issues on the patterns of injustice and inequality.

This whole ongoing attempt to define and make sense of environmental justice allows us to begin to think about process. A process perspective agrees with an understanding of justice which recognises that the question of 'what is just' and 'what is good' will never, and maybe should never, be finally resolved, but remains continually open to debate, reasoning and revision (Walker, 2011). It maintains some common ground with sustainable development approaches that call equally for a process-based understanding of work towards sustainability goals, and for continual debate and negotiation about their very meaning (Becker and Jahn 1999).

It is worth clarifying; however, that a more dynamic understanding of environmental justice does not entail that there should be no resolutions and agreements about problematic situations. But at the same time, it regards the aspiration to achieve once-and-for-all, definitive solutions to inequality and injustice as unrealistic. Again, the conditions for achieving these are better understood in dynamic rather than static terms.

The opening section of this chapter has presented background information that allows the reader to make meaningful sense of environmental justice discourse and also provides a clear explanation of the structure set out for the remaining part of the chapter. It can be seen that environmental justice is broadly about the interconnectivity of social difference and environment. It may be seen from the foregoing that the field of environmental justice activism, procedures and research has continued to move in many interesting geographical directions, embracing a diversity of social difference and environmental concerns in a complex world.

In an attempt to get a hold of this complexity and in quest of a better understanding of environmental justice, this chapter has introduced concepts that have been found useful for developing an analytical perspective (Walker, 2011). The process of raising different kinds of demands regarding environmental disputes in given situations has been

examined, for instance, the nature and extent of environmental injustice has been analysed. It involved different elements which can be categorised and interrelated; and also included a process of contextualisation, for adding value and meaning to the elements. Such process is vigorously pursued not only by environmental justice activists in their efforts to enrol others into their campaigns and collective actions, but also in a less overtly political way by other actors and researchers.

The review has shown that there is no commonly acceptable definition of environmental justice, no agreed environmental justice framework; rather what we see is a multiplicity of alternatives that are applied in different contexts (geography, policy, culture, etc). While this chapter argues that there is no single concept of environmental justice that could readily win consensus in all cases of claim-making, it upholds the position, adopted by several scholars, of openness to diversity in the various ways that environmental justice is extrapolated and adopted. Having made a fairly swift introduction of the core ideas, the next section discusses some selected case studies on environmental justice across some countries.

2.4 Selected Cases of Environmental Injustice Across Countries

The cases have been selected for three reasons. Firstly, they cover examples from most continents of the world, for instance, Africa, Asia, Europe, North America and South America. Secondly, the cases of some of these countries like Chad, Cameroon, Ecuador, South African and Venezuela deals directly with oil exploration and pipelines, which have direct bearing to this study. Thirdly, other countries like Ghana, Malaysia, UK and U.S. do not relate directly with oil exploration and transportation, but have information on the various dimensions of environmental justice that are relevant to the study though.

2.4.1 The Case of Chad/ Cameroon Oil and Gas Pipeline Project

Grimes (2011) argues that despite much disagreement, the construction of a 1000km petroleum pipeline has began from Chad to Cameroon. The Pipeline linked the Southern Chad oil fields to Cameroon. Whilst the multi-national oil companies have claimed that the project will provide direct benefits to the poor with less and manageable threats to the environment, critics have raised a concern over human right violations (Onishi, 2000). A question raised by Vesperini (2000) is that with the current level of lack of transparency and the issue of corruption, whereas Cameroon is ranked among the top five most corrupt countries of the world, how can the people mostly affected by such

pipeline construction project receive any benefit? According to Fred (2001), the most vulnerable people in the cause of this project would be the local rain forest people of Bagyeli Pygmies, Cameroon, whose means of survival is hunting and have remained so with a long history of lack of basic amenities. Fred (2001) fears that the pipeline project could likely cause an influx of many poachers to these remote communities, and thereby impact negatively on their lives and environment. Further arguments have been that pipeline leakage and coastal water pollution are foreseeable dangers, particularly, as the project crosses not less than 17 major rivers; there is a lack of an emergency plan to address any oil spill, which will be disastrous and would have catastrophic effects on the local tourism and fishing industries (Horta, 1999). In addition, Johnson (2002) expresses concerns over the possibility of involving the local people of Bagyeli Pygmies in any meaningful decision-making that affect them. He observes that the people do not feel comfortable to express their feelings in the presence of armed guards who are not sensitive to the public involvement processes and have been viewed as hindrances to communications and also questions the possibility of recognising the voice of the affected Chadians, who are not able to stage any protest without risking or losing their lives. Two issues that relate to this study here are those of the question of transparency on the part of the government of Nigeria and the lack of involving the local people of the study area in decision that affect them. The study would like to address these through an environmental justice framework.

2.4.2 The Activities of Texaco Oil Production in the Ecuadorian Rainforest, Ecuador

Talbot (1999) argues that oil drilling is not something that is completely beneficial to the country of Ecuador who has little experience of oil extraction, and as such, depended heavily on Texaco Oil Company for oil extraction and transportation facilities. One of the side effects of Texaco's operation in the country is the critical health crisis that has resulted to increase in cancer rates and birth defects resulting to miscarriages (Yana, 2000). A study conducted by Revkin (2000) demonstrates that the local people of the Ecuadorian Amazon are exposed to high rates of petroleum related pollutants that exceeds the international safety limit. He also observes that skin related illnesses were evidenced in local residents who lived close to oil facilities. Moreover, the Texaco's oil exploration activities in Ecuador has caused great damage to the forest as a result of deforestation and the consequent soil erosion that had almost eradicated

the traditions and cultures (which are linked to the rainforests) of three of the indigenous tribes – Siona, Secoya and Cofan (Gualinga, 2004). Gualinga (2004) reports that the local groups have claimed that this is entirely a case of environmental racism with the argument that environmental pollution forms a major part of Texaco's historical racial discrimination. However, in a swift defence, the Texaco oil company maintains it has often followed the standard practice, acted responsibly and believes there are no reliable proofs to authenticate the claims of the indigenous people. The implication of this in Nigerian case is noticed in the fast rate of damages done to the ever green vegetations of the Niger Delta region as a result of the oil exploration and the impacts of the oil and gas pipelines on the environment (see chapters one, three and five).

2.4.3 Environmental Justice and the Environmental Protection Agency (EPA), Ghana

The principle of environmental justice in Ghana upholds that all the community members have the right to a healthy and clean environment. It ensures that its activities fully consider the equity processes and societal justice that involve the protection of public environmental assets such as clean water and air and ensures that the law is applied accountably, consistently and in a transparent manner (Ghana EPA Guideline Principle, 2011). In emphasizing the importance of environmental justice to the country, EPA states that:

> "Our commitment to achieving environmental justice for all Ghanaians is central to the achievement of its broader mission. Much of the damage caused to the environment is the result of individuals seeking to externalise their costs into the environment (for example by dumping waste into a river or stream) without consideration of the impact their actions may have on the health and welfare of others who depend on the environment. In some cases the impacts of such environmental degradation fall disproportionately on particular groups in the society (as for example when hazardous or noxious industries are concentrated near low cost housing areas). Our programmes are therefore

> fundamentally about upholding the right of all individuals to a clean and healthy environment – an environment able to support the needs of both present and future generations" (Ghana EPA Guideline, 2011:1).[1]

As a way to achieve the aim of environmental justice, Ghana EPA (2001) has established programmes after due consultation with the relevant stakeholders, representing economically and socially disadvantaged groups. It calls for the law to be applied in an unbiased and consistent manner through the processes of transparency in making decisions that are rooted on the basic requirement of environmental justice and social equity. This is quite similar to the situation in the Niger Delta region of Nigeria.

2.4.4 The Case of Environmental Injustice arising from Deforestation of Borneo Rainforest, Malaysia

Adeola (2001) observes that in Malaysia, the local people of Borneo rainforest opposes some socio-cultural and environmental changes resulting from the activities of both the government and the multinational corporations. As a society of hunters, the people of this zone largely depend on the rainforest for their food, shelter and other daily necessities including medicine.

However, with the economic benefits of the logging industry, which generates over 2.5 billion dollars to the country, the indigenous forests of Borneo and those of some other local communities are being explored by the state and business firms.

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[1]http://www.epa.gov.gh/site/index.php?option=com_content&task=view&id=22&Item

The environmental justice campaigners and local rights activists have joined efforts to warn that the historical Borneo forest is facing a decimation rate that is as high as three times faster than the popular Amazon rainforest. Empirical evidence suggests that the indigenous forests have reduced from about 30,300 hectares in 1970 to less than 4,000 hectares in 2003 (Baram, 2004). This is nothing but a tragic transfer of asset to the future generation.

As Baram (2004) further argues, the procedures of land and forest acquisition often involve the use of statutory law to supersede the customary law of the local residents. Adeola (2000) argues that the state and multinational timber industries have caused reduction in wildlife population and plant species, ground water contamination, soil erosion as well as damages to the indigenous culture. Similar to the case of Brazilian rubber tappers of the Amazon rainforest, the local tribes of Malaysia have adopted a non-violent demonstration that sometimes involve blocking of logging roads to prevent logging activities. As at 2001, about 500 local people were reported to have been arrested and subjected to different sorts of punishment that include torture, harassment, starvation, police brutality and intimidations (Bornschier and Christopher, 2006). The case in the Niger Delta region of Niger supports the argument of Baram (2004) where the Land Use Decree 88 of 1978 currently in operation in Nigeria stipulates that all lands belong to the federal government such that the people in the study area can no longer claim ownership over their land or the resources beneath. This is said to be one of the major causes of conflict in the region.

2.4.5. The Case of South Africa

This section is vital because it provides another good example of the environmental justice frame in an African context. It also deals with issues of environmental injustice arising from oil exploitation, which echoes the central focus of this research. It further preserves some similarities with other manifestations, for example, raising the issue of racism that also featured in the U.S. examples.

Walker (2009) traces the idea of the evolution of environmental justice movement in South Africa to 1992–1993, not quite long from its emergence in the UK. Some of the

significant events at that time were witnessed by many commentators like the Earth Life International Conference held in 1992, a development that helped to form the Environmental Justice Networking Forum in 1994, which later developed into a movement that had over 400 members covering different civil organizations accordingly (Duma, 2007). Here, the impact of U.S. seems to have made a very significant contribution. According to Kalan and Peek (2005), there were some early moves by a number of South African students who were on studies in the USA to link the U.S. environmental campaigns with those of their home country.

> *"The language that was appearing in the civil rights movement and around the environmental justice movement during the late 1970s and early 1980s was something that came to South Africa in the late 1980s and early 1990s"* (Kalan and Peek, 2005: 261).

The nature of grassroots organisation in South Africa were found to be helpful to U.S. campaigners, and they became aware this was something that was happening globally (Kalan and Peek, 2005) stimulating a more international orientation in the U.S. groups. Kalan and Peck (2005)'s account clearly demonstrates how the knowledge and struggles of a particular people can be very important in propagating the ideas (Faber, 2005). Campaigns against different sources of pollution in the South Durban basin played an important role in preparing the ground for the evolution of environmental justice discourse in South Africa (Walker, 2009). However, Barnett and Scott (2007) observe that the concentration of industries in South Durban was witnessed during the era of apartheid, when non-white neighbourhoods were forced to relocate to the area in the 1950s and 1960s as a consequence of a new act called the Group Areas Act that was then promulgated. In a context of longstanding worries about high levels of land, air and water pollution, influential civic organisations and environmental activists made inputs into South African environmental policy in the early 1990s. This led to the creation, in 1996, of the South Durban Community Environmental Alliance (SDCEA), whose agenda made extensive use of the vocabulary of environmental justice, which was then used among NGOs. Subsequently, the activity of the SDCEA has given prominence to South Durban's two oil refineries as emblems of environmental conflict (Barnett and Scott, 2007) and, in a way it serves as a basis for engaging in community organisation in other communities where there were pollutions across the country (Walker 2010).

The environmental justice movement that evolved in this African country has some similarities with that of U.S. (Debbane and Keil, 2004; McDonald, 2002). Most saliently, the relationships between the U.S. civil rights activists and the anti-apartheid movement implied that the debates around environmental racism resurged greatly in South Africa, a country where the space racialization institutionalised and supported by the state. Other parallels pertinent to this thesis included the issues of industrial polluting activities as well as matters of grassroots campaigns (Martinez-Alier, 2002). McDonald (2005), however, argues that there had been significant divergence of reasoning among environmental justice activists in the country in terms of relevance of such issues as race, class and gender in an attempt to strive for a meaningful environmental reform in an economy largely dominated by the market forces. In the study undertaken by Barnett and Scott (2007), which focused on South Durban Community Environmental Alliance, they identify some tensions like the potential that groups might become co-opted due to their involvement in decision-making and international connections leading to cooperative rather than confrontational ways of tackling business and state matters. However, the SDCEA has encountered various challenges in the strive for participation and policy inclusion, in particular regarding the reframing of measures to recognise foundational needs for historical redress, accountability for discrimination and environmental burdens during the era of apartheid (Walker, 2009). However, Greenberg (2010) argues that the various changes in the present political climate have started to emphasise the need to address political and socio-economic challenges that exist in the country. He observes that various organisations are being charged to evaluate their policies and procedures and to formulate good practices that will help to tackle environmental injustice that are found among several organisations. The implication of the South African case for this study is that it is equally possible to transport the ideas and principles of environmental justice from the U.S. and other countries reviewed in this study to the Niger Delta region of Nigeria in a way to suit the local situation of the study area.

2.4.6. The Experiences in the United Kingdom

The history of environmental justice in the UK is important for the reason that many UK scholars have given considerable attention to this subject. By contrast with the U.S.,

however, where issues of race, waste and pollution dominate, the UK cases focus more on income and social class (Walker, 2009).

Dobson (2007) observes that when compared with the emphatic addition of justice to the environmental agenda in the U.S., there is no similar incidence in the UK. According to Agyeman (1987), the closest comparison in UK that is a bit parallel to that of the U.S. had been the Black Environmental Network (BEN), which he argues that in the 1980s, helped to highlight the nature of environmentalism and involved many black neighbourhoods to create environmental awareness. However, Walker (2010) contends that the network had only operated at a small-scale level and was unable to gather any meaningful support. Many factors might have contributed to this. Bickerstaff and Walker (2001) observe some kinds of weaker civil rights in the UK settings; as well as a spatial pattern of ethnic minority concentration that did not clearly suggest an association with degraded environments; and the absence of local campaign activity where a wider movement could be organised. Also, although there were few instances of protest to the siting of toxic facilities as well as other kinds of initiatives like Communities Against Toxics and Community Lobby Opposing Unhealthy Tips. Unfortunately, these had not been able to generate any kind of collective activism around environmental justice discourse (Stephens et al, 2001). By contrast with the grassroots evolution of environmental justice in the U.S., the UK owed its first work with an environmental justice frame to a mainstream environmental movement called the Friends of the Earth (FoE). Stephens *et al*. (2001) report that in the mid-1990s, FoE had started to develop a social urban-based theme as it worked closely with other social organisations and NGOs. They argue that the development fits environmental justice frame. By collaborating with some academics working hard to develop a kind of UK environmental justice discourse (Stephens et al. 2001) and partnering with the U.S. campaigners, the U.S. environmental justice frame was both drawn upon and purposefully redefined to fit the UK politics. In particular, it was seen as an opportunity to present the environment in a way that makes it more appealing to the then Labour administration that had the ideas of inequalities and social exclusion in mind (Walker, 2009). However, rather than patterns of race and ethnicity, most of the campaigns on environmental justice in the UK focus on income patterns, reflecting the political agenda of the time and a general lack of mobilization for racial discrimination. Some major developments by FoE together with some academics and related NGOs helped to

introduce environmental justice, though with much emphases on some kinds of concerns that are a bit different from the U.S. emphases (Stephens *et al.*, 2001 and Boardman et al., 1999). Some of the emphases include issues on intra-generational and international relationships and injustice in terms of access to environmental resources. In the UK, another important aspect of the emergence of environmental justice discourse was its wiliness for adoption into central government departments' procedures and policies (Bulkeley and Walker, 2005; Agyeman and Evans, 2004). Thus, whilst it took several years of dedicated efforts in the U.S. before the Environmental Protection Agency started to examine concerns of environmental justice, the Environment Agency (EA) in the UK did so proactively relatively early as a mark of its political objective (Chalmers and Colvin, 2005; Lucas et al., 2004).

The redefinition work undertaken by the EA in the UK both defined its interpretation of relevant social and environmental concerns, and renamed the frame itself. Whereas it was initially derived from the U.S. environmental justice perspective, the EA remained in its own categorisation programme as one addressing environmental injustice. As framing work in government circles (Lucas *et al.*, 2004), it equally helped to promote the notion of environmental justice by incorporating it into the sustainable development agendas (Agyeman and Evans, 2004), instead of creating a new discourse altogether. In line with this, the 1999 National Sustainable Development Strategy stated that everyone should share the benefits of increased prosperity and a clean and safe environment. In numerous ways, the acceptance and application of environmental justice concept in the UK was coined to suit the contemporary socio-political atmosphere (Agyeman and Evans, 2004). Elsewhere in the UK, for example, Bhopal, et al., (1998) study the impact of air pollution from local industries on the health of people living close by. Their study was a case study in the North East (Teesside) of England where they observed that there was a health effect of local industrial air pollution as it was shown in the lung cancer and respiratory mortality in women. In addition, Phillimore and Moffatt (2004) observe that the rate at which environmentalism grows at Teesside is a matter that calls for urgent attention mainly because there was little critique of sources of industrial pollution in the Teesside. They argue that the economic dominance of the industries and the peoples' reliance on the jobs provided by those industries serve to inhibit the potential of any campaign focused on the existing risk from pollution. As a result, they suggest a diversification of Teesside economy, call for environmental campaign and

monitoring of air quality. The experience in the UK is relevant to this study in the sense that it has added another dimension (social class and income) to the principles of environmental justice which correlates with the socio-economic impacts of the oil and gas pipelines on the people of the Niger Delta communities as explored in the study.

2.4.7 Environmental Justice and the Oil rich Country of Venezuela – Can an oil country go green?

Venezuela is an interesting case because it is an oil producing country that upholds the principles of environmental justice. Venezuela is an oil rich country that is ranked among the top 12 bio-diverse nations of the world, providing homes to over 20,000 plants species, about 6,000 different types of birds, reptiles and mammals, fish and amphibians, over 700 different types of vegetation, and over 120,000 insect species (Venezuela Fact-Sheet, 2008). Whilst the government of Venezuela has, always, some significant concerns for the environment, what has recently changed is the understanding that a meaningful environmental policy and agenda can only succeed if they are carried out with the full recognition and participation of the people of Venezuela. Venezuela's national oil company, Petroleos de Venezuela, S.A. (PDVSA), participates actively in the country's green revolution and has also implemented several environmental plans and projects, which include emission reduction, green area recovering and lakes, rivers and land decontamination (Venezuela Fact Sheet, 2008). In 2007, during a local press briefing, President Chavez stated that:

> "You should all know that the petrol produced in Venezuela is now green petrol, we do not use lead any more…Venezuela is the country that least contaminates the environment, but nevertheless we want to set an example and be in the vanguard" (Venezuela Fact Sheet. 2008:2).[2]

[2]http://www.venezuelaanalysis.com/analysis/2244.

The fact-sheet clearly reveals that as is the case of Venezuela, it is possible for an oil country to go green**.** Even though Venezuela is one of the major oil producers, it has continuously called for dependence on renewable energies. However, it has gone further and has taken a significant role in the signing and implementation of global environmental agendas. The secret of Venezuela's successful environmental management policy lies in public involvement. For example, the Water Community Boards (WCBs) are local organisations responsible for the management of water related issues within local communities, such as sanitation, pollution, leaking pipes, etc. As in 2008, there were over 3000[3] WCBs in the country, mainly in poor urban settlements and they provide benefits to over 400,000 people.[4]

There has been an understanding that community participation is the key to solve water problems in Venezuela. The lesson here for this study is that Venezuela is able to operate a green environment with full recognition and participation of her citizens. These are issues that are discussed in the next section.

2.5 The Definitions and Core Debates of Distributive, Procedural and Justice of Recognition

This section is particularly devoted to the various interpretations, arguments and core debates around the three dimensions of environmental justice. First, the section takes a look at the definitions of the distributive, procedural and justice of recognition, before endeavouring into the current debates on the three. Thus, this section begins with a review of distributive justice on the next page.

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[3]http://www.embavenez-us.org/factsheet/fswatermanagement.pdf
[4]http://www.minci.gob.ve/reportajes/2/12876/Venezuela_celebra_eldia.html

2.5.1 Distributive Justice

According to Maiese (2003:1), who refers to distributive justice as economic justice, "distributive justice is concerned with giving all members of society a fair share of the benefits and resources available". However, from prior studies on environmental justice, it is observed that whilst everyone would want wealth or resources to be distributed evenly, there is a lot of disagreement about what amount to fair share. This is discussed extensively in section 2.6 below, as one of the drawbacks of environmental justice. Maiese (2003) suggests that three indicators of – need, equality and justice are possible criteria for distribution. In his critique of distributive justice, Sen (2004) argues that the problem of injustice and marginalisation of greater population of the world from enjoying the world's resources and taking part in decision on the way these resources should be distributed, are considered major challenges in recent times.

Similarly, Pulido (1996) argues that it is those who are marginalised and the poorest of the world that often bear the burdens of degradation of resources and pollution just because they found themselves vulnerable and with lack of options unlike the privileged who always reduce their level of vulnerability by preventing themselves from environmental hazards with the help of assorted mechanisms and exportations. Sen (2004) laments that distributive justice movement has not been able to tackle the problems of the most disadvantaged section of the world and has equally demobilised the movements for socio-cultural recognition. As such, the study foresees an emergence of a new paradigm shift around the concepts of recognition and participation, even though the relationship of the shift to the various paradigms that currently exist still remains quite ambiguous.

In order to make a genuine claim about distributive justice, Bell (2004) lists out three core questions that need to be addressed. These questions are, first who are the people that receive environmental justice? What is it to be distributed? What is the pattern or principle of distribution? Walker (2012) argues that the issue of the recipients of environmental justice has to do with determining the people that matter in terms of the way environmental burdens and benefits are distributed. Dobson (1998) defines a community of justice (the people who matter when we think about the distribution of

environmental goods and bads) as the present population of a nation (spatially intra-national and temporally intra-generational), which formed the early phrase of the movement for environmental justice in the US. In a more expansive way, Caney (2007) defines a community of justice to include future generations and the populations of other countries (thereby intergenerational and international), which, as explored in the early part of this chapter, has become more popular as the environmental justice frame has evolved.

On the issue of what is to be distributed, Walker (2011) observes that the contemporary knowledge of environmental justice covers a wide range of environmental features. These features include both benefits (energy consumption, green space, access to water and services) and burdens (waste, noise, air pollution and flood risk). However, Boardman et al. (1999) maintain that the difference between burdens and benefits is malleable, for instance, whilst clean air is a benefit, air pollution is a burden. Certain features or objects, depending on their evaluation and context, may shift from benefit to burden. For example, the consumption of energy can be seen as simultaneously a benefit by providing necessary energy services and a burden by contributing to carbon emissions, and its distribution can be at issues in both cases. In a similar instance, flooding can be a threat to others and a positive resource for others (Boardman, et al. 1999). In the context of environmental justice, Schroeder et al. (2008) argue that the concepts of benefits and burdens are always relative in the developing world, both with respect to any particular group of potential resources users and in absolute terms. Walker (2012) identifies some crucial subtleties in an attempt to define what exactly is to be distributed. As outlined in Table 2.1, for each of the concerns there are issues in resolving what is to be distributed, in each case different types of optionality and complexity manifested. However, the issue of what is to be distributed also clearly has some relationship to the evidence needed to make evaluation and judgement. The ideal metric of distribution may not be available in existing empirical evidence, and there could be many circumstances in which it would not be possible to measure the primary concern for distribution, as such, there is a need to work out some kind of proxy indices of distribution (for instance, nearness to a pollution source as an indicator of impacts of pollution on health and well-being).

Table 2.1 Issues in Defining the appropriate metric of distributive justice (Adopted from Walker, 2012).

Concerns	**Issues in defining what is to be distributed**
Waste	What type of wastes or waste facilities? Is it proximity to waste facilities that matters and, if so, how is this to be measured? How about patterns of waste production?
Air pollution	Is it the diminishing of air quality or emissions of air pollutants that is to be distributed? And by what measure – ambient air quality, specific source emissions or levels of personal exposure; average levels, peak levels or exceedences of standards?
Flooding	Is it a level of exposure to potential flooding that is to be distributed, likelihood of being flooded or flood impacts? How about the distribution of investment in flood defences or in preparedness capacity?
Greenspace	How is greenspace to be defined given that it can take many different forms? What qualities are to be accounted for? What use values of greenspace are deemed to be important – visual impact, exercise and play, relaxation?
Climate change	What measures of carbon emissions are to be used – absolute levels, per capita levels – and at what scales? How about historic emissions? How might the distribution of climate change impacts be captured and at what scales?

The next question bothers on the principles of distribution. After a thorough study of the various claims made by advocates of environmental justice, Bell (2004) was able to

identify three principles that are generally applied. First, a principle of equity, which means, for instance, the equal distribution of waste sites across a territory, or the equal per capita distribution of carbon consumption; second, a principle of equality and a guarantee standard, where inequality needs to be removed but at the same time, a standard of environmental quality ensured for everyone, this include right to clean water or a basic standard of air quality; third, a guaranteed minimum with variation above the minimum based on personal choices and spending income, in this case, beyond an ensured minimum, people can express their preferences in different ways. While focusing on the environment, Bell argues that the main problem was the failure to ensure minimum standards, rather than inequality per se. He readily extends the conception of justice as fairness to include environmental justice concerns. As such, the criterion of just distribution should be a reflection of the different meanings of goods and bads that emerge in particular contexts, and in part, should be expected to be contested. Siting another relevant example, Hillman (2004), after a careful study of the different alternative underlying justice principles at work in priority setting for stream rehabilitation in Australia, demonstrates the differences in environmental justice concepts by identifying six ways in which distributive principles can be applied (see Box 3 below).

Box 3. Alternative principles of justice in priority setting for stream rehabilitation in Australia (Hillman, 2004).

- *Equality of rights*: where resources for streams rehabilitation are spread thinly and evenly across an entire catchment, characterised as peanut butter management;
- *Utilitarian equality*: where the vision is to maximise overall catchment health, balancing costs and benefits in the allocation of resources, a homogenising approach;
- *Democratic equality*: where priority is given to the most disadvantaged biophysical or human parts of the system, or focusing on the worst bits;
- *Proportional equality*: where the status quo and historically derived priorities are maintained, also known as the grandfather principle;
- Casual responsibility: where the polluter pays principle is paramount – those that are deemed responsible for river degradation (industry and agriculture primarily) are required to fix the problem;
- Merit based: where resources go to those communities who are most active or who have the best performance in managing their rivers.

Similar listings of alternative distributive justice principles have been reviewed earlier, including industrial pollution (Walker et al., 2005) and hazardous facility siting (Bryner, 2002).

However, a number of these distributive principles demonstrate that it is important to study other dimensions of distribution which interact with the distribution of the direct environmental goods and bads. Walker (2012) identifies three such dimensions as vulnerability, need and responsibility. Cutter et al. (2000) argues that not all people are necessarily equally affected by an equivalent environmental burden or able to cope with or recover from its impacts. Sexton (1996) maintains that social, physiological, economic and cultural factors may mean that an entire equal distribution of exposure to a burden may still retain very unequal impacts - for example, older people are more susceptible to excess and unusual heat or cold, whilst children are more sensitive to

various types of pollution because of their higher metabolic and respiratory rates as well as the on-going development of their nervous system among others. According to Kuehn (1996), people of different races can have different illness profiles for genetic reasons. Poorer people have far lesser resources to cope with and recover from disasters like flooding; new immigrants or others with language barriers may find it difficult to understand environmental health or risk warnings and protection advice (Thrush et al., 2005). For such reasons, claims of environmental justice can be very interesting in demonstrating the way distributive inequalities in vulnerability can compound distributional inequalities in exposure. The issue of need becomes important with a focus on environmental resources. Therefore, claims of justice may need to seek differentials in need, rather than focusing only on simple absolute equality. Some household may need more access to water than others, just as older people can need better access to energy and heat than others during cold weather. Some communities may need better protection from industrial pollution and flooding because they lack the resources to self-help, protect themselves and the environment from the impacts of such pollution and flooding. People living in high density and stressful neighbourhoods arguably need more access to greenspace for achieving calm and relaxation than others (Walker, 2012). In terms of responsibility, again the relationship between different patterns of distribution is very important. Hillman (2004) refers to casual responsibility in his identification of alternative justice principles (see Box 3 above). Distinctions are made here between situations in which distributive inequalities both affect and are generated by the direct outcome of the activities or informed choices of the same people – the polluter is also the burden-taker – and those where there is a dislocation between those benefiting from and those suffering from patterns of distribution – the polluter and the burden-taker are distinct. Instances include, for industrial pollution, the contrasting distributions of oil exploration activities generating pollution and those communities suffering the health and environmental impacts of exposure to industrial pollutants and, for climate change, the contrasting distribution of greenhouse gas emissions and distributions of both exposures to changing regional weather patterns around the world and vulnerability to their impacts (Walker, 2011).

On the role of the state in the distribution of environmental benefits and burdens, an analysis of the environmental institutions and legislative framework of India, by Williams and Mawdsley (2006), suggests that there is a need for caution in allowing the

government to take a leading role in advancing the course of environmental justice. As Kothari (2004) points out, the need for caution arose for two main reasons. First, is the argument that a significant part of this legislation is characterised by conceptual weakness and limited opportunities for participation. Second, is the extremely inability of the government to enforce environmental regulations. As a result of the lack of ample structures and opportunities for participation provided by and within the state, coupled with the irregularities that are associated with civil interest litigation, it is of course not surprising that direct opposition has remain a major option for challenging the existing principles of environmental governance in some countries (Kothari, 2004). However, Low and Gleeson (1998) observe that pursuit of environmental justice through pressure-movement politics only, has reached a stalemate. For research on environmental justice, Williams and Mawdsley (2006) identify three key implications of the role of the state in promoting environmental justice. First, whilst environmental justice literature must engage excessive capital exploration of environmental resources, other important areas that require justice should not be ignored. Second, studies on environmental justice need to focus attention on the various forms of injustice that emanate from lack of recognition, rather than keeping faith with the notion that inclusive processes of deliberative democracy will work out for the general good of all. Third, environmental justice seems to have a global coverage, but this requires a role to device the ways by which it can treat the differences and peculiarities of different countries and cultures.

From the foregoing, though the concepts of distributive justice are central to environmental justice claim-making; the conception of environmental justice purely as a matter of distribution is quite insufficient. Therefore, to develop a comprehensive account, the study reviews the interrelated ideas of procedural justice and justice of recognition in the next few sections.

2.5.2 Procedural Justice

Whilst Greenberg (1987) perceives procedural justice as a construct that influences the perception of organisational fairness that entirely does not rely on distributive fairness judgements and is applied to explain the psychological method of procedural fair treatment. Maiese (2003) conceives procedural justice with formulating and enforcing decisions based on fair processes that lead to fair treatment. It ensures that those

formulating the procedures should maintain elements of neutrality and those affected by the procedures should be well represented in the processes of decision-making. This hypothesis supports the idea that if people can see some elements of fairness in a given procedure, they would likely accept the results. As such, fair procedures implementation is vital to dispute resolution.

However, Walker (2010) argues that procedural justice is not directly linked to the way environmental resources, risks and quality are distributed, and rather, it is concerned with the various processes involved in making decision about the environment. The study observes that this raises issues of adequacy of the processes of participation in making decision, access to legal redress and also, the issue of access to vital information by all the necessary stakeholders. Walker (2010) further contends that procedural justice examines the whole range of issues involved in the way power and representation have been overlooked in the move towards more deliberative processes as well as emerging development in legislation and policy debate.

In particular, there are two theoretical models that have been proposed to account for some of the factors that help to explain the way people evaluate procedural fairness. These are the group-value model and the self-interest model (Greenberg, 1987). The group-value suggests that it is difficult for employees to always gain their self-interest in the course of interacting with others. They need to realise that some other outcomes must be anticipated and accepted beyond their wish if they are to attain group cohesiveness. As a result, fairness in procedural processes is emphasised so as to prevent conflict, but to enhance long term benefits. Thus, procedures are viewed as important elements needed to help redefine the intra-relationships within groups and as norms that regulate the social structure and decision-making processes among the groups (Lind and Tyler, 1988). The self-interest model, on the other hand, has to do with the egocentric conception of an individual (Lind and Tyler, 1988). It proposes that employees are always concerned with their own circumstances and the quest to gain control over the procedures of organisation with a view to see that their personal interests are given ample considerations so as to maximize the most desirable consequence for themselves. This model therefore states that the perception of procedural justice is greatly influenced by the amount of decision control at the disposal of conflicting employees (Greenberg, 1990).

2.5.3 Justice of Recognition

According to Greenberg (1987), recognition implies that unique socio-cultural and local identities of indigenous people are valued, respected and acknowledged. This requires a fair treatment for others in a way that acknowledges and accommodates their differences (Schlosberg 1998). Recognition of societal and group differences equally means that the particular feeling of subordination is recognised as a way to tackle local problems. However, environmental policy decision-makers have often been unable to recognise these differences, as a result, have always excluded the marginalised groups. This is the reason why environmental justice discourse has continued to strive for minority recognition and representation in environmental decision-making processes and procedures. The idea behind this is that, sometimes if not most of the times, the groups that are affected by a decision know best what particular problems such decision will likely lead to (Bovenkerk, 2003). However, as Philips (2004) contends, mere representation without corresponding participation of the affected class, would not actually lead to real recognition. He maintains that it is not easy to detach ideas from the people that hold such ideas since ideas are framed by different experiences of different groups in the society. Schlosberg (1999) similarly argues that lack of participation constitutes a lack of social power. In this sense, he maintains that the inability to recognise social differences and the unjust distribution of environmental risks can be countered by authentic participation of affected people in the political processes that lead to those harms. According to Walker (2010), environmental justice has shown that stakeholders' involvement and participation in the processes of decision-making can lead to respect for groups and societal status across various differences. However, recognition and participation of disadvantaged local residents would ensure that their local experiences and knowledge are taken seriously, because they have the potential to affect the processes of decision making by providing a more accurate account of the problem. Therefore, from this review, to really empower the marginalised and disadvantage groups, there is a need to build a concrete relationship between distribution, procedural, recognition and participation. The next section sets out such a framework. However, recognition and participation do not readily imply effective power, especially where there is no sufficient effort to guarantee that everybody's opinion counts in the process of decision-making; power display and hierarchy can

hinder the marginalised and disadvantaged classes from being given equal treatment though.

2.5.4 The Relationship Among the Core Elements of Environmental Justice: Distribution, Procedure, Recognition, and Participation.

Whilst there are a growing number of environmental justice movements in recent times, not many people have focused their interest to exploring what exactly environmental justice refers to, especially in the social and cultural realms of societal and activist demands. The review that follows draws on the work of Schlosberg (2004).

The way many people have understood environmental justice seems limited by their emphases, largely on the issues of equity, or the distribution of environmental goods and bads. However, the definition of environmental justice as issues of equity only is not complete, because environmental activists, local communities groups, as well as various non-governmental organisations (NGOs) are all calling for something more than fair distribution. This review explores the way that definitions go farther than the distributive and procedural realms assisting the development of environmental justice at a regional scale. The debate is that the concerns of regional environmental justice are actually in three dimensions: fair distribution of environmental goods and bads, recognition of the socio-cultural differences of the local people as well as the experiences in those localities, and participation in the processes of environmental policy and management. The co-existence of these three dimensions of justice in environmental movement shows the plurality, and at the same time, the related procedures and practices of justice.

The aim of the review is neither to advance environmental justice as a political tool, nor to assess the current level of injustice. It is to explore some emerging potentials of environmental justice as a regional policy and discourse initiative. Although the definition of environmental justice is something that has been done by both environmental and political writers, a core argument of this thesis is that with all the movement demands, and the proliferation of the writings of theorists of social justice, many of these theories of environmental justice are still very inadequate in their approaches, especially as they continue to insist solely on the distributive paradigm of

environmental justice, with less emphasis on recognition and participation. As such, the central debate in this review is that a thorough idea of a regional environmental justice ought to be locally-based (i.e. needs to involve and be closer to local stakeholders to enhance their full participation as emphasised in the thesis) and theoretically broader to cover the core notions of distribution, stakeholders' recognition and their participation.

One of the short-comings of the theory of distributive justice is its singular attention to equity in the distribution processes of environmental resources. Rawls (1971) argues that in order to arrive at a commonly acceptable theory of justice, there is a need to move beyond our present knowledge to a place where our weaknesses and strengths are overlooked. He advanced the argument that without the knowledge of life circumstances, one would not be able to come up with a good notion of justice that could satisfy everyone. Barry (1995) has a similar idea of justice and contends that people should accept the principles of distributive justice and focus less attention to various ideas of good living. However, this particular focus has been forcefully criticised by other scholars like Young (1990) and Fraser (2001). Their criticisms are very helpful in understanding the principles of environmental justice.

Young (2000) observes that though the theory of distributive justice presents a framework and procedure that could improve distribution, the theory has not successfully examined the institutional and socio-cultural factors affecting uneven distribution in the first instance. Her claim is that the lack of justice is not dependent only on uneven distribution, but also a missing link of recognition of social difference. She further maintains that recognition is important and a lack of it could cause damage to communities and their images in the political and socio-cultural realms. The research views the lack of recognition, in this case, as a form of injustice that constrains the people and serves as a basis for distributional inequity. Fraser (2000), in her call for justice of recognition, argues that justice demands consideration to recognition and distribution. She insists that culture is an important and a necessary platform of struggle. Like Young (1990), Fraser (2000) maintains that there is a need to seek to understand why injustice exists for proper understanding and remedial measures. Thus, whilst Rawls (1971) focuses on the fair processes of justice like some other theorists of liberal justice, Fraser (2000) and Young (2000) examine what might be the possible hindrances to such processes and the way they can be tackled.

According to Schlosberg (2004), these theorists observe a connection between a lack of recognition and respect as well as a decrease in personal involvement in a wider society. He argues that if someone is not recognised, they cannot participate. In this regard, the study expects that justice should focus on the institutional and political schemes in order to be able to address the unjust distribution of environmental goods and bads and the various factors militating against individual, group and community recognition. As such, Miller (2003) contends that decision making that is based on participatory and democratic procedures is an element of social justice, which challenges misrecognition and question the current pattern of distribution of goods and benefits. However, Schlosberg (2003) draws attention to the fact that even though theorists (like Miller, 2003) support the idea of procedural justice, there had been an opposition to recognition as a dimension of justice. Their first objection, Schlosberg (2003) points out is that recognition is not a separate issue of justice. Schlosberg claims that recognition or respect is a condition for fair distribution. Though Miller (2003) dismisses recognition as a different form of justice distributive and procedural, he however maintains that recognition is an important component of procedural justice and presents the position that recognition is not only assumed but also subsumed in the processes and schemes of procedural and distributive justice. A major issue observed here, as the case in Fraser (2000), is that some writers have argued that respect and recognition are theoretical issues, as such, have not been able to give a pragmatic discussion on recognition, neither have they offer a potential link between the current uneven distribution and lack of recognition. It had been argued by writers of distributive justice that if the notion of distributive were effectively implemented in affected communities, then the communities would stop the demand for recognition, since the recognition would be a prerequisite for fair distribution.

However, Schlosberg (2004) insists that the unwelcoming attitudes towards recognition is a result of its entire misinterpretation in the theory of justice and argues that justice requires a clear attention to fair distribution, adequate recognition and effective participation since the three are interwoven in the circles of community and group demands. For those overtaken by the distributive paradigm, recognition is seen as another element to be distributed. However, given the important nature of recognition, Walker (2010) gives two responses. First he maintains that majority of the distributive

theorists view recognition as a requirement for entering into a system of distribution. The research notes this in the arguments of Miller (2003) above. Walker (2011) argues that the major issue is to address recognition rather than assuming it. Second, he refutes the argument of Young (2000), by saying that recognition is not something to be distributed; rather, it is a form of societal relationship and norm. In other words, Walker (2010) sees recognition as a form of justice that goes beyond the demand on the government and business alone for remedial measures, and moves the theory of justice to the social realm that transcends government and business. As noted above, the challenge with distributional theorists is that the point that links recognition to participation and to distribution is underemphasized. From this review, it could be argued that recognition is a vital component of environmental justice; and should be incorporated it into the core schemes and processes of environmental justice. The claim in this review is that justice is a combination of three closely related elements (distributive, procedural and justice of recognition and participation). However, this review observes that the researches on environmental justice are not yet balanced. Fortunately, as argued in this chapter, activists for environmental justice have presented some useful information on what might lead to a balanced framework. But where this balanced framework is not implemented, the consequence has been resources wars, insecurity and violence, which form the discussion in the next section.

2.6 The Politics of Resource Wars and the Links Between Oil Exploration, Insecurity and Political Violence.

This section is devoted to the review of strategic importance of natural resources in fuelling wars in most countries where local resources have become the main stay of their economies. A part from financing war, Le Billon (2004) depicts natural resources as a vital element that contributes to several wars in the 1990s, from many civil wars fuelled by diamonds in West Africa, to the Iraq occupancy of oil fields in Kuwait. As such, the core issues for review in this section include the definition of resource wars; the links between resource and war; violence as a political avenue to gain control over oil resources; and the way the resource fuelled wars can be prevented.

According to Le Billon (2007), resource war was a popular term used in the 1980s to describe the tensions that existed between the U.S. and the Soviet Union over the

control of minerals in South Africa and oil in the Middle East. To Klare (2001), the term is generally interpreted as conflict resolution over the pursuit of crucial materials. Furthermore, Perreault (2006) argues that resources war has been widely used to refer to petroleum, water, diamonds, timber and other resources like cod fisheries or coltan. He maintains that the term has also been used to refer to the agitations of local people in protest against large scale exploitation of resources as well as neoliberal forms of public utilities and resource control. However, as it is the case with ethnic war, the term resource war could reduce conflicts to a singular factor, as such stands the risk of oversimplification. The term resource war usually focuses primarily on resources with the assumption that there is a direct link between resources and conflicts. There is the need for an all-encompassing definition of resource war that would include the political dimensions of war, utilitarian values of resources and the social and environmental practices involved in resource exploration (Pearce, 2005). For instance, the role of oil in contemporary violence and crises in Iraq should be placed within its historical context of British Colonialism (Atarodi, 2003). Moreover, the war over resources is usually fought in a repeated manner, where the history of the past wars informs present conflicts (Turner, 2004). The next section looks at the various links between resources and wars.

In an attempt to simplify a complex subject, this section focuses on how need and greed have caused conflicts in some countries. This would help to provide the basis for a review that links resources to war. The first argument made by Le Billon (2007) is that scarce resources open up opportunities for more conflict, implying that the people will do everything possible to fight each other in order to gain access to the resources they need for their survival. In other words, societies with poor or scare resources are quite often unable to cope with the scarcity of resources as a result of the capture of rent on resources by the elites. From this perspective, Dalby (2005) argues that a resource war is an expression of a distributive cost characterised with inability to innovate, the greed of the elite, the grievances arising from the marginalised arm of the society, and resource paucity. The second argument is that abundance of resources create more conflicts. This, according to Dunn (2001), implies that when the entire wealth of a nation is dependent on state control, to gain access to revenue control, competing groups would resort to violence and non-cooperation. In this case, a more complex approach argues that abundance of resources can lead to less democracy, greediness by the elites who compete for the resources, and unsatisfactory economic growth. All of

these indices are commonly associated with greater occurrences of wars and conflicts because an abundance of natural resources highly influences the type of governance and the political economy of a country (Le Billon, 2004). As Humphreys (2005) puts it, a wealth of natural resources is commonly associated with uneven distribution of economic and social resources as well as inability to set up a good record of economic performance, as such, countries that are poor in resources often grow faster economically than resource rich countries. Next is a discussion on violence as a political instrument to gain control over oil resources.

Nations that are confronted with particular environmental situations, be it abundance or scarcity, are usually unable to tackle the issues of resources management in a manner that avoid violence. This has been mainly as a result of the debilitating impacts of the resource deposit on the governance institutions and over all economies. These two sets of arguments take their supports from empirical case study evidence and modelling. From a neo-Malthusian school of thought, wars in over populated countries like Rwanda or countries in the Horn of Africa that are prone to drought provide examples of wars linked to resources scarcity, at the same time, violence has been viewed as a direct result of struggles of abundance resources distribution (Fearon, 2005). There are three issues that the study has found outstanding here. These are violence over state control, violence over secession and international intervention. According to Le Billon (2007), wealth of resources has been viewed as the prize for state control, which can lead to conflict for the government. A good example of this was the 1992 failed coup in the oil rich Venezuela by military officer Hugo Chavez. His later election to the position of the president clearly showed the kind of grievances felt by the masses against the lack of proper management of the oil revenue of that country. In Congo Brazzaville, the Denis Sassou Nguesso coup of 1997 to oust an elected president Pascal Lisouba was not unconnected to the control over the oil rent. Also, in Algeria, the violence over state control between the Muslim fundamentalists and politico-military regime was equally associated with the petroleum rent (Ron, 2005). Resource can also lead to secessions in regions that are endowed with abundant resources, where the prize capture does not require the control of the entire country but only the territories necessary for resource production and trade. Some personal greedy initiatives can motivate secessions, especially, when non-natives are seen to exploit local resources without corresponding sharing of the dividends with the local people, or even when local communities are

displaced by the activities of explorative industries or suffer from its environmental costs (Dunn, 2001). As pointed out by Perreault (2006) and to mention but some few instances of violence in oil rich regions of the world, the sharing of environmental goods and bads has fuelled the Aceh secession in Indonesia, Biafra in the Niger Delta region of Nigeria and Cabinda in Angola. In recent times, a number of violence and wars are associated with significant degree of regional fragmentations that are expression of territorial circumstances and the practices of warlords, which Gedicks (1993:44) refers to as "the people and environment join forces" against the state. By this, Gedicks (1993) mean to say that there was a significant resistance from both the native rights and environmental movements due to lack of regard given to the effects of resources extraction by multinational corporations on the land and resources-rich regions of India. In addition, wealth of natural resources can lead to international or foreign intervention, in which case, international states, domestic political elites, and private organisations can form a coalition aimed at commercial interventions in the forms of electoral fraud, assistance to coup and local insurrections, and even military force annexation. Such foreign interventions linked to oil resource exploitation include the gulf war in 1991 and the invasion of Kuwait by Iraqi armies.

On a final note, to prevent the culture of oil-dependence and poor state control that have created room for resource wars, there is a need to develop the necessary frameworks in a way that financial wealth generated by oil exploitation is harnessed and expended for the best interest of the society. Le Billon (2003) identifies five possible objectives that could lead to the prevention of oil resource-fuelled wars: increments in corporate responsibility; resources revenue maximisation; fair and efficient allocation of resources; promotion of peace and security of resource supply; and diversification of the economy. These objectives, among other things are discussed extensively in sections 7.5 and 7.6 of chapter seven of this study. The next section reviews some of the criticisms and drawbacks of environmental justice.

2.7 The Criticisms and drawbacks of Environmental Justice

The more popular the concept of environmental justice has continued to be, the more the number of criticisms it stands to face. Some of these criticisms and drawbacks which are discussed below, have their roots in its multiple definitions, overemphasis of

distribution, under theorisation of justice of recognition, weaker empirical supports for claims of environmental justice, lack of clear distinction of what constitute environmental goods, the question of how the federal policy makers can use environmental means to address the aspirations of environmental justice, the claim that it probably directs community attention away from those problems posing the greatest risk, federal environmental justice faces significant political hurdle, and its potential to exacerbate some aspects of environmental policy making that have been widely bemoaned.

2.7.1 Multiple Definitions

The first criticism of environmental justice is about its multiple definitions. Scholars like Wenz (1988) defend the importance of grasping different understanding and interpretations of environmental justice in helping to acknowledge their various perspectives. The argument on multiple definitions (see Boxes 1 and 2 above) is quite important, but scholars like Cole and Sheila (2001) and Dryzek and Schlosberg (2005) have questioned the way that can lead on to a meaningful engagement between these differences. However, the research suggests that one of the ways multiple notions could be accepted is to get others to appreciate your ideas. From Wenz (1988)'s view point, this is the divergence between the various forms of definitions of environmental justice. Such engagement combines participation with recognition (the core objective of this thesis) in an effort to achieve the objectives of environmental justice.

2.7.2 Priority in the Distribution of Environmental Goods

The second criticism of environmental justice is staged by Wenz (1988), who further argues that people tend to give more priority to those leaving closer to them and less priority to those who are far away in the distribution of environmental goods. This makes sense in the way that we interact frequently with those nearest to us. One of the problems with this theory is that it is not easy to argue for environmental justice for people that are far away from us. This view is equally supported by Agyeman and Evans (2004) and Walker (2011). However, the global environmental justice discourse appears to oppose this tendency. The point of presenting different demands, whether the demands arise from developing countries, or other developed regions of the world, is to acknowledge the circumstances of those who are far away from us. The travelling of

different views of environmental injustice and the publication of these views via many sources of media, as well as the enormous audience that listen to the various forms of environmental injustice with the help of many civil societies across several countries, generate and encourage recognition across far distances. According to Walker (2011), this was a major lesson from the protests by the World Trade Organisation (WTO) in Seattle. The research argues that through participation and recognition those who are distant and many circles removed from one another (in terms of matters that have an impact) could become much closer.

2.7.3 Going Beyond the Realm of Distribution

The third drawback of environmental justice lies in the fact that from the various calls from both the theorists and activists to expand the coverage of environmental justice in a way that it goes beyond the realm of distribution, coupled with the demand to integrate the three dimensions of environmental justice (procedural, distributive and recognition), no truly satisfactory theories of environmental and ecological justice have appeared to date (Schlosberg, 2007). Schlosberg (2004) argues that the nearest the theorists of distributive justice have come to the debates of environmental justice discourses can be found in the discussion around future generations of human beings (for example, Barry, 1999; De-Shalit, 1995). But those debates have not successfully addressed the issues raised by activists around the recognition of particular ways of life and ways of relating to nature, as mentioned above. Instead, the focus on future generations has been used as a way of bringing in the justice of distribution to defend the safeguarding of the natural environment. Environmentalists may dwell on the debate that nature possesses some intrinsic values, but professors of distributional justice would not want to make such a claim. Instead, the debate is that we need to leave behind for future generations, the same if not better, opportunities and privileges for resources and the good life that we possess and had enjoyed. Even though this literature admits that this opens up the theory in an interesting direction, the review retains a strict distributive paradigm whilst maintaining a distance from some of the concerns of environmental justice activisms and movement groups.

Surprisingly, Dobson (1988), cited in Dryzek and Schlosberg (2005), allows the interpretation of justice in solely distributive terms to capture his effort to find a

meeting point between social and environmental justice. Dobson argues that all issues around justice are distributive in nature, and draw a conclusion that a matter of respect is not an issue of justice because it goes beyond the distribution borders. But the review argues that Dobson has not sufficiently addressed key matters such as the relationships of recognition and identity as well as political process to environmental justice. This then implies that all environmental injustices are issues of disproportionate distribution. Dobson agrees with the Brundtland Report of 1987 that inequality is a major cause of environmental degradation (Dobson, 1988 cited in Dryzek and Schlosberg, 2005). Dobson (2007) presents a detailed examination of the way distributive justice relates to environmental sustainability. The examination covers various components of distributive justice presented by some of the scholars that wrote on social and political theories during their studies on the principles of justice. Some key elements of his study cover what is distributed, the way it is distributed, and whether the theory is partial, procedural and universal. What is central is that the study compares the various relationships that exist between the many ideas of distributive justice and those of environmental sustainability; however, Schlosberg (1999) argues that he found very little common ground for compatibility. Still, by insisting on the distributive justice paradigm, Dobson (2007) omits certain vital related realms of justice including elements that are articulated in the overall campaign of environmental justice activism. This again, frustrates the possibility of attaining a meeting point between environmental sustainability and social justice; although for anyone who claims that their main concern is the inability to secure a discourse between social and environmental justice promoters, it is surely counterproductive to overlook further discursive and theoretical areas where they might possibly find something that appeal the two. Equally, Low and Gleeson (1998), while offering another interesting explanation of distributive justice, like Dobson (1988), cited in Dryzek and Schlosberg (2005), could not go beyond the paradigm of distributive. Rather, they maintain that the distribution of environmental resources and quality is central to environmental justice.

From Low and Gleeson's examination of the ideas of justice, Schlosberg (2003) observes Low and Gleeson are, however, able to propose two key elements of environmental justice. Nevertheless, distributive justice, in spite of their two core principles of environmental justice, (every living thing has the right to enjoy to the fullest of its own nature of life, and all living things are mutually dependent on non-

living things) clearly go beyond a narrow distribution paradigm. Low and Gleeson appear to be less concerned with issues of recognition and respect for the potential of nature as well as the dependence of living things on the discovery of nature's potentialities. Openly, Low and Gleeson declare their insistence on the principles of distributive justice; their areas of weakness depict the necessity of the very socio-cultural practices that lead to the disproportionate sharing of environmental bads – while suggesting the importance of recognition in addressing those environmental bads (Schlosberg, 2004). While the study is not contending for the substitution of the demand for fair distribution by focusing on recognition, it emphasises the difficulty in explaining recognition in relation to distributive justice. It seems there is a close association between the distributive justice and justice of recognition. The two tend to overlap in their demands, yet they cannot easily fold to form a whole. Whilst it is possible for us to discuss if recognition is poorly distributed, we might not be able to address the lack of recognition in distributive terms. However, Low and Gleeson (2002) support political participation as a step towards achieving environmental justice. They try to link the core practices of participation, procedural justice, and public involvement as pathways to environmental justice. However, they fail to incorporate this link in their scheme of ecological justice, where they focus more on international and bigger institutions rather than the smaller ones and at local level.

In addition, Low and Gleeson (2002) recognise contextual and cultural influences on the terms environment and justice but they did not bring this idea of differences in culture in their interpretation of environmental justice, this can clearly be seen in their explanations of environmental and ecological types of justice. For these authors, justice is seen as a moral relationship among human beings, however, it is shared through some varied culturally mediums. As a result, they appear to see the relevance of recognising the divergences between the cultural backgrounds that produce meaning, and argue that autonomy is a necessary tool for environmental justice to strive (Schlosberg, 1998). Admittance of various principles of justice, to some scholars, implies that your interpretation of justice is correct in your socio-cultural perception, whilst mine is equally correct in my perspective; for Low and Gleeson (1998), this gives a meaningless definition to justice. This asserts that there can be no middle ground between the extremes of universalism or relativism. This is a major reason why a stark dichotomy of this kind has repeatedly been rejected by many authorities over the years

(Schlosberg, 2007). However, Low and Gleeson (2002), with their focus on the paradigm of distributive justice, have not been able to identify the possibility of engaging other ideas of justice, such as justice of recognition and political procedure. Nevertheless, it can be argued that with such broader conceptualisations, there could still be a possible form of unionism between ideas of environmental justice, although there currently appears to be no uniformity between definitions of the terms across cultures.

Just as Wenz (1988) focuses on distributive and procedural elements of environmental justice, Harvey (2005) calls for the need to recognise the multiple views within environmental justice discourse. He travels outside the limit of distributive theory, to support the fact that the US environmental justice movement has refuse to hang the debate on monetary values. This review observes that even though equity may be all about environmental bads and goods, environmental justice appears to be much broader, and the U.S. activists display this (Schlosberg, 2007). As Harvey (1996) argues, the identity criteria for recognising different indigenous and racial classes are suitable in this case. So, while Harvey (1996) brings the concept of recognition into the interpretation of the concept of environmental justice, what he envisages is quite other than the fluidity that plurality contributes. A plural approach presents us with a multiplicity of ideas of justice, which are plausible but lacking in many ways (Harvey, 2005). He reviews the earlier justification and the need for local and specific demands given varied interpretations of justice, but maintains that there are contradictions and the discourse may not succeed without a deliberate effort to pull ideas together in order to form a single but universal explanation of environmental justice. He vouches for a kind of debate within the movement that can create a universal politic, insisting on a move away from the divergent; this thesis, however, questions whether this will ever be possible. In defence of this position, Schlosberg (2003) argues that a campaign for environmental justice should challenge the practices of global powers, rather than limiting itself to local and community solutions. Here, he however fails to consider the potential that put together, such local and community focus principles could eventually overtake the movement and politics of global justice.

The position of this review is in line with the popular belief that the success of environmental justice will be measured by its ability to challenge the fundamental

processes (and their related cultural, political, social and institutional interplays) that are responsible for the various forms of environmental injustice (Harvey, 2005). However, it is held that the needed challenge should not come if it is going to be at the disadvantage of the people as well as the places where the injustice is exercised, noticed, and fought against. This supports the argument that power is diverse, arising everywhere in daily activities, and people can use their everyday power to resist oppression where it is experienced (Schlosberg, 2007). The view of this study is that an environmental justice movement can be unified but not uniform, since a quest for uniformity has the potential to limit the diversity of stories of injustice, the various forms they can take, and the multifariousness within the remedies they invoke.

2.7.4 Environmental Consequences of the Theory of Environmental Justice

The fourth criticism of environmental justice came as Miller (1999) explores the environmental consequences of the theory of environmental justice. He assesses the potentiality of classifying environmental goods on the same grade as other types of primary goods in the estimation of the distributive components of justice. At the end of his studies, three different kinds of environmental goods were identified. It was observed that some environmental goods have direct linkage to primary goods. For example, health problems, arising from pollution, would affect the value and price of other primary goods. Also, other environmental goods are counted differently, and would be viewed and accepted as primary goods by people that attach value to them. In an effort to apply some core principles of justice of distribution, Miller (1999) argues that there is a need for an impact analysis as a way to sum up the losses and willingness to pay, on the part of the public, for environmental goods. However, Humphrey (2003) contends that irreplaceable losses should be a vital component of such calculations. Schlosberg (2004) maintains that the entire argument over the kinds of environmental goods that ought to be counted, and the way this should be done; is limited to distributional terms. No doubt, it is an interesting argument in the context of environmental justice. But there still exists a missing link for environmental justice in the present dispensation in terms of globalisation, especially those who are losing focus of their expected relationships with natural environment. For these latter groups, justice is neither only about classifying environmental goods, nor contending whether they ought to be added to the summations of distributive justice; rather, the issue is the

preservation of an existing life style that relates to nature in a specific way. It is self-determination that is the subject of debate in such cases. And while some environmentalists like Miller (1999) would not want to disagree with this concept of global justice, this research takes the view that recognition of various stakeholders, irrespective of their identities and culture notwithstanding, is a crucial issue for environmental justice.

In addition, Scholars like Cole and Sheila (2001) have criticised the concepts of environmental justice in three different areas. First was on the ground that it has a weak empirical support for majority of its claims. They argue that there exists weaker empirical evidence for claims of uneven impacts of pollution and bias regulatory enforcement than what the promoters of environmental justice really admit. Second, the authors equally contend that environmental justice is motivated by the desire to empower communities towards the health of the public and socio-economic justice. They see this as something that the federal decision-makers will find difficult to handle effectively, especially, if they are to use environmental means. Third, Cole and Sheila (2001) are further sceptical in their views that the advocacy of environmental justice has the possibility to move community focus away from the problems serving as the greatest form of burdens and threats; by so doing, may ironically undermine the concerns for public health and safety precisely in such a locality where the advocacy claims to help.

Foreman (1998) also maintains some critical stands against the notion of environmental justice. He debates that environmental justice faces a significant political hurdle in a country like the U.S. Some of the hurdles include a foreseeable lack of congressional adoption, a question of the importance of localities versus states in siting and locational matters in general terms. Another hurdle would be the infeasibility of a clear policy reaction to new siting, for example, if there were to be a ban on new siting around the communities of colour and low-income. In addition, Foreman (1998) also shares the view that a vigorous pursuit of environmental justice has the tendency to exacerbate some forms of environmental decision-making that have been largely disapproved, for instance, the difference between the way the advocates and the public perceive threats, the inflexible way the locals consider the issue of siting and the confused policy procedural and priorities.

From the foregoing review, the study observes some obvious drawbacks of environmental justice as it pursues its objectives. Firstly, the research is not quite convinced of its institutional arrangement to clearly stipulate and follow-up prioritised and coordinated sets of policies on environment. Secondly, the study questions the capability of environmental justice to face some facts that are politically inconvenient about the various forms of environmental risks. Also, a thing of worry to the research is the multifaceted nature of environmental justice – social justice, racism, environmental activism and public health. How can such a theory be applicable in a unique and extreme case study of the Niger Delta region of Nigeria? However, the research draws solace from the argument of Cole and Sheila (2001) who state that environmental justice speaks much with the wider society where it operates.

2.8 Implication for the Thesis

The review has highlighted a range of concepts and policies of distribution, procedural and recognition, which can be understood as three interrelated dimensions of environmental justice in matters of environmental and oil and gas infrastructure management. The review shows that environmental justice is a concept with varied and divergent interpretations. Hence, any attempt to conceive it solely in terms of distributive justice is not only theoretically restrictive, but also fails to embrace the multiple and diverse quests and campaigns for environmental justice. The desires for the acknowledgement of socio-cultural value, identity and for inclusive and participatory rights of people in any setting are also integral to demands for environmental justice, and should be incorporated into distributional matters (Walker, 2010). A careful study of the way environmental justice has emerged in other countries apart from the U.S. reveals that it has the potential to become a comprehensive and integrated movement and concept that can engender equity in different ways. However, Schlosberg (2004) emphasises that theorists of environmental justice need to begin to develop a greater interest in the level and types of justice demanded by civil organisation to help understand the multiple and diverse principles of environmental justice, both in theory and practice.

Environmental justice discourses have debated the subject in relation to issues ranging from local-level developments to matters of international interest through different

sources and means of communication. In the case of the Niger Delta region, the government and oil companies should rise to the call to devise a framework for mitigating the impacts of the petroleum pipelines on the oil producing communities because of the increasing rate of damages to the environment and the socio-economic activities of the region. This would mean that apart from ensuring distributional and procedural fairness in the petroleum pipeline networking in the region, adequate recognition and participation of all stakeholders affected by oil and gas pipelines should be an issue of utmost priority to ensure equitable satisfaction and without pushing undue burdens to others. Therefore, a system must be put in place to manage the environment of the region in the presence of petroleum pipeline construction and maintenance through an environmental justice framework that can ensure the oil companies and the government fulfil their obligations and responsibilities to the host communities. This review has also shown that the concept of environmental justice is controversial and presents multifaceted objectives in terms of racism, environmental protection, concern for public health and the demand for social justice, even though it speaks much with the wider communities where it operates. The review shows how the concept has become popular and has introduced an important element of recognition to the debate of environmental justice, wherein an environmental justice framework is proposed to explain and understand the way and manner partnerships among stakeholders of oil and gas pipelines must be built, determined, measured and continually evaluated.

2.9 Chapter Summary

Through the journey of this chapter, we have seen the multiple definitions of environmental justice and the ways these definitions have sharpened its goals and scope as exemplified in the various case studies reviewed. However the central theme that runs across the chapter is the need to go beyond distribution and procedural justice and to add recognition as another and related dimension of environmental justice. It has been shown that one of the ways the government and oil companies might be able to fulfil their responsibilities to their host oil producing communities is to be found in equitable concept of recognition and participation as elements of environmental justice. The chapter shows that the objectives of the oil companies in their efforts towards the notions of environmental sustainability and sustainable development can be implemented through an agenda based on the principles of environmental justice practice, which stipulates the democratisation processes involved in stakeholders'

recognition and decision making about those stakeholders and the environment. Akpan (2007) argues that oil and gas exploration has adversely impacted on the environment and the socio-economic activities of the people of Niger Delta region of Nigeria, which has fuelled a resources war in the region. These impacts, particularly those of petroleum pipelines, can be mitigated within a specifically designed programme of agenda of environmental justice, based on the data and findings from the local oil producing communities whose environmental and socio-economic conditions have been affected by oil and gas exploration and transportation through the pipelines in the oil producing region of Nigeria. Accordingly, Idemudia (2007) suggests that the building of a lasting and recognisable partnership with the local oil producing communities is the needed antidote to the frequent cases of negative impacts of oil and gas pipelines in the Niger Delta region. Such a partnership can be built around an environmental justice framework that will mutually benefit all the relevant stakeholders. This is one of the major contributions of this research.

CHAPTER THREE

3.0 OIL AND GAS EXPLORATION IN THE NIGER DELTA COASTAL SETTLEMENTS AND ASSOCIATED ENVIRONMENTAL MANAGEMENT CHALLENGES

"Sustainable development has become a major concern for policy makers and planners in both developed and developing countries. From the environmental point of view, this will not be achieved without a sound environmental policy and management system" (Alshuwaikhat and Abubakar, 2007:259).

3.1 Introduction

In chapters one and two, existing literature on oil exploration, petroleum pipelines and their impacts as well as environmental justice arising from industrial activities from a global perspective were reviewed. Building upon the research gap identified, the aim and objectives for this enquiry were developed. In order to achieve the research aim and objectives, the need arose for a succinct description of the research context and the contextualisation of a reliable approach through which the research questions might be answered. In order to do this, the chapter presents a succinct account of the pipelines used in transporting petroleum products in Nigeria, together with their associated environmental management challenges.

In other words, the chapter is about the treatment given to the environment by the activities of oil and gas pipelines and the socio-economic consequences. For some communities and groups of persons, the environment is seen as an important part of life from which they derive their wealth, health and daily livelihood. Whereas, for others the environment is viewed as a cause of risk and threat, and access to water, green vegetation, wildlife, farm land, energy and so on are curtailed. However, Walker (2011) laments that some human activities are damaging vital environmental resources to the detriment of other humans; inevitably those living at some distance from the damage-causers.

According to Agyeman and Evans (2004), environmental justice provides an important way of bringing attention to overlooked or neglected patterns of inequality which can have significant effects on people's health, quality of life and well-being. Thus the global discourse of contemporary environment and politics has made environmental justice popular and worthy of attention. As a result, this third chapter examines what some scholars have to say about petroleum exploration, causes and impacts of pipeline leakage, the fragile nature of the coastal environment, stakeholders' involvement and the role of physical planners in the context of environmental justice argumentation.

Nigeria is the African nation with the largest population (Adepoju, 2003; Bilsborrow and Ogendo, 1992). The country is also the largest of all the countries in the West African sub-region in terms of land area. Nigeria was an early 20th century British colony that became an independent nation in 1960 (Falola and Heaton, 2008). It is a country of great diversity because of the many ethnic, linguistic, and religious groups that live within its borders. Nigeria is also a country with long socio-cultural and political history. The history of the people who constitute the present state dates back more than 2,000 years (Falola and Heaton, 2008). The earliest archaeological findings are of the Nok, who inhabited the central Jos Plateau between the Niger and Benue rivers between 300 B.C. and 200 A.D. A number of states or kingdoms with which contemporary ethnic groups can be identified existed before 1500. Of these, the three dominant regional groups were the Hausa in the northern kingdoms of the savannah, Yoruba in the west, and Igbo in the south eastern part of the country (Ibrahim, 2008; Ekundare, 1973).

3.1.1 The geography

Nigeria is geographically located within the West African sub-region, bordering the Gulf of Guinea, between the Benin Republic and Cameroon. The country is located at 1000 N and 800 E and has a total area of 923,768 sq. km, out of which land constitutes 910,768 sq. km and water 13,000 sq. km. The coastline which runs along the Niger Delta region measures 853km (Onuoha, 2009). The Nigerian coastline is rich in oil and gas deposits, the exploration of which resulted in the discovery of oil in commercial quantities in 1956. This development brought about the need to lay pipelines for evacuating the crude oil to export terminals for export.

3.1.2 Geographic and political zones

Nigeria is divided into 36 States and a Federal Capital Territory from which the country is centrally administered. The 36 states and the federal capital territory are further classified into six zones called the geo-political zones of the country (see figure 3.1 below).

Figure 3.1. A map of Nigeria showing the six Geopolitical Zones (Ekong et al, 2012).

These zones are evenly spread across the north-south division of the country. The zone in the south-western part of the country is made up of the following states: Lagos, Ondo, Ogun, Osun, Ekiti and Oyo. The south-south geo-political zone (the zone that serves as the study area for this research) is comprised of Bayelsa, Delta, Edo, Cross River, Akwa Ibom, and Rivers States. The south east geo-political zone is made up of Anambra, Enugu, Abia, Ebony and Imo States. In the Northern parts of the country, the

zones are the north central, consisting of: Benue, Niger, Kwara, Plateau, Nassarawa and Kogi States. The federal capital territory is also located in the north central region of the country. The north eastern zone of the country is comprised of Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe States. The north western zone is made up of Kano, Kaduna, Katsina, Kebbi, Sokoto and Zamfara State. The pipelines are majorly concentrated in the oil rich south-south geo-political zone. The federal capital territory is statutorily headed by the president of the country, who usually delegates administration to the cabinet minister appointed by him. The states in Nigeria are presided over by a governor, the chief executive. These governors, who also double as the chief security officers of their respective states, have no constitutional powers to manage the pipelines because the powers delegated to them fall within the residual list in the 1999 Nigerian constitution, which does not include powers over pipeline management (National Assembly Nigeria, 1999). This information helps to show both the geography of the Niger Delta region as well as some political components of the study area.

3.1.3 Climate and vegetation

Like other countries in West Africa, Nigeria's climate is characterised by strong latitudinal zones, becoming progressively drier as one moves north from the coast. Rainfall is the key climatic variable, and there is a marked alternation of wet and dry seasons in most areas. Two air masses control rainfall: moist northward-moving maritime air coming from the Atlantic Ocean and dry continental air coming south from the African landmass. Topographic relief plays a significant role in local climate only around the Jos Plateau and along the eastern border highlands. In the coastal and south portions of Nigeria, the rainy season usually begins in February or March as moist Atlantic air, known as the southwest monsoon, invades the country. The beginning of the rain is usually marked by the incidence of high winds and heavy but scattered squalls. The scattered quality of this storm rainfall is especially noticeable in the north in dry years, when rain may be abundant in some small areas while other contiguous places are completely dry. By April or early May in most years, the rainy season is under way throughout most of the area south of the Niger and Benue river valleys. Farther north, it is usually June or July before the rains really commence. The peak of the rainy season occurs through most of northern Nigeria in August, when air from the

Atlantic covers the entire country. In southern regions, this period marks the August dip in precipitation. Although rarely completely dry, this dip in rainfall, which is especially marked in the southwest, can be useful agriculturally, because it allows a brief dry period for grain harvesting (Adepoju, 2003).

From September through to November, the north east trade winds generally bring a season of clear skies, moderate temperature, and lower humidity for most of the country. From December through February, however, the north east trade winds blow strongly and often bring with them a load of fine dust from Sahara. These dust-laden winds, known locally as harmattan, often appear as a dense fog and cover everything with a layer of fine particles (Ibrahim 2008). The harmattan is more common in the north but affects the entire country except for a narrow strip along the southwest coast. An occasional strong harmattan, however, can sweep as far south as Lagos, providing relief from high humidity in the capital and pushing clouds of dust out to sea. The regularity of drought periods has been among the most notable aspects of Nigerian climate in recent years, particularly in the drier regions in the north (Adepoju, 2003). Experts regard the 20th century as having been among the driest periods of the last several centuries; the well-publicised droughts of the 1970s and 1980s were only the least of the several significant episodes to affect West Africa in this century. At least two of these droughts have severely affected large areas of northern Nigeria and the Sahel region far north. These drought periods are indications of the great variability of climate across tropical Africa, the most serious effects of which are usually felt at the drier margins of agricultural zones or in the regions occupied primarily by pastoral groups. Temperatures throughout Nigeria are generally high; diurnal variations are more pronounced than seasonal ones. The highest temperatures occur during the dry season; rains moderate afternoon highs during the wet season. Average highs and lows for the Niger Delta region are 31°C and 23°C in January and 28°C and 23°C in June. Although average temperatures vary little from coast to inland areas, inland areas, especially in the north east, have greater extremes. There, temperatures reach as high as 44°C before the onset of the rains or drop as low as 6°C during an intrusion of cool air from the north from December to February (Ibrahim, 2008). The vagaries of climatic conditions across the country mean that the pipelines network is subjected to different weather and climatic conditions. The associated variations in vegetation have given rise to different land uses across the country, and this in turn has resulted in different local communities

settling along the pipelines all across the country. Thus, the pipelines have posed a number of challenges and impacts to the people and their environment as it is explored later in this chapter.

3.2 The fragile coastal settlements and environment of the Niger Delta region of Nigeria

This section begins with a presentation of the unique nature of the coastal zone and environment of the Niger Delta and provides an overview of the many pressures exerted on the coastal zone. It examines the overarching challenge of sustainable development of the coast with reference to the oil and gas pipelines' activities placing burdens on the natural resources of the Niger Delta coastal zone beyond their capacity to absorb the impacts of such burdens. It goes further to recommend an environmental management approach in the context of environmental justice to address environmental pollution and the corresponding broad range of social and environmental issues in the Niger Delta as outlined in Chapters one and two.

3.2.1 The enormity of pressure exerted on the Niger Delta zone

The Niger Delta constitutes a huge storehouse of food, mineral and oil and gas resources that, if exploited rationally, could be the basis for sustainable development (Scheren, *et al.*, 2002). Beatley *et al.,* (2002) describe the coast as a dynamic and fragile interface between land and sea. The coastal zone and its ecosystem are believed to be among the most productive areas that provide food, energy, livelihood and home to millions of plants and animals species in the world (Boateng, 2008).

Cicin-Sain and Knecht (2008) observe that the marine environment has four main characteristics: 1) it contains habitats and ecosystems (such as estuaries, deltas and Mangroves) that provides goods (e.g., fish, oil and gas) and services (e.g. natural protection from storms and tidal waves) to coastal communities. 2) Competition for land and sea resources and space by various stakeholders, often resulting in severe conflicts and destruction of the functional integrity of the resource system. 3) The marine environment serves as the main source of the national economy of the coastal states, where a significant proportion of the gross national product depends on activities such as oil and gas production and development. 4) The zone is usually densely populated and it is the preferred site for industrialization (in the Niger Delta, significant numbers of oil and gas installations are cited in the zone).

Pressures emanating from oil and gas activities in the Niger Delta of Nigeria are particularly threatening as we can see in the next section of this chapter. Beatley *et al.* (2002) point out that there are limits to the extent to which the coastal ecosystem can withstand external assaults to its integrity. Research by UNDP (2006) suggested that oil and gas activities through their operations and the marine transportation pose significant threats to the long-term sustainability of these ecosystems.

3.3 The History of the Government's control of Oil and Gas and National Crises in Nigeria

Petroleum, which was discovered in 1956, played an important role in the formation of the first post-independence government in Nigeria which operated a constitutional parliamentary system (Ibaba, 2011; Sklar, 1965). Under this system, the regional governments controlled the resources generated from their respective regions but paid tax to the federal (central government), which had constitutional responsibility for the maintenance of core national services and infrastructures, such as national defence and the federal transportation system. Unequal taxes were paid by the regional governments to the central government under this arrangement. The resources accruing from the regions to the national treasury were then distributed on the basis of demographic and spatial indices (Smith, 2004). The unequal north-south divide which the 1914 amalgamation of the country produced resulted in a situation where taxes collected from the regions at national level were unequally appropriated for developmental activities across the country (Sala-i-Martin and Subramanian, 2003). Based on the indices used at that time for the distribution of resources nationally, the relative size of the northern region in terms of population and spatial extent gave it an advantage, but in parallel, disadvantaged the southern region. The relative advantage of the north region in terms of population and land mass also gave it a representational advantage in the national parliament with the consequence that appropriation of national resources was further tilted in its favour (Oyefusi, 2007). This perceived overall inequity in power relations between the north and the southern regions, and particularly between constituent regions within each, led to agitations which took on various manifestations in post-independence Nigeria. As a result, the disparate north-south representation in parliament produced a power relation imbalance that gave the northern region of the country an absolute majority, with the result that it controlled the polity to its advantage (Osha,

2006). This created a situation of mutual suspicion and perceived inequity in the distribution of resources and opportunities from the centre (Etemike, 2009). A result of this perceived and manifest control of the national polity by the northern region was the emergence of various movements for a redefinition of the concept of the Nigerian nation from the standpoint of oil politics. The next section looks at the effects of a perceived unjust distribution of petroleum resources by the people of the Niger Delta region of Nigeria.

3.3.1 The Perceived injustice in the Administration of the Nigerian Oil and Gas and the Niger Delta Revolt

The representational north-south dichotomy in post-independence Nigeria and the perceived inequity it produced came to a head in the Niger Delta uprising of 1966 (Osaghae, 1995). The uprising, which culminated in the emergence of a separatist movement, essentially protested the national arrangement that gave control to the north (Nwajiaku-Dahou, 2010). The movement unilaterally declared a short-lived sovereign Niger Delta Republic, which lasted for a few months before it was crushed by the Nigerian National Army (Onduku, 2001). The reason for the revolt lay in the struggle for the control of the proceeds of crude oil sales at the time (Saliu et al., 2010). Over 90% of the daily output of oil and gas produced in the country is derived from the Niger Delta region meaning that its net input into Nigeria's annual national budget has been estimated as a proportion of over 75% on the average (Budina and van Wijnbergen, 2008). However because of its relative demographic disadvantage compared to the northern region, the Niger Delta region only had, and still has, a degree of representation that makes its political influence at the federal level (where decisions are made as to the management of the national revenues) near inconsequential, even though the bulk of revenue is derived from that region. The revolt which was led by Isaac Adaka Boro accused the northern Nigeria-dominated central government of oppression and outright usurpation of the oil wealth of the south, to the latter's economic and developmental detriment, and particularly that of the Niger Delta, which had to grapple with the negative environmental and other consequences of oil exploration in the region. Though the violent manifestations of the uprising were crushed, this did not end the quest for greater control of the proceeds of oil, the bulk of which is produced in the area. The effect of the defeat of the Boro-led revolt was the consolidation of the political strength of the northern region within the body politic of the country and a realignment

of the struggle for complete control of the revenue generated from oil resources under the auspices of the Biafra Front. This Front, in which Isaac Adaka Boro played an important role, prosecuted a secessionist civil war that lasted for 30 calendar months, before culminating in failure (Stremlau, 1977). The next section dwells on the way oil and gas production contributed to the Nigerian civil war.

3.3.2 The Role of Oil and Gas in the Nigerian civil war

Another protest against the post-independence power relations in Nigeria which tilted domination of the national polity to the northern part of the country was realised in the 1967 attempt of the south eastern region of the country to secede, in the form of the (now disbanded) Republic of Biafra (Nnaemeka, 1997; Nayar, 1975). The resultant war, which lasted for about three years, ended with a further strengthening of the northern political establishment in relation to its southern counterpart (Watts, 2004; Stremlau, 1977). At the heart of the Nigerian civil war was the quest for political control of the proceeds of oil, as well as the network of pipelines and other infrastructures that were used for its production, refining and transportation for domestic consumption nationally and internationally for export (Obi, 2010). The defeat of the 1967 civil war again resulted in further strengthening of the northern political establishment's influence over inter-regional power relations within the country (Nolte, 2002; Ejobowah, 2000; Saro-Wiwa, 1989). As result of the crushing defeat of the civil war and the Boro-led uprising, Nigeria altered its system of government, from the post-independence constitutional parliamentary system, into a new federal system. The net effect of the transformation was the concentration of political power in the hands of central government and the complete subjugation of the regional authorities to the federal government. Under the new arrangement, central government became the beneficiary of the revenues that accrued from the oil and gas sector, with the consequence that the northern establishment-controlled federal government usurped the power of the regional governments over collecting revenues for natural resources within their respective territories. This development further strengthened central government and also placed the northern political establishment in a more advantageous position with regard to the exercise of legitimate influence over the way the oil wealth of the country is managed (Obi, 2007). The struggle for equity in the control of the nation's oil establishment by the oil producing minority communities transformed from an outright separatist struggle into a movement for greater influence over the management of the proceeds of oil in the

Nigeria of the mid 1970s, called the Resource Control Struggle (Ikelegbe, 2006; Watts, 2004).

At the end of the civil war that resulted from the contestations of the regional political leaders, the then president (General Gowon) led the country and achieved an impressive degree of reconciliation. The long period of civil war, which lasted from 1967-70, accounted for the greatest setback in the country's efforts at infrastructure development, even though the war was fought for reasons of infrastructural exigency. However, the subsequent reconciliation brought about a boost in exploration and exploitation activities which generated an unprecedented amount of wealth for the country (Bird, 2002; Watts, 1999). As a result of the boom in oil production, Nigeria became one of the wealthiest countries in Africa, with surplus budgets recurring yearly. The surplus earnings were committed to elaborate infrastructural development. At this time, oil pipeline development recorded its highest-ever boost across the country. The engagement of the government in pipeline development continued throughout the 1970s and the 1980s, without any in-built plan to manage the associated ROW which the pipeline and the Nigerian national petroleum corporation acts created (National Assembly Nigeria, 1990). The economic fortunes of the country changed when the price of oil in the international oil market plummeted, halting the ambitious pipeline expansion project and constraining the central government's ventures into funding activities that would have alerted the state governments to the congealing crises that were now manifest in the form of pipeline vandalism and other socio-economic problems. Neither the brief periods of civilian government nor the frequent bouts of military intervention proved able to rescue the situation. A response was to subdivide regional Nigeria into ever-smaller parcels. The number of states was increased to 19 in 1979 and to 29 in 1991. By the end of the century it stood at 36, creating more regional centres and promoting physical development, which at the time was financed mostly through loans from external sources. As a result, the nation's foreign debt has been increasing in parallel, to reach $36 billion by 1994 (Reinhart and Rogoff, 2010; Ikejiaku, 2009; Budina et al., 2008). The section that follows this discusses the ways the decisions about resource control affect the distribution of oil and gas pipelines in the country.

3.3.3 Resource control struggle versus Oil and Gas Pipeline distribution in Nigeria

The resource control phenomenon started as a non-violent agitation by the Niger Delta elites for greater participation in the exploration, appropriation and management of the economic opportunities and activities which the oil and gas industry generated (Ikelegbe, 2006; Ifeka, 2001). The resource control struggle initially maintained a peaceful intellectual outlook under the new-found leadership of Ken Saro-Wiwa through the 1980s to the mid-1990s, before becoming violent again (Omotola, 2009; Ibeanu, 2000). The violent phase of the resource control struggle started in 1995, after the leader of the resource control campaign was successfully prosecuted for an alleged crime against the Niger Delta people, for whom he had advocated environmental justice, equity and a voice in the national polity of Nigeria (Watts, 2008). The execution of Saro-Wiwa and other leaders of the resource control struggle were, according to Boele *et al.*, (2001), the spark that undermined the intellectual and activist stance of the resource control struggle. Five years on, the violent nature of the struggle had taken a cynical turn and different groups took up arms with the sole ambition of pushing the government and the oil companies to accede to the region's demand for a greater share of the wealth generated from the Niger Delta oil resources (Onduku, 2001). The struggle came to recognise the northern political establishment, the oil companies and the Nigerian state as the actors behind the decade-long deprivation of the ethnic minorities in the Niger Delta Region of their legitimate claim on the nation's oil wealth (Dibua, 2005). The violent phase of the resource control struggle initially suffered high handed repression by the Nigerian state and the oil companies. This action of state violence against the protest resulted in the extension of the activities of the activists to hostage-taking for ransom and a marked escalation in pipeline vandalism (Oyefusi, 2007). The escalating problems culminated in a near halt of crude oil production activities in 1999. Production dropped sharply from over 2 million barrels per day to less than 0.4 million barrels per day (Watts, 2008; Obi, 2007). As Watts (2008) puts it:

> *"The turn toward violence was in evidence of course in the ways in which the Ogoni Movement under the leadership of Ken Saro-Wiwa was brutally repressed by the Nigerian state in the 1990s. There has been a very substantial escalation of violence across the delta oil fields, accompanied by major attacks on oil facilities and civil*

> *violence among and between oil producing communities and the state security forces is endemic (it is estimated that more than one thousand people die each year from oil-related violence). The tactics and repertoires deployed against the companies have been various: demonstrations and blockades against oil facilities; occupations of flow stations and platforms; sabotage of pipelines; oil "bunkering," or theft (from hot-tapping fuel lines to large-scale appropriation of crude from flow stations); litigation against the companies; hostage taking; and strike".* (Watts, 2008:6).

The result of the state-orchestrated violence was to add a further complication to the problem of vandalism in the area, with a marked involvement of robber barons of non-Nigerian origin, who provided arms and other logistical supports that the activists used to compromise the pipelines and to effect theft oil crude oil from the creeks (Mähler, 2010). As the problem of vandalism continued, by the year 2005, the already critical situation worsened, with a further drop in the production of crude oil to less than 0.2 million barrels per day. The sharp fall in production at the time impacted negatively on the national revenue of Nigeria and also affected the global oil supply (Watts, 2008; Osaghae et al., 2007). The violent struggle, however, did not change the power relationship between the north and south of the country, but it did constrain the central government to allocate some resources for the physical development of the region and an amnesty programme that persuaded the armed wing of the resource control struggle renounce violence in exchange for the opportunity to gain training and employment in the oil and gas industry (Asuni, 2009). The net effect of the amnesty programme has been a reduction in the number of attacks on the pipelines, particularly in the Niger Delta region and the associated rise in the production of crude oil to well over 2 million barrels in the last quarter of 2010 (Obi, 2010).

The distribution of pipelines and other oil infrastructures is fairly even spread across Nigeria (Daukoru, 2004). The location of a refinery in the northern regional of Kaduna, has been interpreted as a having a political aspect that underpins the power relations in the country (Akpabio and Akpan, 2010; Lawal, 2005). The activists in the Niger delta region argue that only a hollow economic logic could support the location of a refinery so far away from the zone from where crude oil is produced. Apart from the refinery in

Kaduna, another has been proposed in Lokoja, also in the northern region, which can be read as another reflection of the power imbalance that operates to locate more oil infrastructures away from the Niger Delta in the south, where crude oil is produced.

3.4 The Petroleum Pipelines Activities, Damage and Risk

As far as the Nigerian petroleum pipeline is concerned, there are several aspects of their activities that could be identified with potential for environmental damage, degradation and risk. This section explores activities of oil and gas transportation through pipelines and assesses the consequences of each of these activities on the environment across the region.

3.4.1 Oil Transportation through Pipelines

Refined products and crude oil and gas are transported through the petroleum pipelines. This transportation usually takes place between the oil fields and terminals with the help of flow stations concentrated in the Niger Delta region. Ibaba (2011) reports that about 90% of Nigerian crude oil is exported, whilst about 98% of the country's crude oil is transported internally within the Niger Delta region. However, he maintains that this is not so with the movement of refined products.

The three refineries, located in Warri, Port Harcourt and Kaduna, are linked by a network of pipelines. But the transportation of gas is less extensive, relative to the oil transportation and it is done between the gas fields and the various thermal plants in the region and to Egbin located close to Lagos, which is outside the region (Ikporukpo, 2005). It is worth mentioning that besides the gas pipeline that links the Niger Delta region to Abuja, which passes through Ajaokuta, there is also the West Africa sub-region gas pipeline (presently under construction), which links Nigeria to other countries in West Africa, such as Togo, Benin and Ghana (see Figure 4.6 in Chapter four).

Damage to the environment has sometimes resulted from road tanker accidents. However, such incidences are very insignificant when compared with those associated with oil and gas pipelines. Nigeria has been reported as one of the worst countries for oil spills. As such, in a period of about ten years (between 1982 and 1992), it was reported that about 40 % of Shell's worldwide spills occurred in Nigeria, even though oil

production there is set at around 14 % of the total production of Shell (Gilbert, 2009). He also observes that whilst, over 4,000 incidence of oil spills were documented and reported between 1976 and 1996, over 2 million barrels of oil were spilled with only about 20% said to have been recovered.

Further studies revealed that about 25% of the oil spills in the region takes place along the swamp areas, whilst 69% occurred offshore and 6% took place on relatively dry land (NDES, 2009). According to Ikporukpo (2008) and Inyang et al (2008), the three largest known spills have been the ones that occurred at the Focados terminal of 1979: that of the Apoi North 20 spill that took in 1980; and the Idoho spill of 1998. These three incidences respectively accounted for over 500,000; 200,000 and 40,000 barrels of oil spilled.

A good number of writers have reported on the environmental and social impacts of oil spills on the Niger Delta region. They include Odu, (2007); Imevbore, (2007); Kinako, (2004); and Chukwu (2008) among others. Oil spills have been discovered to have harmful effects on plants and animals. Given the fact that several communities in this region have experienced such oil spills, this has attracted a regional debate. Oil spills have also resulted in widespread pollution of groundwater. Soil and river pollution has been noticed to have detrimental effects on agricultural and fisheries activities and resources. In this way, oil pollution in the Niger Delta has impacted the socio-economic activities of the region (Ikporukpo, 2008; Stanley, 1990). In addition, abandoned facilities that are sometimes left on the soil surface, have also contributed to environmental pollution through crude oil residues (NDES, 2009).

This section shows that petroleum transportation through the pipelines had impacted significantly on the environment and socio-economic activities of the region. Unfortunately, a significant proportion of the impacts are restricted to the local communities. Going by the principles of environmental justice, particularly compensatory Justice, one would expect the region to receive a substantial share of the proceeds from its oil and gas resources, at a minimal environmental and socio-economic cost, but this is not presently the case.

3.4.2 Causes of Pipeline Spillages

The fact that accidents occur at different stages of the oil transport system is broadly irrefutable. Reports have shown that as far back as the early 1960s, there had been yearly cases of large-scale oil spills. In fact, transportation through water bodies has caused even more spills than pipelines on the landmass. In 1983 and 1984, oil transport through the oceans accounted for 3,000 and 8,000 gallons spilled per billion ton-miles respectively, whilst the pipeline spills accounted for 100 gallons spilled per billion ton-miles (Sidaway, 2005).

The petroleum pipelines are believed to be very prone to corrosion and have served in various ways as sources of oil spillages, leakages, and fires incidence especially where and when the pipelines are being used even after the expiration of their life span (Epstein and Selber, 2002). Using the data obtained from the office of pipeline safety in the US, Nesmith (2001) finds that over 60 million gallons of petroleum products have leaked through the pipelines in the US during past 10 years of his study. However, he maintains there is consensus among the various stakeholders the figure under-represents the oil product that leaked through the pipelines and argue the amount that actually escaped may double the yearly published average. The US government had recognised that oil spills have been on the rise and are a major source of oil emissions (US National Energy Policy, 2003).

Another major cause of oil and gas pipelines in Nigeria has been linked to the acts of vandalism. This has led the government of Nigeria to contemplate the option of burying the pipelines 12m below the ground, where they will be less vulnerable (Chika-Amanze and Edomaruse, (2007). Apart from the fact that this option is unsustainably expensive, it would also serve as a palliative temporary measure, because the rights of way of the petroleum pipeline would still be without an environmental justice management framework. The latter is envisaged by this thesis as a functional lasting remedy to challenges manifest in the course of managing the pipelines in the region. However, before the advent of vandalism in the 1990s, the oil and gas pipelines had proved an effective means of transportation to depots and other hinterland receiving terminals for all petroleum products, across the length and breadth of Nigeria. The pipeline network was also used to transport petroleum products to export jetties and platforms, with comparative advantages in terms of cost and speed (Ekwo, 2011).

According to Associated Press (2006), oil spills resulting from oil and gas pipelines are a major cause of ill health in the Niger Delta region of Nigeria. Between 1976 and 1996, there had been over 6,500 oil spills amounting to over 5 million barrels. The Press argues that many pipeline leakages could have been avoided if the oil and gas pipelines were buried below the ground as in many countries and if ageing pipelines were properly repaired and maintained. In 2006, over 400 people died in two separate occurrences of pipeline explosions in the region, when leaking pipelines were left unattended to and many of the local people scooped up gallons of fuel for personal gains (Ibaba, 2011). Oil and gas pipelines transport petroleum all over Nigeria 24 hours daily under different weather conditions. Because of this capability, oil and gas pipelines are preferable to super tankers by the oil multinationals operating in the region. Unfortunately, Ikporukpo (2008) argues that because of the large initial costs in burying the pipelines underground in a safe manner and large costs of repair and maintenance of the pipelines, many of the oil companies operating in the Niger Delta region have neglected pipeline safety and maintenance, which have contributed to pipeline accidents in the region. This is a major reason why there are many surface pipelines traversing the length and breadth of the Niger Delta region of Nigeria. The acknowledged life span of a pipeline has been set at 15 years, unfortunately many of the pipelines that are currently used in the region are older, as such, are prone to rupture and leakage which are posing some serious threats to the local communities and their environments (Ibaba, 2011). In Nigeria, the problem with oil pipelines have not been properly addresses at the moment. The Nigeria government has not been able to establish safety parameters for pipelines and their maintenance; and even where the parameters exist, it is either they are frequently ignored or have become difficult to enforce.

The research has gathered that, for instance, some of the reasons why pipelines have come to ground in Eleme and Okirika study areas are due to the fact that the oil companies have refused to build flow stations and receiving jetties in those two communities. The flow station would have received several pipelines from the point of extraction, made them into one (the receiving jetty) that would have connected the flow station to the refinery, thereby reducing the number of pipelines traversing the local communities. In a community where this is not the case, the result has been the presence of many pipelines of different sizes on the ground. However, it is the hope of this study

that the proposed environmental justice framework for the Niger Delta region of Nigeria would require the oil companies to use their profits to bury the oil and gas pipelines and ensure adequate maintenance and repair culture.

Oil spills have often threatened human health in so many ways. For example, it could be through sicknesses and damages to health whilst the spill lasts, and at the times of cleaning up spill; and through the consumption of fish and food and water that have been contaminated by the spill. However Warren (2009) observes that there are quite a few studies on the health of local residents subjected to oil spill incidence. In his studies in Scotland, focusing on the incidence of an oil spill, the local people complained of health related problems such as silicosis and cough.

In support of the above argument, O'Rourke and Connolly (2003) contend that oil spills have the potential to damage fisheries, reduce fishing stocks and discourage mariners from going to the fishing points, as such, could lead to a significant reduction in commercial fishing. More so, they argue that worries expressed about fishes exposed to oil spill from a particular location can negatively affect the market for fish from that region. In the case of oil spill that happened in Alaska, by Exxon Valdez; O'Rourke and Connolly comment that the closure of Prince William Sound fisheries caused some substantial loss of income of fishermen as well as an estimated loss of over $130 million revenue. In Nigeria, there had been reported cases of oil and gas pipelines networks and associated environmental and public health challenges. Four of these are provided below by way of illustration.

3.4.3. Degradation of Coastal and Marine Environment

The degradation of the coastal and marine environment in the Niger Delta is examined under three main themes: degradation of water quality, habitat degradation and other anthropogenic impacts. The actual and potential impacts of oil operations in the coastal environment show oil pollution is an ever-present danger to coastal ecosystems, as such, there is a need for coastal development planning for the Niger Delta region of Nigeria (Nwilo and Badejo, 2006). The research discusses this in three areas below – water quality, habitat degradation and air pollution.

3.4.4.Water Quality

In a study of environment and living resource management in the Gulf of Guinea, Ukwe *et al.* (2006) found an absence of marine pollution abatement infrastructure in the region, leading to uncontrolled discharge of pollutants and effluents. Ayotamuno *et al.* (2002), Onwuka (2005) and McClanahan *et al.* (2005) made similar findings. However, UNDP (2006) points out that between 1976 and 2001, a total number of 6,817 oil spill incidents were recorded in the Niger Delta region of Nigeria with a significant loss of approximately 2.1 million barrels of oil to the environment. Decades of weak environmental regulation have allowed oil companies to operate their facilities without incorporating the costs of environmental damage into their decision-making (Moffat and Linden, 2005). Shell (2006) reports that 69% of the 241 total spill incidents recorded in 2006 occurred as a result of sabotage via oil and gas pipelines.

Nickerson-Tietze (2000) further observe that for the period 1976 to 2007, the number of spillages exceeded the tolerant limits set by the oil industry regulator – Department for Petroleum Resources (DPR), which are 20 parts per million (ppm) for hydrocarbon in respect of effluent discharge near coast water, 10ppm for inland water, and 10ppm as limit for near shore water set by the Federal Ministry of Environment.

3.4.5. Habitat Degradation

More than 50 years of oil production and infrastructure development has resulted in habitat degradation. As UNDP (2006) points out, in an attempt to improve access to oilfields and production facilities, oil companies have constructed canals that in some cases have caused saltwater to flow into freshwater zones, thereby destroying freshwater ecological systems. Oil companies constantly dredge river channels to facilitate navigation. Similarly, oil spillage adversely alters the biodiversity of the environment as it destroys soil, plants, animals and water resources due to oil toxicity.

One of the effects of the significant numbers of oil spills is the loss of the mangrove trees which were unable to survive the toxicity of their immediate habitats (Nwilo and Badejo, 2006). According to Ayotamuno *et al.* (2002), in 1980, 340 hectares of mangroves were lost to oil spillage by a blow-out of pipelines at the Texaco offshore location in the region.

3.4.6. Air Pollution

A report by BP Statistical Review of World Energy in June 2009 revealed that Nigeria is the ninth largest gas producer and potentially a major gas supplier. However, a significant portion of gas associated with oil production has been flared since the inception of oil production in the Nigeria. In his study of the ambient air pollutants in the Niger Delta region of Nigeria, Onwuka (2005) indicates that the Federal Environmental Protection Agency's (1991) environmental standards were exceeded for volatile oxides of carbon, nitrogen oxides, carbon monoxide, sulphur oxide and total particulates. These are greenhouse gases that contribute to global warming; and are a significant factor in the depletion of the stratospheric ozone layer that protects the earth from ultraviolet-B radiation (UNDP, 2006). This supports the views of While et al (2010) that we are in a generation where carbon control or greenhouse reduction is a popularly quoted master concept of environmental regulation. They, however, question the possibility of the urban and regional governments to effectively incorporate climate policy into environmental regulations in the face of power struggles and other strategic challenges involved in state regulation in a capitalist society. Furthermore, Jonas et al (2011), from their study of the new urban politics, observe that the knowledge of environment is so central to the understanding of the new urban politics. They assess the link between environmental policy and urban development politics in relation to the management of carbon emissions, and argue that carbon emission management is new, but contestable in urban governance though.

As EIA (2009) points out, Nigeria flared 593 billion cubic feet of natural gas in 2007, which, according to NNPC, cost the country US$1.46 billion in lost revenue. This thesis observes that a number of major benchmarks for EJ are needed to deal with some of the challenges confronting the Niger Delta region. As such, the next section presents some socio-economic impacts of oil and gas pipelines on the Niger Delta environment.

3.4.7 Socio-economic impacts of pipelines on Delta Environment

The main occupations of the people in the Niger Delta region (fishing and lumbering) have suffered some socio-economic setbacks. The work of Ogunleye (2008) shows that over 200 species of coastal and brackish water fish and shellfishes have been identified as vulnerable to the impacts of marine pollution in Nigeria. Nigeria has the largest

mangrove forest in Africa with an area of about 9,723km² forming a vegetative band of 15-45 km wide above the barrier islands and running parallel to the coastline (Large Marine Ecosystem Project for the Gulf of Guinea, 1997). Sorensen (2002) has drawn attention to the fact that mangroves play a vital role in the coastal ecosystem because of their contribution to coastal fishery and their role in preventing coastal erosion, serving as nurseries for a variety of fish and prawns, and as barriers to tidal and storm surges associated with tropical cyclones. Sorensen (2002) further estimated that mangrove forests once covered three quarters of the coastlines of tropical and subtropical countries. Today, less than 50% of that coverage remains, and over 50% of the remaining forest is degraded and not in good productive condition. In the Niger Delta, mangrove forests acts as sinks for carbon dioxide playing an important role in sequestrating carbon mitigating changes occasioned by atmospheric pollution (Ukwe *et al.* 2006).

In addition, Moffat and Linden (2005) point out that the most frequent and serious conflicts have pitted local communities against oil companies; and that most of the stakeholders in the region have concluded that oil companies are the major cause of environmental degradation because oil activities are highly visible and create dramatic local ecological impacts.

Petroleum pipelines have not improved the socio-economic situation of the people. The pipeline, which has attracted criminality such as vandalism and other crimes that were alien to the communities before the pipeline project, has worsened the socio-economic condition of some of the local people compared with when the pipeline project started (Obi, 2009). According to Obi (2009), whilst only about 5% of the population in the pipeline communities reach their 60th birthday owing to poverty and pollution, employment statistics show that a majority of the people are either unemployed or are employed in the informal sector with an income of less than a dollar per day. The next section dwells on the impacts of oil and gas pipelines on the health of the local communities in the Niger Delta region of Nigeria.

3.4.8 Health Impacts of Pipelines and Oil Exploration Activities on the Local Communities in the Niger Delta Region of Nigeria.

According to Jike (2010), the protest staged by Warri women in 2001 at the headquarters of Chevron and Shell oil companies located in Warri respectively vividly highlighted the damaging impacts of oil exploration on the health of the local people of the Niger Delta region of Nigeria. He argues that the public health impacts of gas flaring and oil spillage for the people of the region is yet to be systematised empirically. However, a survey by Akoroda (2000) revealed an emergent of carcinogenic diseases in the Niger Delta, which is traceable to the radioactive components of gas flaring. Hence, Jike (2004) maintains that the people of this region suffer some respiratory diseases, which are as a result of exposure to gas flaring. This is an apparent occurrence of carcinogenic diseases, for instance, skin/lung cancer in the Niger Delta region. Skin rashes are also widely spread in this area. Jike (2010) observes that the leaders of the above protest attributed the prevalence of bronchial diseases and eye problems to the continuous gas flaring in the region. Akoroda (2000) contends that the pressure of gas flaring on the health of the public in the region creates some distortions on the health care delivery system by shifting the needed resources from areas where they are mostly needed to areas where they are less needed. Medical staff report treating some patients with illness they believe are related to gas flaring, including chest, bronchial, rheumatic and eye problems, which contribute to lowering the immunity of community members of the region, especially children, causing them to be more susceptible to sicknesses such as measles and polio (Quist-Arcon, 2007). In the Delta, various stages of oil exploitation cause tremendous public health damage. These include drilling and pipeline construction. Pollution also results from pipeline leaks and oil spills, which are exacerbated by the lack of adequate repair and maintenance. Local communities in the Niger Delta region seeking out subsistence through fishing and farming have experienced high rates of diseases and ill-health. Across the region, the soil and water have been poisoned with heavy metal and hydro-carbons. Thousands of waste pits containing toxics are suspected of being related to increasing cancer rates, whilst the communities are faced with the challenges of water-borne illness such as typhoid, cholera and diarrhoeal from unsafe drinking water. In addition, the lack of steady power supply and water stagnation has created breeding environments for many water-borne diseases and habitats for malaria fever disease-causing mosquitoes (US EIA, 2007).

Pyagbara (2007) laments that the most troubling issue of oil pollution in the local communities of Niger Delta region is the increase in the occurrence of some ailments that were not previously know in the region. Olusi (1981) argued that there is a correlation between the development of health problems and the exposure to oil pollution. In a research conducted in 2004 on the Niger Delta by a group of scientists from the University of Lagos, it was reported that samples of water collected from the rivers, sea, beach, lagoons and bore holes in Delta and Rivers States, indicate that over 70% of the samples contain a chemical known as Benzo-pyrene having a high concentration of about 0.54 to 4ug per litre, which is far above that recommended by the World Health Organisation of 0.7ug/1 for drinking water (Nigerian Quarterly Journal of Hospital Medicine, 2004). The report also argues that if the amount of this harmful chemical is so high in ordinary water, then the sediments that serve as feeds for fish and other aquatic creatures would definitely be higher in Benzo-pyrene concentration, as such, the people that consume these marine creatures would automatically take in higher amount of this dangerous chemical. Pyagbara (2007) notes that this report is consistent with the experience among the people of this region, who have seen an increase in the cases of cancer and other respiratory problems attributable to oil pollution in the region. The diseases include skin ailments like dermatitis and rash, eye problems, respiratory problems, water borne diseases, gastro-intestinal disorders and nutritional problems linked to poor diet. However, Chukwuani (2006) laments that the poor quality of public health services characterised with shortages of drugs, personnel and equipments and high user fees combined with high rates of poverty and unemployment, significantly contribute to the problem of affordability and confidentiality in issues of health-care status and access in the Niger Delta region of Nigeria. The adverse effect on public health near oil localities is particularly significant. The migration of workers and the conditions of their housing result to a rise in the occurrences of communicable diseases such as HIV/ AIDS and other diseases that are sexually transmitted, tuberculosis and cholera (Karl, 2007). This was similar to the situation in the study areas for this research. Along the Eleme-Okirika pipeline, for example, temporary settlements and structures have led to increasing rate of prostitution and, as a result, more cases of HIV/AIDS.

3.5 Regulations

3.5.1 Physical Planning and the Petroleum Industry –Nigeria's Oil and Gas Pipelines Network in Perspective

This section deals with the administration of petroleum laws and the physical planning boundaries. It also looks at the history of physical planning in Nigeria, and considers the way the physical planning practice could be applied to the petroleum industry by looking at the present scenarios. The chapter sums up with the physical planners' role in pipeline operations.

3.5.2 Physical planning in Nigeria's history

According to Fabgohun (2005), physical planning was originally viewed as no more than the physical layout of towns and cities with emphasis on the achievement of adequate sanitary and safety conditions. These features were carried by the Township Ordinance of 1917 which was the first attempt at physical planning in Nigeria. This was followed by the Nigerian Town and Country Planning Law of 1946, the aim of which was to make provision for the improvement, re-planning and development of different parts of Nigeria by means of planning schemes and planning authorities; and which had a wider and comprehensive power and scope by taking the object of planning schemes beyond the traditional scope of securing sanitation and preserving places of natural beauty.

Irrespective of the above realization by the government of Nigeria of the need for urban and regional planning in the country as well as the need to build up data and make adequate administrative and financial provisions for planning and development, by the early 70s some serious environmental problems started to become manifest. This has been attributed to unplanned urban growth and widening disparities in real development in the country. Thus, in 1973, the Federal Government made a declaration that environmental planning must now become an integral part of the country's development plan (Adedeji, 1973). The government followed this up with a commitment to physical development in its Third National Development Plan 1975 where it further declared that the need for a clear and comprehensive regional development policy in Nigeria has arisen. This was mainly to ensure improved use of the Nigerian space so as to enhance the quality of life of citizens as development progressed, and to give concrete expression

to one of the long-term objectives of the national planning effort – the promotion of a just and egalitarian society.

The Local Government Reforms of 1976 tried to usher in an era of fresh efforts at integrating physical planning into national development. The reforms made provision for the establishment of Local Planning Authorities and stipulated that Town and Country Planning should be a local government affair. Consequently, Town Planning Divisions that were operating within the Ministry of Works and Transport at the State level, were moved to the Local Governments Ministries whilst Local Planning Authorities were also similarly transferred. This development did not last long. By 1983, the Town Planning Divisions were returned to the Ministry of Works and Transport and they had supervision of Local Planning Authorities, even though these remained under the aegis of the Ministry of Local Government (Daral, 2003).

By 1992, the Nigerian Urban and Regional Planning Act (NURPA) was promulgated. This was the first post-independence planning law in Nigeria. Olomola (2005) identifies the three philosophical bases that NURPA shares with the traditional concept of urban and regional planning, namely:

(a)That the future direction of national, state, local, social and economic changes could and should be planned through the preparation of physical development plans;

(b)That land use planning could be set in the wider context of national, state, local, social and economic planning through effective control of what gets built on land, where and for what purpose; and

(c)That land use planning should be concerned with social equity.

NURPA has been commonly viewed as a robust and comprehensive law with regard to its strategies for overseeing the implementation of a realistic purposeful planning of the country.

"It is therefore safe to assert that the comprehensiveness of NURP Decree 88 of 1992 eminently qualifies it as "nulli secundus" environmental law. other laws dealing with other micro aspects of the environment (e.g. on oil, air, land and water pollution, EIA Decree on measurement of environmental impacts of projects) cannot but operate within the framework of NURP Decree 88" (Olomola, 2005, pp.20).

Therefore, based on the provisions of the Act, we can highlight the key strategies of the NURPA as follows:

Assignment of specific roles to each of the three tiers of government – Federal, State and Local Governments − in the preparation of different levels of physical development plans (Section 1);

*Promoting public involvement in development plans preparation (Section 13);

*Creation of development control departments that can handle interdisciplinary matter (Section 27);

*Making the issue of development permit a requirement various forms of development (Sections 28-30);

*Assessment of projects impacts through the practices EIA (Section 33)

*Ensuring adequate compensation for land acquisition (Sub-sections 76 and 78);

*Promoting urban renewal schemes for squatter settlements (Part II NURPA); and

*Powers to enforce of physical planning decisions (Sub-sections 47-63).

Interestingly, despite these salutary and lofty objectives of the NURPA, its level of success has been significantly whittled down, if not restricted. If there is any way the law affects the environment, it is through development control. The EIA Act of 1992 mandatorily requires that the effects of any project on the environment should be given serious consideration before implementing such project. As contained in 1999 Constitution of Nigeria, section 20; only the national assembly has the power to legislate matters that bothers on environment. This makes the federal government a custodian of EIA (Adeniyi, 2005).

From the above discussion, physical planning law in Nigeria plays a vital role in stating the requirements for developments that can impact negatively on the environment.

3.5.3 The administration of petroleum laws and regulations

There is a common belief among the people of the Niger Delta region of Nigeria that the way the oil and gas laws and regulations are being administered has contributed to reduce the success of Nigerian physical planning practice, especially in the areas of implementation and enforcement.

A further view has been that the oil companies have continued to carry out their activities in a way that does not follow the context of physical planning. These perceptions are supported by a growing number of political and militant movements in the Niger Delta region that produces much of petroleum exploration. This is likely to call for a scrutiny of these regulations with a view to promoting physical planning and environmental management. When approached critically, the Nigerian Institute of Town Planners (NITP) as an institution directly responsible for the physical planning practices should be actively involved in performing its environmental responsibilities to oil industry and the local people. Of course, the NITP should neither be the sole forum for dealing with environmental related issues nor a competing forum. However, it appears to be one of the critical places for consensus on a way forward.

One of the Objectives of this research is to consider the extent to which the institutions that are responsible for regulating the activities of the oil industry have been able to effectively link with other critical stakeholders such as town planners and to suggest areas that may need some changes within these institutions. At the moment, the

environmental community, both local and international, is creating some levels of awareness on the need for every institution to be environmentally sensitive and responsible (Adeniyi, 2005).

In an attempt to develop a rhetoric needed to actualize the potential for oil industry, and for physical planning and sustainable development to be mutually supportive, it is expected that the respective stakeholders work towards striking a balance (Imomoh, 2003).

Though there will be diversity in the balancing tests that the respective parties will propose, this is where the law plays an important role. It should be capable not only to reflect and promote the search for a balance between nature (ecological integrity) and economic development but also making all stakeholders accountable in law for the benefit of the society.

The potential for conflict between physical planning and petroleum exploration in Nigeria is a subject that may need careful analysis. The next section seeks to consider the boundaries of physical planning.

3.5.4 Effective physical planning practice for the petroleum industry: present scenario

In order to give an overview of the various roles that physical planner can play in the activities of petroleum industry in Nigeria; it would be necessary to study the present situation.

In practice, the Nigerian planning system operates at three different levels – federal, state and local level. At the federal level, it is called the planning commission; at the state level, it is called the planning board; whist at the local level, it is called the planning authority. The commission draws the national development plans and supervise the activities of the boards. In the same way, the board is responsible for the physical planning activities in the state and supervises the activities of the local authorities within the state. The planning authorities deal directly with matters that bothers on the rural and local communities and reports to the state planning boards. However, at the moment, the

physical planning system has not been given the full chance to operate as stipulated by law. For instance, The EIA preparation and approval for oil facilities like pipelines is solely done by the Department for Petroleum Resources. The thesis noticed this as an overlap of functions.

Unhappy with this type of development, Ekpo (2005) submits that for some projects such as the construction of oil and gas pipelines that run above 50km, it is a requirement by the physical planning authority that an environmental impact analysis report be submitted. He points to the facts that, according to EIA Decree 86 and that of NURPD 88 of 1992, there are always legal provisions attached to EIA preparation.

This overlap raises some important questions. For instance, can an EIA prepared by the physical planning authority be submitted to Federal Environmental Protection Agency (FEPA)? Or can a developer who submits an EIA accepted by FEPA continue with the project without seeking a permit from the Planning Authority and vice versa? Perhaps and maybe unfortunately the answer to at least the last of these questions is “no”.

Therefore, physical planning issues seem more of local problem and it might be better to allow the various arms of the government carry out their respective duties and responsibilities. In the event of serious consequences of petroleum activities, the research sees the need for the stakeholders of the petroleum legislation to operate in synergy with and allow other authorities directly concern with the administration of related laws to carry out their functions in a way that will enable the society to benefit from such a symbiotic efforts.

3.6 Summary and Conclusions

The challenge of oil and gas pipeline management has been shown to have a global ramifications but manifest in several ways. This makes the Nigerian problems associated with the management of about 7,000 km of the pipelines a unique. Human settlements have been affected and people in the affected communities have lost properties and even loved ones to the fires that have resulted from pipeline leakage and vandalism. The involvement of civil society in the management of the environment and other public goods, especially oil and gas pipelines, has made a substantial contribution to improvements in environmental management in Russia (Wernstedt, 2002). It has also afforded a public/private coalition for consensus building, and a periodic review of

contending issues that informs policy decisions and makes a proactive contribution to the management of environmental issues relating to petroleum pipelines. This kind of approach, if made operational around the core principles of environmental justice, holds the potential to resolve the crises on the petroleum pipelines and environmental management in the Niger Delta region of Nigeria. Despite the very critical role public infrastructure plays in the national lives of countries, its management is still increasingly faced with challenges which, working through a collaborative approach, professionals in various field could effectively resolve, in order to guarantee that services continue to be delivered for the overall good of the society (Ropert, 2003; Roth and Schick, 2000).

Amin and Epri (2001) report that much of the infrastructure used for transportation, ranging from roads and railways to pipelines, is subject to challenges of deregulation in many countries. This translates into responsibilities for the management of infrastructure being increasingly shared between public and private concerns. High quality and reliable services furnished through the infrastructure are fast becoming interdependent across national boundaries, such that the failure in any one infrastructure will have a ripple effect on all other that share its interconnection and interdependence, making the challenges of public/private partnership between groups of stakeholders who are becoming polarised across the public/private sector divide even more daunting (Amin, 2005).

Therefore, the increasing polarisation of stakeholders with roles in the management of infrastructure and environment needs to be addressed if effective systemic solutions based on the needs of a particular community are to be developed; any framework must address these needs to effectively and efficiently share information across institutional boundaries within and between the groups that make up the community. In essence, an interface must be specified at each boundary that separates levels in an agency to avoid conflicts amongst the collaborating stakeholders (Edelenbos, 1999). According to the recommendation by Edelenbos (1999), management strategies for infrastructure should have technical, human and institutional components. However, the importance of these components is also proportional to the difficulty of implementing them in the context of a fragmented society with contending interests.

The Niger Delta is dynamic and fragile. The need to balance the sustainable use, development and protection of its coastal areas and resources is not only an environmental management issue, but also one of the major challenges to environmental justice. The oil industry is the major contributor to marine pollution in the region. While increasing earnings from oil exports are responsible for the sustained national focus on the industry, there are more and more evidence of its ever-increasing significant impacts and pressures (distributive justice) on both the environment and the socio-economic wellbeing of the region. An EJ framework that employs a holistic approach to policies and procedures (procedural justice) for dealing with environmental pollution in the region, based on local strategies that suit local demands and involve the necessary stakeholders (justice of recognition), could be a powerful tool for minimizing the impacts of the oil and gas pipelines and moving the region towards a form of sustainable development that meets the needs of the present while considering those of future generations.

This chapter has also dealt with the activities of the oil companies in relation to the various ways the oil and gas pipelines have impacted on their host communities. By doing so, it has discussed the various regulations that guide the operations of the oil industry in the region and the extent to which the oil companies implement and enforce these regulations, especially as they pertain to environmental equity. It has assessed the past and present roles of physical planners in the Nigerian oil and gas infrastructure and major developments and has considered other possible roles they could play, particularly with regard to oil and gas pipelines as major infrastructure development that impact negatively on the environment and socio-economic lives of the Niger Delta region. The next chapter will move on to examine the research methodology.

CHAPTER FOUR

4.0 METHODOLOGY

> *"Since Hippocrates first presented 14 classic case studies of disease some 2,300 years ago, science has proceeded along two divergent knowledge paths. One involves formulating a tentative theory of a phenomenon 'writ large', deducting implied empirical consequences, and controlling situational events in order to observe the validity of empirical deductions. The second path, less frequently used but equally valid, is to reason from individual and naturally occurring but largely uncontrollable observations towards generalizable inductive principles"* (Bonoma, 1985: 199).

4.1 Introduction and Methodological Framework

This chapter presents the methodology employed in the collection of the research data for this study based on the inductive-qualitative method that adopts an explorative case study approach. The chapter introduces the reason for choosing the case study approach as a suitable method to satisfy the research objectives; the second section presents the selections of the case study areas; and the third section describes the development of the group discussion guide and in-depth interview format.

According to Bryman (2004), a research design is the first strategy for data collection and analysis. When a research study lends itself in particular to exploratory and descriptive enquiries, the gathering of qualitative data is recommended (McGiven, 2006). These are used to find out about people's experiences, the way they do things, their motivations, their attitudes, their knowledge, the way they interpret things, or the meanings they attached to things; and for in-depth accounts, detailed descriptions, context-rich data and for proper understanding of the issues, the process or the behaviour (Minocha, 2006).

Research within the social science tradition has for decades depended heavily on empirical evidence. To this effect, social science literature is rich with empirical work that has progressed through various stages of development. Since this study is concerned with the construction of oil and gas pipelines and their impacts on the

environment and rural communities, a research design has been selected that can contribute within this tradition, based on the argument that exploring questions of assessment and impact logics may be answered through empirical investigation (Jelsma, 2005). At this juncture, it is important to revisit the research objectives outlined in Chapter one. Part of the main aim of this thesis, as stated in section 1.3, is about the way to minimize the impacts of oil and gas pipelines and to integrate physical planning into the activities (infrastructure) of oil and gas companies. This chapter therefore asks (1) Who are the stakeholders involved in oil and gas pipeline networking? This question is necessary for proper scoping of the different groups (individuals, communities, companies, agencies, etc.) that make up the stakeholders surrounding the construction and maintenance of oil and gas pipelines. Secondly, the research explores (2) what are the roles of these stakeholders in relation to the socio-economic and environmental impacts of the oil and gas pipelines (3) What are the main impacts of the oil and gas pipelines on human settlements and the environment? (4) The research attempts to explore the ways by which local stakeholders and physical planners could be better integrated into the infrastructure maintenance and planning of the Nigerian oil industry through an EJ framework.

To seek answers to the questions above, it was necessary to undertake a study of the various factors that contribute to the impacts of oil and gas pipelines on their host communities. To do this, the first step was to identify empirical examples of communities impacted by oil pipelines, and from there to develop a framework to explore these impacts and how they influence government and company decisions, as well as the environment and daily lives of the rural oil producing communities. However, a main interest of this study is the analysis (using an environmental justice frame) of how government and oil companies' procedures and policies on oil pipelines have systematically affected local people; and how to integrate physical planning into the infrastructure activities of these companies, using approaches from social science studies. Because of this, a broadly holistic method is needed to support proper comprehension of the various on-going decision-making processes and the rationales behind them, as well as the arguments made on behalf of and about environmental justice.

4.1.1 Motivation for the research

The motivation to embark on this research arose in September 2008. The research started with a proposal stage that focused mainly on the research objectives and a plan for its eventual completion. This was followed by an exploration of relevant literatures for broader understanding of theories and philosophies underpinning the research. Next was the development of interview guides and group discussion checklists and the fieldwork trip to Nigeria. The fieldwork lasted from December 2009 to February 2010 and began with a week-long access negotiation and reconnaissance survey prior to Group discussions and interviews. The initial field survey helped in obtaining the consent and cooperation of the local people and also provided information necessary for the improvement of the discussion and interview guides. During this period, the prevailing situations in the field were observed; the research also made the acquaintance of the field assistant who was responsible for leading the researcher to the gate keepers and translation (where necessary) during the group discussions and interviews; and tested the group discussion guides with two randomly selected households, with a view to setting the stage for the first group discussion. This allowed a final modification to be made to the questions.

4.2 Philosophical Position

Because this research is focused not only on assessing the impacts of oil pipelines but also on understanding the roles played by the different actors concerned with the construction and maintenance of oil and gas pipelines, the study chooses a qualitative approach that enables the researcher to study and understand the actors as they try to network and maintain oil pipelines in the Niger Delta region of Nigeria. As a result, the research chooses a case study method, whereby the case would be centred on the impacts of the Nigerian oil and gas pipelines on the environment and communities in selected settlements in Rivers, Delta and Bayelsa States of Nigeria and the various actors associated with these impacts. This research design helped to provide a framework for data collection achieved through various methods, as presented in later sections. The next section is focused on the philosophical position that underpins the theoretical approach to this research: social constructivism/constructionism.

4.2.1 Social Constructivism (Constructionism)

Bryman (2001) maintains that ontological positions are often contained within the perspectives of objectivism and constructivism. While objectivism asserts that social phenomena and their meanings have an existence independent of social actors, constructivism asserts that social phenomena and their meanings are continually being accomplished by social actors.

The social constructivism approach relies on the assumption that our world is understood through concepts that are entirely social artefacts and produced over time in the course of historical interactions (Gergen, 1999). This approach has become well established in the field of social sciences since the late 1970s (Latour and Woolgar, 1979). Since that time, further researches and studies have tried to show how science, knowledge, phenomena, societies and technologies are socially constructed. At present, this philosophical position has become a major school of thought within the field of social science (Sismondo, 2004).

However, the way social constructionism is interpreted in the social sciences varies, giving rise to many social constructivisms that have different implications for our understanding of social and political realities, science and society. The study would like to acknowledge at this point the work of Pinch and Bijker (1987) as being particularly relevant to this study. This asserts that the interpretative flexibility of technological artefacts leads to various social constructions of them by relevant social groupings. According to this view, and in the terms of this research, the success of any infrastructure technology in society is not in its intrinsic features but instead depends on the way it is interpreted at different levels of society. The research therefore examine through the case studies how the different stakeholders involved in the implementation process have interpreted oil pipelines in different ways, resulting in the eventual impacts. Therefore, the study uncovers these meanings by exploring the different processes that the stakeholders use in making sense of the oil and gas pipelines and their maintenance.

The other interest in this study has to do with the representation of oil and gas pipeline stakeholders during construction and maintenance. Application of the social constructionism approach entails “the construction of the object of thoughts and

representations" (Sismondo, 2004:55). This implies that what the oil company staff thought about the local communities is socially constructed through the means which the staff use to understand and ascribe the community roles and involvements. According to Jelsma, (2005:94), "in every major project, there is a consistent mental reflection of what is proceeding on drawing boards, on the shop floor or at the construction site".

4.3 Research Strategy: Case Study and Choice of Study Areas.

A case study has been suggested as the preferred method of research where an in-depth and a holistic investigation of a social phenomenon is required (Feagin *et al.*, 1991). The adoption of this strategy, therefore, allows an inquiry into the underlying principles, knowledge and assumptions used by the government and oil company agencies in maintenance and mitigation of oil and gas pipelines, and what their roles ought to be. Guba and Lincoln (2000) observe that qualitative studies are usually based on the ideas that social phenomena are influenced by the context of their occurrence. Thus, the case study approach lent itself to the investigation of several variables within this context with a view to providing a contextual and comprehensive knowledge of the social situations. Stake (2000) argues that a case study approach is a complex entity that operates within a number of contexts – economic, physical, ethical, and aesthetic. The value of a case study can be found to lie in the fact that it has been recommended as the most suitable approach to use when the researcher intends to know why and how particular phenomena are occurring and when they have little control over the events under investigation (Yin, 2003). However, the case study has provided this research with methods that serve as practical tools for handling the fieldwork. This implies that the case study has not only helped in designing my fieldwork and limiting my investigation to three case studies in the Niger Delta Region of Nigeria, but also in designating the key actors that are relevant to my research interest.

To meet the research objectives stated earlier in Chapter one requires the collection and recording of the experiences and beliefs of individuals, members of the communities, governments and oil companies' representatives, physical planners and other stakeholders involved in the development and management of the Niger Delta communities and their environment. No much work was done on the impact of oil and

gas pipelines on which to base a comprehensive research methodology. As a result, the research conducted some group discussions that were followed by in-depth interviews to help cross-check the group views with individual views. This choice was made in due consideration to the practical constraints of time, security, finance and travel logistics in the violence-prone Niger Delta region.

4.3.1 Types of case study

Some authors like Yin (2003a) categorise the case study into, at least, six different kinds. First, they argue that case study research can be based on single or multiple case studies. Second, they maintain that whether single or multiple; the case can be explorative, descriptive or explanatory. However, Hakim (2000) views case study types as comprised of simple descriptive cases and complex experimental cases demanding considerable levels of description and experimentation. Stake (2000), on the other hand and while emphasising the variation in the concern for and methodological orientation to the case, groups case studies into three different types: intrinsic, instrumental and collective. Intrinsic is when the researcher develops an interest in the case as a result of its particularity; instrumental is when the case is used as a tool to further understand a phenomenon under investigation; and collective follows from the instrumental case study but embraces more than one study. The applicability of the intrinsic case study to this research cannot be over emphasised since the research has the aim of finding out the ways the oil and gas pipelines impact on the communities, what and who are responsible for these impacts, and the roles physical planners can play to help mitigate these impacts. The researcher has recognised the value of intrinsic case studies since many social science studies constitute theory building and rely heavily on single case studies conducted using different data collection techniques.

Some researchers like Silverman (2005) reject the idea of an intrinsic case study on the grounds that it lacks the instruments of generalisation, thereby making its value descriptive in nature. Although lacking the capacity for generalisation has been one of the criticisms of the case study strategy, Flyvbjerg (2004) argues that generalisation should not be emphasised in research because it will lead to undermining the force of example. Yin (2003a) equally opposes the critics of generalisation by stating that unlike in quantitative research where a sample is assumed to be randomly selected from a

larger population, a case study allows the comparison of the empirical results of case studies to an existing theory. According to Giddens (1984), one of the conservative methods of dealing with generalisation is to conduct several case studies to be able to generalise on a social phenomenon. But Stake (2000) resists this direction, as he notes that it can be counterproductive, especially, where the commitment to generalise is so strong that the attention of the researcher is drawn away from valuable features necessary for understanding the case.

Since the research is theory-driven, with an interest in using environmental justice to assess the impacts of oil and gas pipelines, it was wise for the researcher to choose an explorative case study that will help in meeting the research objectives and to help give final definitions to the research questions after fieldwork and data collection were undertaken (Yin, 2003b). As such, the research is a single case study that focuses only on a single case (Yin, 2009) of the petroleum pipelines in the Niger Delta region of Nigeria. The rationale for this single case is that it represents an extreme/critical case, which focuses on cases that have rich information due to the fact that they are special or unusual in some ways (Yin, 2003a). The case of the Niger Delta region of Nigeria is very rare compared to other oil producing regions of the world. These unique and extreme situations are manifested in the forms of violence, insecurity, kidnapping and hostility against the non-indigenes, frequent attacks on oil facilities and sabotage of oil products, superficial democracy, women and the elderly marginalisation, youths serving as the ruling class, communal conflicts, difficulty topographical terrain as a result of vast presence of creeks, rivers and tributaries, the presence of many local environmentalisms campaigns against the oil companies and the various government, and the uncontrolled pollution and other impacts of oil exploitation activities on the settlements and environment of the Niger Delta communities and environment, among others. However, Bryman (1988) does not only argue that the generalizable quality of the case study be tested against theoretical propositions rather than population, he also defends the idea that theoretical sampling is a useful tool to ensure that the selected groups are relevant to the research question or the theoretical position adopted for the study as well as the explanation being developed.

In the choice of the case studies, the arguments from theoretical sampling were followed. The researcher was, therefore interested in cases that depict environmental

injustice, with an interest in exploring the outcomes of the systematic procedures and policies of the Nigerian Government and oil companies' agencies (in relation to oil and gas pipelines) on oil producing communities and their environment. Such case studies would allow the researcher to adopt the research objectives and at the same time allow the researcher to explore the maintenance of oil and gas pipelines and mitigation of their impacts. By selecting two communities each in Bayelsa, Delta and Rivers States of Nigeria, the research was interested in communities where oil and gas pipelines are visible and where it would be possible for the researcher to have access to the actors involved. The three case studies, presented in further detail in later sections are part of the Niger Delta region of Nigeria. Two are located in the Niger Delta Central and one is on the Niger Delta West. Numerous and daily oil activities are taking place in these areas, making it possible to gain access to various stakeholders relevant to the research.

4.3.2 Choice of study areas

As Veal (2008) points out, the need to identify areas that are representative of the overall study and of significant importance shapes the choice of an appropriate area for research. As revealed in the literature review chapter, every stage of oil and gas production and transportation creates pollutants in air, land and water across the Niger Delta region. These findings present the need to systematically select a population sample and study areas for conducting group discussions and in-depth interviews.

The coastal refineries, petrochemical plants and gas plant distribution depot located on the coastal zone at Warri, Port Harcourt and Yenagoa respectively in the Niger Delta presented an ample opportunity for studying the impacts of oil and gas pipelines on the coastal communities and their environments. Within these major towns, the study areas were narrowed down to local oil producing communities. As such, within Port Harcourt, the Eleme and Okirika communities were chosen; within Warri, Ugheli was Warri East were selected; whilst in Yanagoa, Tombia and Meyal 2 were the two local communities studies.

These case-study areas were chosen because they represent the local oil producing communities where the activities of oil and gas pipelines and their impacts were visible. There were also cases of local agitations against the impacts of the pipelines on the

communities and the environment. Other factors that influenced the case-study areas are the presence of local planning authorities and oil companies' staff at Eleme, Ugheli and Tombia as well as environmental NGOs. Of course, at the time of field work, for research and safety reasons, these areas were best suggested by the research assistants who were conversant with the terrain and security situations of the Niger Delta region. Whilst the oil and gas pipelines traverse the entire country of Nigeria, the Niger Delta region is where the production and exploration take place, so, it is common to see activities of the oil and gas pipelines that raise the question of environmental justice in this region than in others non-oil producing regions in Nigeria. Also, the case-study was limited to the Niger Delta region of Nigeria because of the interest of the research sponsor, Petroleum Technology Development Fund (PTDF), in the development of the Nigerian oil producing region.

4.3.3 Introduction to study area

This research was conducted in the Niger Delta region of Nigeria. The region serves as the epicentre of Nigeria's oil industry activities which involve most of its crude oil exploration and marketing for the past 50 years. Daily production of crude oil is slightly above 2 million barrels (90 million tons), drilled from over 600 wells in more than 240 oil fields in the Niger Delta. Government policy on crude oil reserves is presently targeted at 40 billion barrels by 2011 (Victor, 2009). In recent times, Nigeria leads Africa as the largest continental producer and is seventh on a global list of the world's largest producers (Nwilko, 2006).

At the moment, oil and gas pipelines span over 3,000 kilometres and network over 280 flow stations across the region (NDMP, 2006), this excludes those under construction and the proposed gas distribution network projects. About 21 million people live in the Niger Delta region of Nigeria. It is a flood plain of the river Niger, occupying about 25, 600km^2 of Nigeria's total land area. The region has a unique ecosystem by virtue of its size and geophysical configuration. It is one of the largest wetlands in the world covering an area of approximately 26,000 km^2 (Okonta and Douglas, 2001). According to Ibaba (2001), and as observed during the fieldwork for this study, it is paradoxical to note that this oil rich region represents one of the extreme situations of poverty and underdevelopment. The people of the region suffer from abject poverty due to low agricultural productivity occasioned by impoverished soil resulting from oil mining

activities. It is estimated that the average annual income per capita in this region is less than two thousand dollars ($2,000.00). This means that most of the people in the Niger Delta region live below the poverty line. There is a cycle of poverty in the rural areas as a result of low agricultural productivity which results in low incomes, low savings, low investments, feeding back into low productivity. The rural areas have remained typically rural with an absence of good roads, little or no access to potable water; lack of links to the national electric grid, and so on. (Mmom, 2003).

Table 4.1 Niger Delta at a glance

Dimension	**Characteristics**
States	South-South Zone: Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and Rivers
Population	29 million (22% of total Nigerian Population)
Population Density	265 people per km²
Ethnic groups and languages	40 ethnic groups; over 250 languages and dialects
Land Area	26, 000 km²
Ecological Zones	Coastal barrier sandy ridge, mangrove forest, fresh water swamp, lowland forest
Mangrove forest	9,730km², Third largest in the world and largest in Africa
Biodiversity	Home to many endangered species
Natural Resources	Oil and natural gas, tin, lead, coal, zinc, arable land
Livelihoods	Agriculture and fishing (48%), trading (17%), services (10%), Education/Health (7%)
Oil and Gas	Characteristics
Crude Oil	2.17 million barrels per day (average for 2008), 99% of Nigeria's export earnings and 85% of Federal government revenue. (Approximately 20% of production currently shut-in due to violence)
Main Refineries and Petrochemical Plant	Warri Refinery and Petrochemical Plant (NNPC); Port Harcourt Refinery I&II (NNPC); Eleme Petrochemical Plant (Indorama)
Main Oil Terminals	Bonny Island (Shell); Brass (Agip); Escravos (Chevron); Forcados (Shell); Oloibiri (Chevron/Texaco); Qua Iboe (Mobil)
Major Int. Oil Companies	Shell, Agip, Chevron/Texaco, ExxonMobil, Total
Oil/Gas Pipelines	Over 7,000km
Main Environmental Challenges	In 1976-2001: 6,817 oil spills; 70% In 2006-2008: 1560 oil spills; certified 327 oil impacted sites In 1986-2003: 20,250 hectares of mangroves forest disappear

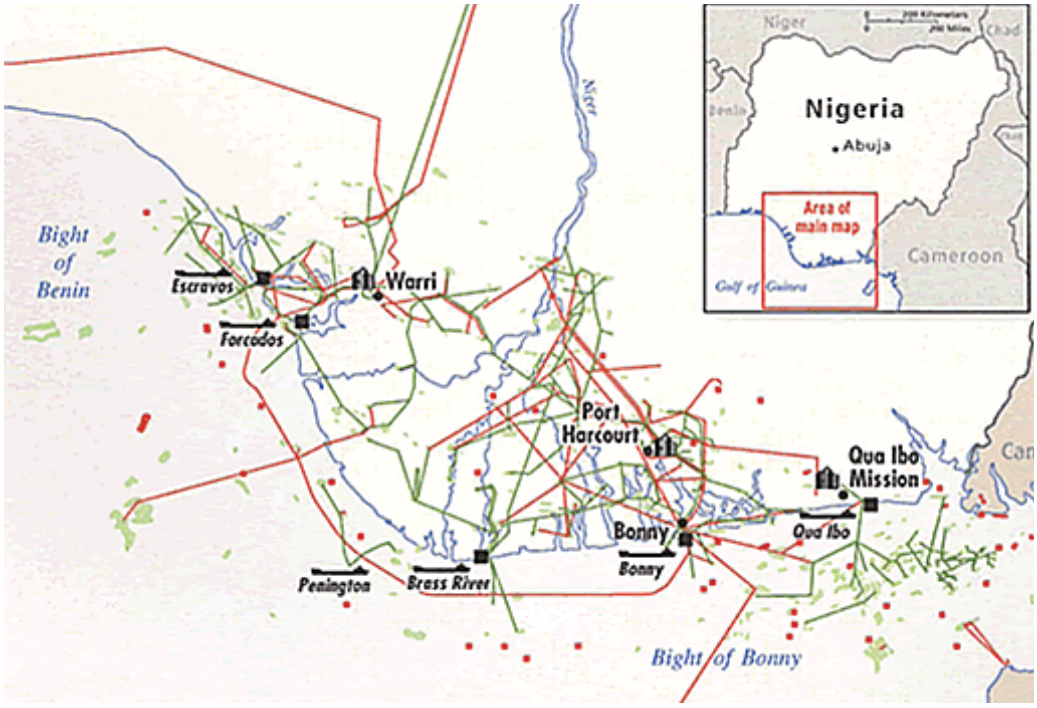
	In 2004, An average of 23 billion cubic metres Gas flared
Natural Gas	5.22 trillion cubic metres proven reserves

Source: modified from World Bank, (2008), BP Statistical Review of World Energy June 2009.

4.3.4 The Niger Delta environment and oil infrastructure

The oil sector accounts for over 95% of the Nigeria's export earnings and about 85% of government revenue as noted in the introductory chapter. The oil industry has been impacting negatively on the communities and their environments in terms of damage to air, water and soil. It is primarily located in the Niger Delta. This leads to oil infrastructure like pipelines criss-crossing the entire region. Local groups demanding their portions of oil wealth have often attacked the oil and gas infrastructure and staff, thereby causing severe damage to oil pipes, leading to pollution, loss of production, lives and properties.

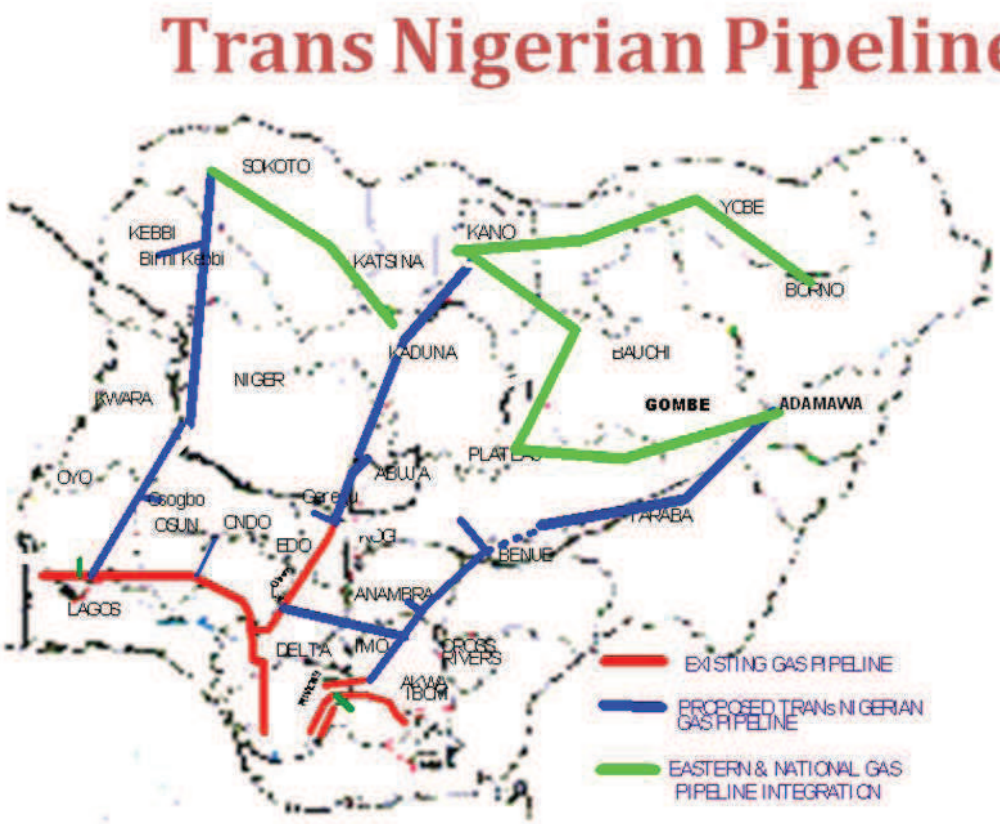
Figure 4.1 The Niger Delta oil Infrastructure.



Source: CIA May 2009.

Figure 4.1 above shows the extent of the oil exploration activities in the Niger Delta Region of Nigeria. Of the four refineries in the country, three are located in this region – one at Warri and two are in Port Harcourt. The red lines show the distribution of pipelines and flow lines. The main oil terminals are located at Escravos and Forcados (Delta State), Brass and Yenagoa (Bayelsa State), Bonny (River State), and Qua Ibo (Akwa-Ibom State) in the Niger Delta Region of Nigeria.

Figure 4.2 Existing, under construction and proposed network of gas pipelines across Nigeria

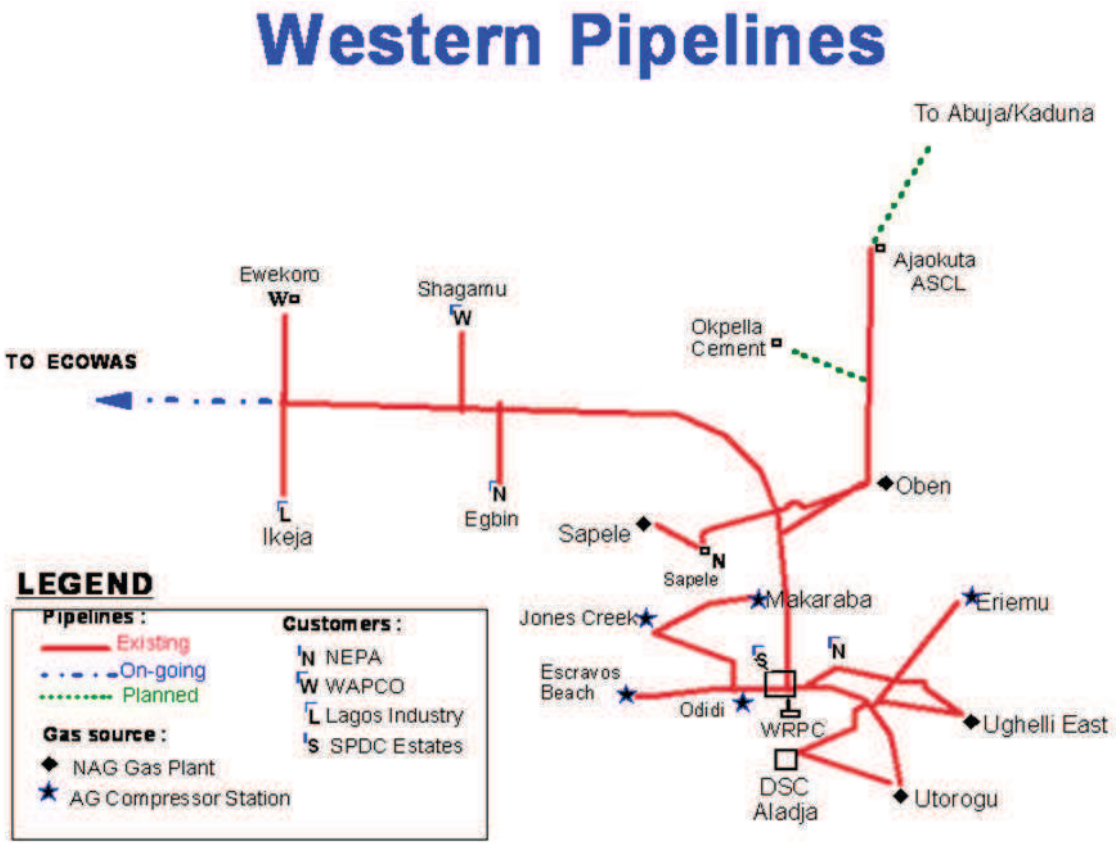


Source: The Nigerian National Petroleum Corporation (NNPC) Graduate Trainees, 16th August 2006.

Figure 4.2 above presents a clear picture of the distribution of the Nigerian Gas Pipeline as it criss-crosses the country. The red colour shows the existing network of gas pipelines mainly around the Niger Delta (Southern) region of Nigeria. The blue colour represents the proposed gas pipeline network, to link the Southern to the Northern part;

and the green colour shows the network of gas pipelines that have been under construction since 2006. Obviously, this will increase the length of oil and gas pipelines (currently over 7000km) in the country.

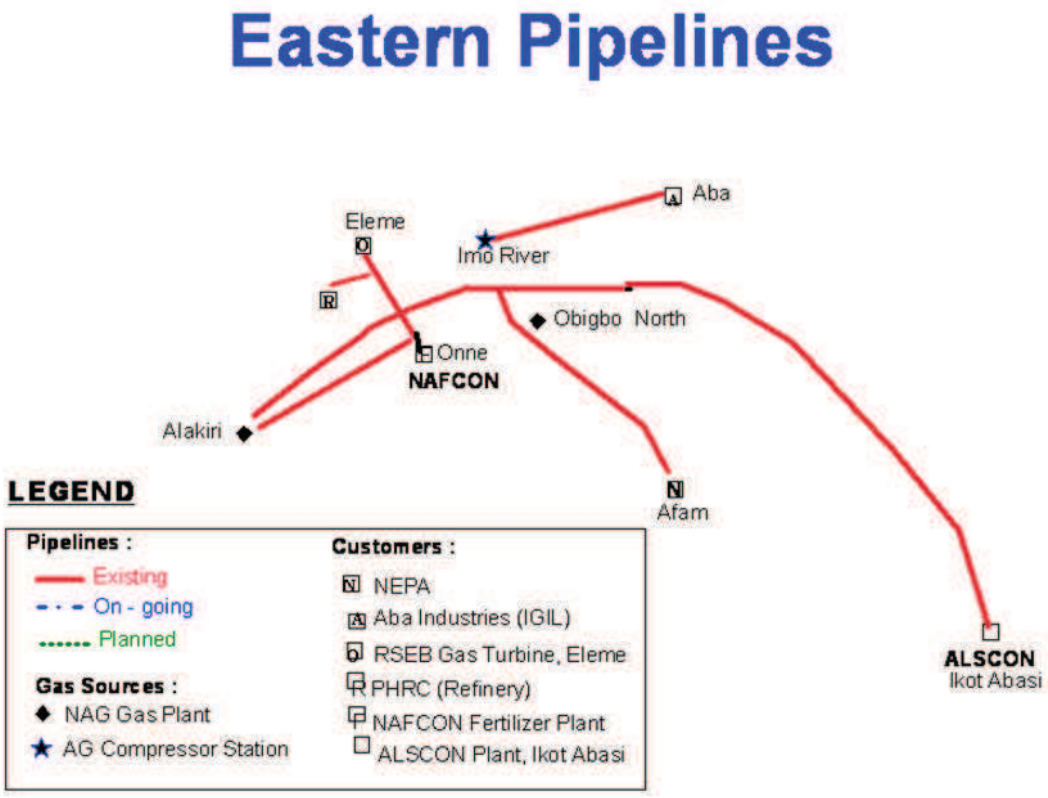
Figure 4.3 Western Gas Pipelines (in Western part of Nigeria)



Source: NNPC Graduate Trainees, 16th August 2006.

The Western gas pipelines which transmit natural gas from producing fields to customers within the western part of Nigeria, has been undergoing extension to some neighbouring West African countries since 2006. For the past 5 years, the plan has been made towards the development of a national and integrated pipeline transmission network that would help to distribute gas to customers in the central part of Nigeria (Okpella, Ajaokuta, Abuja and Kaduna).

Figure 4.4 Eastern gas pipelines (in the Eastern part of Nigeria)



Source: NNPC Graduate Trainees, 16th August 2006.

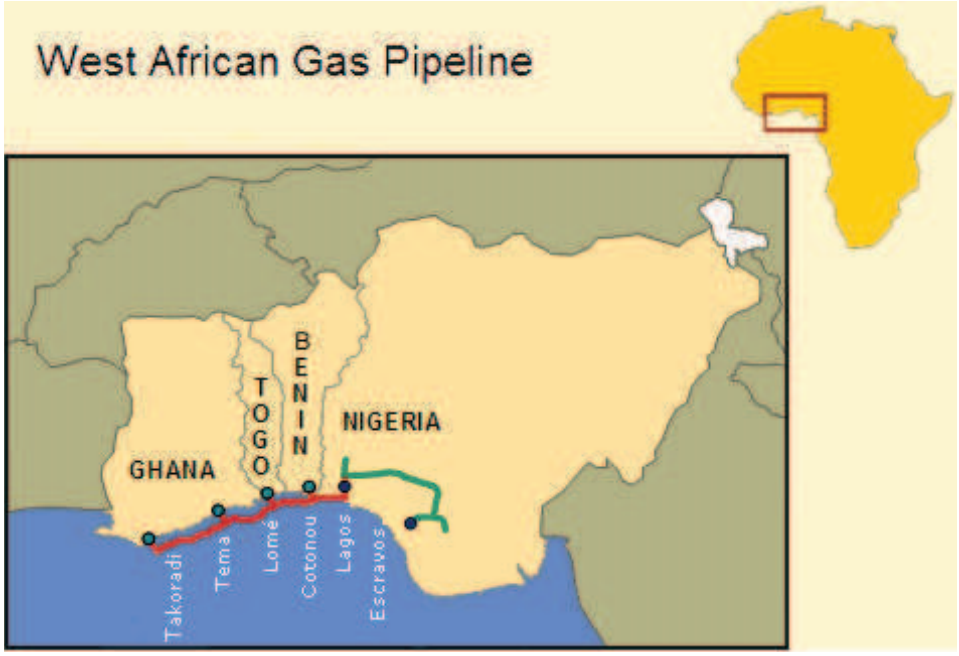
The Eastern Pipelines help in the distribution of natural gas from producing fields to customers within this zone as well as marketing natural gas and its derivatives within the Eastern part of the Country.

4.3.5 International pipelines.

Besides the numerous networks of oil and gas pipelines in Nigeria, the country has a plan to export and transport her rich natural gas to three West African Countries: Benin, Togo and Ghana. The 420 miles of pipeline were expected to be in operation by early 2010. In addition, Nigeria and Algeria have continued to discuss the possibility of constructing a Trans-Saharan Gas Pipeline (TSGP). The NNPC has since 2009 signed a

memorandum of understanding (MOU) with Sonatrach, the Algerian national oil company with a view to proceed with plans to develop the pipeline.

Figure 4.5 Proposed West African Gas Pipeline



Source: West African Gas Pipeline Company Limited.

4.3.6 Oil and gas installations and industrial facilities

The industrial facilities and oil installations that enable the production and transportation of oil and gas are visibly located across the Niger Delta region. How much these facilities, especially the pipelines, impact on the environment and communities around the region is of utmost importance to this study.

4.3.7 Oil transportation

UNEP (1999) observes that the Niger Delta is a risk zone of port activity, crude oil pollution and tanker traffic. This is due largely to the fact that traditional shipping and oil transportation routes are more prone to the impacts of discharges containing oil from tankers and vessels, as well as from pipeline leakages, than other areas (Patin, 1999). Thus, the location of oil facilities is also considered in this study.

4.4 Study Area Selection Criteria and Site Selection Details

Three major criteria were used to identify the research study area in order to achieve the research objectives. These are discussed below.

A). Home of Oil Deposit: Niger Delta has been and will continue to be the hub of oil and gas activities in Nigeria. As the country exploits and explores its oil reserves, a significant amount of both crude and refined products are being transported through pipelines that generate the adverse impacts of concern to this research. This criterion qualifies, Eleme, Okrika, Ugheli, Warri East, Tombia and Meyal 2.

B). Major Petrochemical plant Location: The existence of petrochemical plants is one of the major sources of environmental degradation in some communities in the region. This criterion qualifies Eleme and Okirika, as the hosts of the Eleme and Port Harcourt Petrochemical plants respectively. While the Warri refinery and petrochemical plant is located at the coastal town of Warri East, the Ekpetiama Gas Plant is located in Tombia. Scheren *et al.* (2002) considers the petrochemical plant as the most important producer of hazardous waste in the form of oily and toxic sludge.

C). Host Communities to Oil and Gas Pipelines: Eleme and Okrika communities are mainly known for the networks of oil and gas pipelines traversing them. These networks of pipelines transport petroleum products from the point of production, through these communities, to the Okirika refinery. Also, the Tombia community is host to the Ekpetiama Gas Plant is surrounded by many gas pipelines.

In addition, other variables used in selecting the local cases study include the interactions and the relationship that exist among oil and gas pipeline communities, for example, Eleme-Okirika communal conflict of 2009 due to compensation paid to Eleme community by Shell oil company for a pipeline oil spillage that affected both communities, though the incidence occurred at Eleme. The incidence affected the socio-economic activities and environments of both communities, which led to their choices for this study. Another variable employed in the selection of the local case study areas was the issue of type of governance structure in place. In many communities in the

Niger Delta where the uneducated youths were the rulers, there were high levels of insecurity and violence in those places that made it difficult for the research to be conducted in those communities. The study tried as much as possible to limit the case-study areas to communities with nationally recognised means of governance. The recognised governance could be viewed in terms of the provision of some basic amenities such as tarred road, electricity, cottage hospital and schools by the central government (and sometimes, the oil companies) to the case study communities.

Table 4.2 Site characteristics and classification

Environment and Resource Issues	**Case One: Eleme and Okirika**	**Case Two: Ugheli and Warri East**	**Case Three: Tombia and Meyal 2**
Geographic Description	Niger Delta Central	Niger Delta West	Niger Delta Central
Ecological Zone	Fresh water swamp	Mangrove swamp	Freshwater swamp
Resource Use Installations			
Refinery, Petrochemical and Gas Plant	PH Refinery and Eleme	WRPC	Ekpetiama Gas
Port facilities	Port Harcourt Port	Warri Port	
Export oil terminal	Bonny	Escravos	Brass
Ownership of Export oil terminals	NNPC	NNPC	NNPC
Storage Depot	Port Harcourt Depot	Warri Depot	Yenagoa Depot

Sources: Nigerian 2009 Statistical year Book and Fieldwork 2010

4.4.1 Site selection details

This section focuses on the details of the selection of the three main sites for the study.

4.4.2 Case One: Eleme and Okirika communities (both within Port Harcourt City)

Port Harcourt is judged to be the largest coastal town of the Niger Delta. It has two refineries owned by NNPC. The Port Harcourt refinery uses a waste water outlet into

Okrika and Eleme creeks, located near Okrika and Eleme communities respectively. Major pollutants emitted from the refinery include oil and grease, ammonia, organic acids and metals, which have been a source of conflict between these local communities and the refinery's management. There are a lot of surface oil and gas pipelines transporting oil to and from the refinery visible in Okrika and Eleme communities. According to the World Bank (1995), the inefficiency of the plant, the air pollution from the refinery operations and the waste and spills from oil pipelines are impacting human and ecosystem health. Oil and gas operations dominate these communities and serve as the operational bases for the majority of multinational oil companies as well as indigenous service companies.

4.4.3 Case Two: Warri East and Ugheli (Both within Warri City)

Located on the west flank of the Niger Delta, Warri city is the second largest coastal town of the region after Port Harcourt and serves as the operational base for Warri refinery and petrochemical plant (WRPC). It hosts several oil multinationals operating in the Western Niger Delta. The refinery is owned by NNPC which itself is 100% owned by the Nigerian Government. The refinery is a multiple pollutant source, releasing into the coastal environment significant amount of airborne emissions and hazardous sludge (Ukwe *et al.* 2006). In 1995, the World Bank notes that major air pollutants emitted by refineries and petrochemical facilities are Sulphur Oxides, Nitrogen Oxides, particulates, carbon monoxide and hydrocarbons. These are as a result of poor equipment maintenance and inefficient operations. The Warri refinery notably operates a jetty facility solely for loading and unloading petroleum products, as a result, Warri East and Ugheli communities are hosts to a huge network of oil and gas pipelines, which have not only impeded people's movement, but also impacted negatively on the environment and socio-economic lives of people in these communities.

4.4.4 Case Three: Tombia and Meyal 2 (both within Yenagoa).

Yenagoa serves as both a local government headquarters and a state capital. The general terrain of Yenagoa constitutes a problem due to certain features such as poorly drained soils, flooding, wetlands and other natural barriers. In addition, oil and gas pipelines have equally impacted negatively on its environment. Since it became a state capital in 1996, construction and other related activities have been on the increase to an extent

that its population had risen to 266,008 in 2006, according to the 2006 Nigerian population census. This population growth has been accompanied by rapid environmental degradation (Aprioku, 2004). While Port Harcourt and Yenagoa both lie on the central flank of the Niger Delta. Within Yenagoa, Tombia and Meyal 2 are particularly known for gas pipelines because of the location of a gas plant at Ekpetiama, although there are equally a number of oil pipelines that traverse these towns. Just as the Warri and Port Harcourt refineries are owned by NNPC, the Ekpetiama gas plant is also owned by NNPC.

Figure 4.6 (L-R) the Research Assistant, the King of Tombia, Ekpetiama and Yenagoa and the Researcher, at the King's palace.

Source: Fieldwork 2010

4.5 Method of data collection and data analysis

The method of data collection determines the reliability and validity of the result. The major approaches adopted for data collection in this study are group discussion and in-depth interviews with key informants. In addition, field observation and textual analysis were used to supplement the data.

Apart from the steps taken to reduce the effects of some of the constraints described above on the validity and reliability of the data collected, the use of a mix of data collection methods was equally very useful. The use of research triangulation was found

to be essential for valuation studies; it was helpful in offsetting some of the limitations discussed above, by providing complementary information. Triangulation is the application and combination of several research methodologies in the study of the same phenomenon. Through triangulation, the accuracy of judgements can be improved and thereby results, by collecting data through different methods or even collecting different kinds of data on the subject matter to enhance the research validity (Ghauri and Gronhaug, 2006). The same data was collected from different sources, for example some responses from the rural communities were cross checked with those from government agencies and oil company staff. Also, multiple methods were used to collect data from respondents, for instance, the combination of informal discussion and group discussion, in-depth interviews and text analysis helped provide far more information than a single method could offer.

The iterative nature of the research added some flexibility to the study and was essential in positively modifying the research (when new and important information become available) as it progressed. This is a key to a successful impact study. These facts are further buttressed in the suggestions for an integrated ecological research framework (Turner *et al.* 2000).

4.5.1 Group discussions

A standard group discussion, according to McGiven (2003) is usually made up of 8-10 or 6-8 people in such a way that the group is small enough for a manageable discussion and large enough to include a range of views. This research conducted six group discussions across the three case studies. Though Minocha (2006) observes that the number of groups will depend on the research objectives, the complexity of the topic, the range of views needed and the constraints of time and budget, he however maintains that it will be unusual to conduct fewer than four groups.

The deliberative group discussions for this study took the form of facilitated group discussions that provided respondents with the forum to consider some issues in depth, challenged each other's view points and made their arguments to reach a logical end position. They took few hours to conduct. The deliberative discussions for the study involved between 6 to 10 participants. Who was involved depended on the issues that

were at stake (in this case, people who could provide the required information); participants were selected on the basis of demographics, interest group, and random selection. The deliberative group discussions helped to engage with the people on the issues of oil and gas pipeline impacts. It has also helped in providing the research with much richer empirical data. It further provided significant insight into the concerns of the local people and the wider public about the oil and gas pipeline networks in the Niger Delta region, which have impacted on wider society for many years.

> *"In deliberative engagement processes the participants are given the opportunity to consider an issue in-depth. Made up of peers and experts, deliberative engagement groups come together to discuss information and to develop an informed view. Deliberative engagement methods are different from other more "traditional" tools, such as opinion polls that measure more immediate views on an issue"* (National Co-coordinating Centre for Public Engagement, 2010:1).

For this study, the groups were all made up of 6 persons and above (see appendix F). Four group discussions were conducted at the beginning of the fieldwork to provide useful background information on the main impacts of the oil and gas pipelines, and to identify the main oil pipeline stakeholders and their roles regarding the impacts. This also helped to identify the policy actors to be enlisted for in-depth interview. The other two discussions with the groups were held at a point when the interviews were near to completion.

Figure 4.7 Participants at a group discussion held at Okrika town, Rivers State

Source: Author, 2010.

These groups were to provide some outstanding information on issues like compensations, community involvement in decision making, benefits of the pipelines to the community; and to compare what the group said earlier with the results of the interviews. These small groups allowed the researcher, who served as the moderator, to spend more time on each participant during two of the discussions. Although it took a lot of time, it was possible because youths made up those groups. Each of the 6 group discussions in this research lasted over an hour and a few exceeded two hours, providing enough time to explore a range of issues in greater depth. The group discussions were conducted in schools, religious buildings and open fields as well as in the home of the King who helped to recruit the respondents. In order to overcome fear or intimidation of particular kinds, respondents were grouped in such a way that they either fell into the same age bracket or literacy level. Participants were selected at random and based on their willingness to supply information. Although a list of questions was set to guide the group discussions, it was often observed that the discussions positively digressed from these question lists.

At some point, the researcher observed some respondents' views were being influenced by what other members of the group had to say. However, the researcher was quick to read and disentangle these instances, to facilitate the flow of the discussion.

4.5.2 In-depth interviews

As mentioned earlier, the purpose of conducting interviews in this research was to explore the views of some individual stakeholders and policy persons who have first hand information about the networking, maintenance and impacts of oil and gas pipelines on the communities. Rapley (2004) observes that in recent times, social science has adopted interviews as a central resource for its engagement in the issues that concern it. He maintains that the reason behind the use of interviews in social science research is to allow the researcher go beneath the surface of the issue of interest to obtain more authentic accounts of the problem.

Silverman (2003) further buttresses how the interview has increasingly become the centre of social interaction in the public realm. However, it might be interesting to note that few authors provide guidance on how to conduct interviews in social science and, in particular, in conflict and violence prone areas like the Niger Delta region of Nigeria. Notwithstanding, some authors have endeavoured to stress the main principles that ought to guide the researcher during the interview process. For instance, Fontana and Frey (1994) suggest that a researcher should build a rapport with the respondents, facilitate the production of information and remain neutral throughout the process. Manson (1996) also recommends taking an interview guide or an outline of the topics that the interviewer wishes to cover with the respondents. This list of topics or questions which is usually generated from the related literature at the start of the research could be changed over the lifecycle of the research project (Rapley, 2004).

In the case of this research, the interview checklist became more detailed and specific as the researcher moved from one respondent to the next (see appendix B), partly because of the insight gained from the group discussions conducted earlier with the rural communities. Very often, the discussion during the interview took longer than necessary because of some unexpected issues that came up and that needed to be probed. Just as with some group discussions, some interviews were slated for late hours at night (sometimes 10 or 11pm) and lasted to 12pm or 1am. This was so to allow some respondents come back from work, especially in Port Harcourt where there is daily traffic congestion and also for the safety of respondents who feared volunteering their information in the day time.

To balance the information on the issues of oil and gas pipelines under investigation and in addition to the group discussions, 30 in-depth interviews were conducted (see appendix E). For these interviews, five respondents were drawn from each of the following organisations: academia, local residents, government departments concerned with petroleum resources, non-governmental organisations (religious and environmental activist groups), oil companies, and physical planning departments.

An aspect of the research that needs to be emphasised is the exploratory nature of the research in a conflict-ridden and violent zone. This type of research strategy would not only mean that only a limited number of interviews could be conducted but also put restraints on the number of people that could be interviewed. Therefore, the research had to limit itself in terms of the number of interviews it was able to conduct and sought to triangulate the collected information with other sources, including documentation materials and data from group discussions conducted with the oil producing communities.

It should be noted that the use of initial contacts, with the help of the research assistant, to recruit a reasonable number of respondents for the interviews, encourages the research to follow the stakeholders as they recount the story of the oil pipeline impacts. The research seeks to understand the way the various stakeholders influence the impacts of the oil and gas pipelines on their host communities. With the help of the interviews, the research was able to build up a vivid description of the existing situations of the oil and gas pipelines as a result of different associations that took place in the Niger Delta region of Nigeria. This approach allowed the researcher to uncover the issues of construction and maintenance of oil and gas pipelines in the study area and mitigations of their impacts, as well as the various circumstances that have led to the impacts taking place. This formed an integral stage of the data collection, through which the researcher hoped to learn how the respondents viewed the roles of the government and oil companies with respect to the impacts of oil and gas pipelines on Niger Delta communities and their environment.

In recruiting interviewees for the study, care was taken to ensure respondents who had first-hand information were recruited. The women, the students of high schools, the members of community rulers, community elites, farmers and fisher men, NGOs like

churches and environmental activists, staff of oil companies, planning officers, and government agencies, all formed the group of people involved in the research. These people were recruited with the help of the researcher's direct visit and contact with them, the research assistants' efforts who had prior orientation of the type of respondents needed for the research and the efforts of the kings/community heads upon receiving a letter from the researcher and due explanations by the research assistants. These methods of recruiting interviewees were quite helpful and contributed greatly to the success of the bulk of empirical and rich data obtained from the fieldwork. The data gave a balanced representation of the various stakeholders involved in oil and gas pipelines management in the region. However, there were some limitations to this method of recruiting such as the inability to conduct a systematic sampling; for example, the researcher interviewed majorly the people suggested by the king. Also, the group discussions and in-depth interviews were conducted in secret locations for fear of security and without the use of voice recorder and photographs except where the respondents allowed photographs to be taken. Hence, the sample frame of the interviewees allows the thesis to say all the responses from the respondents, places a limit to the display of some few photographs that were taken and disallowed the researcher from revealing the identities of the respondents.

4.5.3 Field observation and feedback workshop

Observation techniques, based on the ethnographic methods used in anthropology and sociology, are increasingly used in social science research. One of the advantages of observation, as noted during this study, is that it allows the researcher to see things at first hand. Minocha (2006) contends that observation is useful in providing detailed and in-depth understanding of how and why people do things in the context in which they do them. Thus, it allows the researcher to gather data on what people do rather than what they say they do. McGiven (2003) identifies two kinds of observation. The first is simple observation, which involves watching and recording people and their activities; and the second is participant observation where the researcher becomes involved in or takes part in the activity or task being observed. By applying the principles of simple observation in this research, the researcher did not only ask the respondents about their views and activities relating to oil and gas pipelines, but also made frequent visits to the oil and gas pipelines sites during the fieldwork to observe what and how exactly the pipelines are impacting on the community and the environment. The house where the

researcher was accommodated was equally used as a base for informal case study observation, observing things like income level, daily activities, the householders' perceptions about the government, oil companies and their activities in the Niger Delta. Attempts were also made to visit local planning activities in order to observe their work, since the research intends to seek the ways they can be involved in infrastructure planning for the oil companies.

Two feedback workshops were organised towards the end of the fieldwork. The first was held for the local stakeholders in Rivers State on the 23rd of January 2010 in a hall at Rivers State College of Arts and Science, Port Harcourt. Participation was open to the entire community; however, only the respondents were formally invited. The workshop made it possible to communicate preliminary results to the community in a way that would motivate them to act on and use the information, especially in local decision making. The question and answer time helped in gaining further information, for example, information on pipeline leakages and the compensation paid to the community. After the presentation, a discussion was held individually with some key community leaders and respondents to get their personal views of the outcome. A second discussion was organised for the students of Tombia Secondary School, Bayelsa State on the 24th of January 2010, with the King of Tombia in attendance. This was also helpful in developing further lines of analysis for the study as a result of further insight and information gained from the comments and suggestions made by the King and the students.

4.5.4 Text analysis (documentation)

As Yin (2003b) points out, documentation should always form a part of data collection plans in a case study. The various texts useful in case studies could include memoranda, written reports of events, agendas, letters, proposals, progress reports, the former evaluations used in the case study as well as minutes of meetings which the researcher may consider relevant to the study. Besides the group discussions, individual interviews and field observations, this research has equally sought information from appropriate texts and documents related to this study. In order to gain useful insights into, and maximize the benefits of the group discussions and interviews, some of these sources were studied and reviewed. For instance, before the fieldwork, the researcher had access

to the Niger Delta Regional master plan, the Shell oil company 2009 yearly progress report, the Nigerian Petroleum Pipeline Act of 1989, and the 2008 annual report of the Nigerian Environmental Standard and Regulation Enforcement Agency (NESREA). These documents supplied rich information regarding socio-environmental and infrastructural issues pertinent to the research aims and functioned as valid texts that were able to represent the meaning and discourse prevalent in the national oil and gas infrastructure provision and maintenance.

Furthermore, the researcher has read and analysed articles and press releases about the case study areas that were published in widely-circulated local daily newspapers. This gave the researcher an understanding of how the communities are impacted by oil and gas pipelines and the danger of living with those pipelines. Through the respondents, the researcher was also able to download online oil companies' reports and obtain some hard copies of oil companies' yearly progress reports.

Other documents used in this case study included archival materials like planning documentation and analogue and digital maps. These mainly helped in obtaining information about the way oil and gas pipelines criss-cross the region, and the communities which the oil and gas pipelines traverse. For this purpose, the research accessed the GIS Laboratory of the University of Port Harcourt. Some of the actors were also able to provide organisational records (pipeline expenditure records, budget plans and maps of the area covered by the pipelines) that were quite useful in triangulating the data obtained from other sources and to assist in developing a timeline of events.

There are two main reasons for using documents in this research. Firstly and as was mentioned earlier, it is to be able to verify the information from the interview and group discussions. This was specifically the research interest in obtaining records of meetings, reports and memoranda from the oil companies, professional bodies and NGOs, for example. For the same reason, the research sought government reports, statistical digests, environmental laws and regulations as well as consultation reviews. These, along with newspaper cuttings and stories from news websites, helped in contextualising the arguments that appear from the interviews and group discussions.

The second reason was to analyse the underlying meanings and assumptions made regarding entities like oil and gas pipelines (their role and impacts) and the EJ scheme from the research theoretical perspective. These serve to convey the interpretive nature of EJ as it is introduced into the study of oil and gas pipelines' construction and maintenance. As Atkinson and Coffey (1997:44) argue, documents are "social facts that construct particular kinds of representations with their own conventions". Therefore, it is important to analyse documents as "methodologically created communicative features" (Wolff, 2004:288) and not just as basic sources of data (Silverman, 2003). So, this research attempted to understand how the various stakeholders are involved in decision-making on the construction and maintenance of oil and gas pipelines. The research had the same objective when overviewing the reports published on EJ projects, in order to bring out the different ways the various stakeholders were represented in the literature. This objective is at the same time informed by the research theoretical position when thinking about who is respected, who is valued and who is not.

4.5.5 Triangulation

This research has used various sources of evidence to triangulate information to form a converging line of inquiry. In doing so, it has been able to produce a more convincing and accurate account of the situation of oil and gas pipelines impacts on the Niger Delta region.

Triangulation refers to the combination of methodologies in the study of the same phenomenon (Hakim, 2000). Through triangulation, we can improve the accuracy of judgements and thereby results, by collecting data through different methods (for instance, group discussions, individual interviews, personal observation and documentation in the case of this study) or even collecting different kinds of data on the subject matter of our study. Sometimes, to enhance the validity of our research, its correctness or precision, we need to collect data using different methods and angles. According to Campbell *et al.* (1995), the main advantage of triangulation is that it can produce a more complete, holistic and contextual portrait of the object or topic under study.

However, Minocha (2006) warns there are some problems with triangulation. For example, it can be difficult to judge if results from different methods are consistent or not. A second problem arises when the different methods come up with contradictory results. It may even be possible that the researcher prefers or emphasizes one method over another. But Silverman (2005) counters the warning by stating that triangulation usually results in a method of data collection that is both robust and sound in terms of maintaining a chain of evidence linking the research questions to the methods chosen, and consequently to the resulting reporting and analysis. This should also reflect the objectives of the research underway. In the case of this study, the research objectives and questions informed the design of the data collection strategy and the main sources of information used.

In agreement with the social constructionist approach that underlines the direction of this research, the research believes that knowledge gained from interviews is a direct product of the local interaction of the interviewer and the interviewee(s) (Seale, 2004). As a result, interviews are not seen as objective sources of information but are rather "by their nature, social encounters where speakers collaborate in producing retrospective (and prospective) accounts or versions of their past (or future) actions, experiences, feelings and thought" (Rapley, 2004:16). As Brand (2005) observes, subscribing to a constructionist tradition accepts the view "that what appears as fact always has interpretive slack that needs to be narrowed in a dialogue between researchers and the people of the setting they study" (Brand, 2005:35).

Accordingly, in the analysis chapters, this study triangulates the information obtained from the local communities with that obtained from government agencies and oil company staff. Similarly, the interview data is reviewed against evidence from the documentation and literature review. The next section describes the process followed for transcribing the data.

4.5.6 Transcribing interview and group discussion data

Due to the volatile and conflict-ridden nature of the study area, most of the interviews and group discussions conducted for this research were recorded using manual note taking, which produced notes that can be typed out, edited and organised. All interviews

and group discussions were transcribed using natural transcription processes, generating verbatim accounts that are as close as possible to what were said in the group discussions and interviews. In transcribing the field data, the research aim was to represent on paper the most accurate account possible of the conversation that took place (Kowal and O'Connell, 2004). Despite those efforts, the researcher must be content with – or as McLellan *et al.*. (2003:65) put it "settle on" − the textual form of the data that was produced, because it will never fully encompass all that had taken place during an interview.

However, the level of transcription depends on the level of analysis needed (McLellan *et al.*, 2003; Oliver *et al.*, 2005). As such, because the research is interested in exploring the respondents' knowledge, experiences, attitudes, values and beliefs, the researcher transcribed the entire interviews and group discussions. The reason for doing so was to understand how the respondents viewed the impact of oil and gas pipelines on the environment and the socio-economic life of the region and what notions or ideas they attached to it. The research was equally interested in knowing the processes and mechanisms by which the respondents are involved in decision-making regarding oil and gas infrastructure. In doing so, sought to understand how these processes and mechanisms materialised as relationships among various groups and associations (Latour, 2005) and how they were framed and articulated.

Due to the nature of this study, it was important for the research to identify the speakers and their significance regarding oil and gas pipelines construction and maintenance. As such, the interview transcripts were complemented with background information about the respondent as well as the place and date of the interview (see Appendices B-F). In addition, the research followed a standardised system of documentation and storing of transcripts. In the following section, the basic procedure followed in the analysis of the data collected will be described.

4.5.7 Analysis and interpretation

The wide range of analytical techniques for interpreting qualitative data are normally associated with the specific theoretical approaches that are adopted for the collection and analysis of the information gathered (Thomas, 2003). However, a generic analytical

approach used for data analysis in this research is what is described as a general inductive approach (Bryman and Burgess, 1994; Silverman, 2005; Thomas, 2003). This method is useful in linking research objectives as outlined in the research questions to the raw data (Schmidt, 2004; Thomas, 2003) obtained from interview transcripts and documentation. The following sections will describe the basic principles followed in analysing the empirical data gathered in the three case studies in this research.

4.5.8 The analysis of in-depth interviews and group discussions

The choice of analytical techniques for the analysis of in-depth interviews and group discussions depends on the research objectives, methodology and the questions used in the interviews and discussions (Schmidt, 2004). As such, it was important for the analysis to develop a process through which the research would be able to summarise the main themes apparent from the raw data (the ground themes) and link them to the theoretical background adopted in the research. As Thomas (2003) observes, data analysis is influenced by both the research objectives set out at the start of the research, understood as the deductive component, and the reading and interpretation of the raw data, the inductive element. The outcome of the research should be the result of both of these processes occurring during the analysis phase. As a result, there is often a constant "interchange process", which

> *"begins not only when the data are available in a transcribed form, but at the beginning of the data collection – as a kind of interplay between, on the one hand, theoretical considerations in reaction to literature and theoretical traditions, and on the other hand experience and observation during exploration of the research field"* (Schmidt, 2004:253).

Therefore, this research analysis started with a careful and detailed reading of the interview and group discussion materials. During this process, the research was guided by the theories developed in environmental justice and the researcher's knowledge and readings on the subject of oil and gas pipelines and infrastructure studies. Accordingly, the research began assigning analytical categories (Schmidt, 2004; Silverman, 2005; Thomas, 2003) or themes (Ryan and Russell-Bernard, 2003) to the text material and coding of respondents (Haughton, et al 2010), in order to bring to the fore the richness of the data (Scmidt, 2004) whilst disregarding some data that do not apparently fit with

the general theories adopted for the study. These analytical categories were later summarised, merged and developed into a guide for structuring the analysis chapters, and the structures applied to the materials being analysed. The structuring was consequently informed by the theoretical approach to the study of impacts of oil and gas pipelines and the themes that have emerged from the empirical research.

4.6 Some Fieldwork Challenges

Time was a major limiting factor in this research. In order to complete within the three years of the scholarship period, only about three months was actually available for the fieldwork. A study with a longer period of field work, that would allow for the monitoring of respondents and the observation of situations surrounding the issues under investigation may have provided better assessment and collected more data. For instance, interviews were often long, sometimes about two hours of discussion with a respondent.

The idea of guaranteed anonymity and follow-up presentations, as well as selecting group members within similar age brackets and levels of literacy were introduced to help gain the confidence and cooperation of some respondents who were initially uncomfortable, perhaps, due to the violence and fear of insecurity in the study area. The techniques of follow-up questions and questions to cross-check responses were also adopted to improve the data quality. On the issue of the benefits of the oil and gas pipelines to the community, it may be of interest to note that respondents from the various communities remained secretive (culturally-based) especially with regard to the economic benefits. This was also the case when Morardet and Darradi (2006) observed respondents remaining unforthcoming about the questions that dealt with the economic aspects of their personal circumstances. Although, it is believed with more time and persuasion, more details could be obtained on this issue.

Some of the respondents' inabilities to communicate in English constituted a language barrier for the research. A field interpreter (a university Senior lecturer) with good knowledge of English and the local dialect *Ijaw* was employed. However, it is possible that difficulty of interpretation at some points may mean information was lost in the process. The fact that field data was collected by the researcher was very helpful, since it allowed for more probing questions not originally included on the interview guide and

group discussion schedule. In addition, the security and safety, good welcome, cooperation and conducive working environment received from the communities, due to the good offices of the King of Tombia, the leaders of the NGOs at Eleme and Okrika as well as the research guides which aided the field work, was important in the data collection process.

However, the fact that the research could not look at dangerous areas could mean that some rich information on impacts of oil and gas pipelines and environmental justice in and around oil pipeline communities, are yet to be obtained. Thus, the research can only speak on the basis of the empirical evidence gathered from field work and literatures, the situations of the impacts of the pipelines on the host communities are very much similar in all the communities studied though. In terms of key concerns of the research, the selected case-study represent pictures of the lack of recognition (justice of recognition) and inadequate participation (procedural justice) given to the local oil and gas pipeline communities and environment stakeholders in decision-making that affect them by the oil companies and government departments, especially those of oil and gas pipelines construction and management. The case-study also represent the various impacts, and the way they are distributed (distributive justice), of the oil and gas pipelines on the local oil producing communities that have called for environmental justice in the region. It also showed the presence of disenfranchised planning authorities that were not performing their full responsibilities to the environment and oil infrastructure planning and management.

4.7 Ethical Challenges

Before the commencement of the fieldwork in the Niger Delta region of Nigeria, whist the researcher was still in Newcastle, he started the negotiation of access to the communities and representatives of the local people through the gate keepers and field assistants. Still, before leaving for Nigeria, a consent letter endorsed by my supervisor (see appendix G) was given to me, which helped to introduced me to the people and agencies concerned. On arriving Nigeria, I went to my host institution, where I am presently on their pay roll as a Lecturer (Federal University of Technology, Yola) and obtained another letter of introduction before proceeding for the fieldwork. As soon as I arrived at the study area, I was accommodated in the house of one of my field assistants

, who is a University Senior Lecturer and a native speaker of Ijaw dialect (the most commonly spoken language in the Niger Delta), had a meeting with my filed assistants, where there were given necessary orientations. Thereafter, letters were delivered to the kings and ward heads (see appendix A) by the research assistants who helped to explain my intentions and request their approvals and mobilisation as well as the security of the various groups of respondents. The communities' heads and kings responded by providing us secured venues (churches and school premises), dates and respondents especially for group discussions. On the other hand, interviews were conducted at the respondent's houses, sometimes late into the night for security purposes. The issues of photographing and voice recording were as much as possible handled with care, caution and due consents of the respondents. In all, my identity as an overseas student and a scholar on the Nigerian government sponsorship was completely hidden. This helped to prevent me from being attacked mistakenly - either as an overseas oil worker or a Nigerian government agent studying overseas. The presence of the research assistants who were familiar to the respondents helped the respondents to be free enough to give the required information. Hence, in the face of violence and power display in the study area, the research was able to achieve a significant level of data gathering and access to true representations of the people in the study area.

4.8 Conclusions

This chapter has set out the design of the research strategy used in this study. This design is based on the use of qualitative methods within a case study framework. It helps to explore two key points.

a). The impacts of the oil and gas pipelines on the environment and the socio-economic lives of the local communities, with the aim of understanding how the policies and activities of various stakeholders have contributed to these impacts.

b). The involvement of the various necessary stakeholders in the sustainable management of the oil and gas pipelines as well as the environment and coastal settlements of the region.

In the next two chapters, the research will present and analyse the empirical data collected during the fieldwork period. In these chapters, the research explores the

various forms of injustice emanating from oil and gas pipelines networks and the roles of the various stakeholders in the three case studies discussed earlier. The analysis is underwritten by the knowledge acquired about the implementation of EJ policies in Cameroon, Chad, Ecuador, England, Ghana, Malaysia, Scotland, South Africa, U.S. and Venezuela, which was used to develop an EJ model for sustainable management of the Niger Delta region.

CHAPTER FIVE

5.0 DISTRIBUTIVE JUSTICE AND ENVIRONMENTAL INEQUALITY: OIL AND GAS PIPELINES IN THE NIGER DELTA REGION

> *"One of the main challenges of distributive justice is to establish on what basis claims on injustice in terms of environmental quality, risks and access to resources can be substantiated and reliable and relevant evidence gathered. Measures of environmental inequality are required but are fraught with complexities of methodology, data availability and analytical power"* (Walker, 2010: 3).

5.1 Introduction

This chapter presents the empirical data collected from the three case studies in the course of the research fieldwork; it discusses how these results affect existing understandings of environmental justice and demonstrates how the evidence supports the research questions raised earlier.

The aim of this chapter is to present the socio-economic and environmental impacts of pollution from oil and gas pipelines borne by Niger Delta communities, in line with one of the dimensions of environmental justice (distributive justice). Walker (2011) observes that distributive justice is conceived in terms of the distribution or sharing out of goods (resources) and bads (harms and risks). Thus, in accordance with the research question 1, that is, "What are the main impacts of oil and gas pipelines on the environment and socio-economic activities of the Niger Delta communities?"; the study underscores the drastic consequences of these practices and advocates the pursuance of environmental justice.

This call for environmental justice in the Niger Delta region of Nigeria has become necessary under the weight of a widely-held body of opinion (see Chapter two) that can be summed up in the following citation, which will to some degree be tested in the fieldwork:

> *"Oil and gas production has come at a great environmental cost to about 1,500 communities in the Niger Delta where the Nigerian*

National petroleum Corporation oil venture partners operate. The impacts have been mostly negative" (Nnah and Owei, 2005: 31).

In the next section of the chapter, the research focuses on oil and gas pipeline activities that impact the communities and their environment. The main impact-generating activities that emerged from the empirical materials are discussed and the outcome of these activities on the environment and communities in the study area demonstrated.

5.2 The Various Stages in Petroleum Pipeline Construction and their Associated Impacts.

Some of the impacts of oil and gas pipelines in the Niger Delta communities first encountered in academic papers became real in the course of the personal observations conducted for this research. The fishing and farming activities on which many of the local residents depended were affected in most of the communities visited and the vegetation bore evidence of significant levels of damage. These impacts have caused conflicts not only between the communities and oil workers but also within some communities.

All stages of petroleum pipelines network have some negative impacts on the community and the environment. As such, biodiversity and loss of habitat occur during route clearing while development of vast numbers of hectares of land for construction results in more noise, biodiversity and habitat loss. The study therefore begins the discussion on some of the oil and gas pipelines impact-generating activities from the early process of land acquisition to implementation and monitoring stage. The first issue is that of land taking and the clearing of routes.

5.2.1 The Stage of Land take and route clearing

Land taking involves land acquisition and clearing for access and site locations as well as construction of roads or canals as the case may be, depending on whether the sites are on land or in swamps. According to Nnah and Owei (2005), land taking is necessary for the establishment of the required rights of way for pipelines. The land in the rights of way is cleared of all vegetation and could result in the loss of economic trees, food crops

and medicinal plants. The land will no longer be available to the community. This has often led to loss of farm lands and fishing grounds. This view is supported by a respondent during a group discussion:

> "Depending on the area the pipeline traverses, for example, if it is through water, it normal causes water pollution and deny us access to water in that area, and if it is through land, it causes loss of ownership and availability of the land" (Group discussion 2, respondent 4, 2010).

Pipeline routes also create channels and access for loggers and hunters to some eco-zones that have heretofore been protected by difficult terrain. The result has been uncontrolled, reckless and unsustainable exploitation. From the field data and observations, this was mainly the case in the Tombia and Peremabiri communities, where most of the unemployed and unschooled youths found an occupation in hunting due to the peculiarity of the region and its associated underdevelopment. In addition, the recovery of the destroyed mangrove and rainforest areas has been observed to be very slow as was evident along the Eleme pipeline routes established more than three decades ago (Ajakaiye, 2008). Although an interview with an oil company employee (Interview 3, oil company staff, 2010) reveals that the companies have been embarking on forest rehabilitation programmes, however, the local communities members (Group discussion 2, respondents 3 and 5, 2010) questioned the success of such rehabilitation. The next sub-section deals with the stage of oil and gas pipeline installation.

5.2.2 Pipeline installation Stage

> "The traditional livelihood system declined at Okrika because the locals went seeking for better paid jobs at oil pipeline construction sites" (Group discussion 1, respondent 5, 2010).

The majority of the respondents in the group discussions in this research have maintained that during the petroleum pipelines installation, there has always been an increase in the potential for road and water traffic accidents due to massive movements

of people, equipment and goods during construction. According to them, this influx of people and workers that offer ancillary services puts pressure on locally available housing and social infrastructure. Although field data show that temporary houses constructed for oil company staff during pipeline construction are often left standing so that the communities can benefit from them, however, these structures are only temporary. In addition, the locals have also noted that their social values went into rapid decline during the pipelines installation, as crime rates, prostitution and other related vices increased. However, an oil company employee who responded to this issue (Interview 4, oil company staff, 2010) stated that: "we normally give compensation to the affected persons through their representatives". However, it was observed from further probing on the issue of compensation that the oil companies' mode of compensation payment is based on negotiation between the companies and communities' representatives with a view to making (an) aggrieved person(s) happy. The research gathered that compensation in this case is not necessarily equivalent to paying for damages since some of the spillages caused by oil pipelines have generated impacts that are difficult to quantify monetarily, for instance pollutions of a main river and water source; however, compensations that concern damages to individual farmland(s), economic trees, and fishing equipment among others are sometimes based on the equivalent damages. Another stage is the pipeline route maintenance and decommissioning.

5.2.3 Pipeline route maintenance and decommissioning

> "There are concerns about exposed oil and gas pipelines running through the farm lands though the companies try sometimes to maintain the pipelines but there is always a delay due to some exigency or other reasons better known to the oil companies. This has led to fire outbreak in many cases" (Group discussion 2, respondent 3, 2010).

Pipeline maintenance is another important activity that ensures the integrity of pipelines and the safety of people in the vicinity. The oil producing communities have often attributed most of the spillages to the lack of proper maintenance of oil and gas pipelines by the companies. After construction, periodic monitoring and repairs are vital requirements for a successful pipeline network. Figure 5.1 below shows a scene of fire outbreak caused by an oil pipeline leakage.

Figure 5.1. A ruptured oil pipeline burns in a Lagos Suburb after an explosion in 2008 which killed at least 100 people

Source: The Observer, 2010.

Even when the pipeline is no longer in use, it is left to rust in the open field as the companies are not very willing to spend money dismantling (decommissioning) the pipeline. For example, a respondent to a group discussion has argued that "some oil and gas pipelines in their community well are over 35 years old" (Group discussion 4, respondent 2, 2010). Readings from literature further support the respondent's view. For example, Nwilo and Badejo (2008) point out that the actual life span of an oil pipeline recommended by the International Body of Oil and Gas Pipelines Marketing is between 20-25 years. While the communities continue to point accusing fingers at the negligence of the oil companies in failing to replace old pipelines, the oil companies have defended themselves during the interviews (Interview 5, Oil Company, 2010) by lamenting that the local communities would not allow replacement of oil and gas pipelines without being given monetary compensation.

However, during field observation, it was noticed that when oil pipelines are left on the surface, they occupy agricultural land, separate communities and impede free movement of people. More so, it was observed that oil companies prefer leaving unused pipelines on the surface instead of burying them underground. It was a collective view from the staff of oil companies that they prefer leaving unused pipelines on the surface than installing them underground because, as long as oil pipelines are buried underground,

whether or not they are in use, the communities will assume they are functioning in order to justify their demand for further compensation.

Figure 5.2 below shows a young girl walking across the vast oil and gas pipelines that run through the middle of her town of Okrika in the Niger Delta region of Nigeria.

Figure 5.2. Erosion exposes Oil pipelines in a community of Okrika.

Source: Circles of Blue, 2009.

5.3 Pipelines and Oil spill

This section analysis the incidence of oil spillages due to pipelines' leakages and sabotage in the study areas.

> *"The Shell Petroleum Development Company (SPDC) is committed to taking all reasonable action to avoid oil spills and reduce environmental impacts from our operations in the Niger Delta. Unfortunately, 70% of all oil spills over the last five years has been the results of damages to oil pipelines"* (Shell, 2009).

Another environmental effect of oil and gas pipeline activities is that of oil spills. No oil and gas pipeline activity is 100% efficient; even in the most technologically advanced countries; pipeline failure may result in oil spills. According to Ukwe *et al.* (2006), apart from marine pollution and marine debris, oil spillage caused by human activities poses a great danger to the marine environment of the Niger Delta. As such, it is a matter that requires an urgent attention. Whilst the oil companies did blame the local communities for most of the oil spill incidents in the Niger Delta region, the communities on the other hand have equally attributed oil spill as a major problem caused by the oil companies. When asked, during a group discussion, what might be the likely cause of an oil spill, a resident blamed the oil company before anything else:

> "We suffer the effects of oil spills on our communities today because of the companies' continuous use of pipelines that have exceeded their lifecycles and their inability to maintain their pipelines properly" (Group discussion 3, respondent 1, 2010).

Oil spills caused by a ruptured pipeline are potentially an environmental disaster. They cause loss of access to important coastal resources and aesthetic nuisance. Oil spill is one of the most significant causes of widespread ecosystem damage and generates emotional, socio-economic and political consequences. Figure 5.3 below is a typical example of an oil spill at Tombia where a major source of drinking water was polluted.

Figure 5.3 .A drinking water source impacted by an oil spill from a pipeline

Source: Amnesty International, 2009.

Isirimah *et al.* (2006) observe that in about 40 years of oil exploration in Nigeria, over 6,000 spills have been recorded, averaging 150 spills annually. Available records from the Department for Petroleum Resources show that during the period 1976-1996, 4,647 incidents resulted in the spillage of 2,369,470.04 barrels of crude. With only 549,060.38 barrels recovered, 1,820,410.50 barrels of crude were absorbed by the soil, water and biota of the Niger Delta. Table 5.1 below gives a longitudinal record of the number of oil spill incidents and the quantities in barrels in the Niger Delta region of Nigeria for the period of 1976 to 2008.

The Mobil Idaho spillage from a 12-inch pipeline rupture, which occurred on the 12th of January, 1998 caused more widespread damage and nuisance that covered virtually the entire Niger Delta coastline (NNPC, 2008). The exact quantity of the spilled crude may never be known as observers have disputed the Mobil claim of 40,000 barrels.

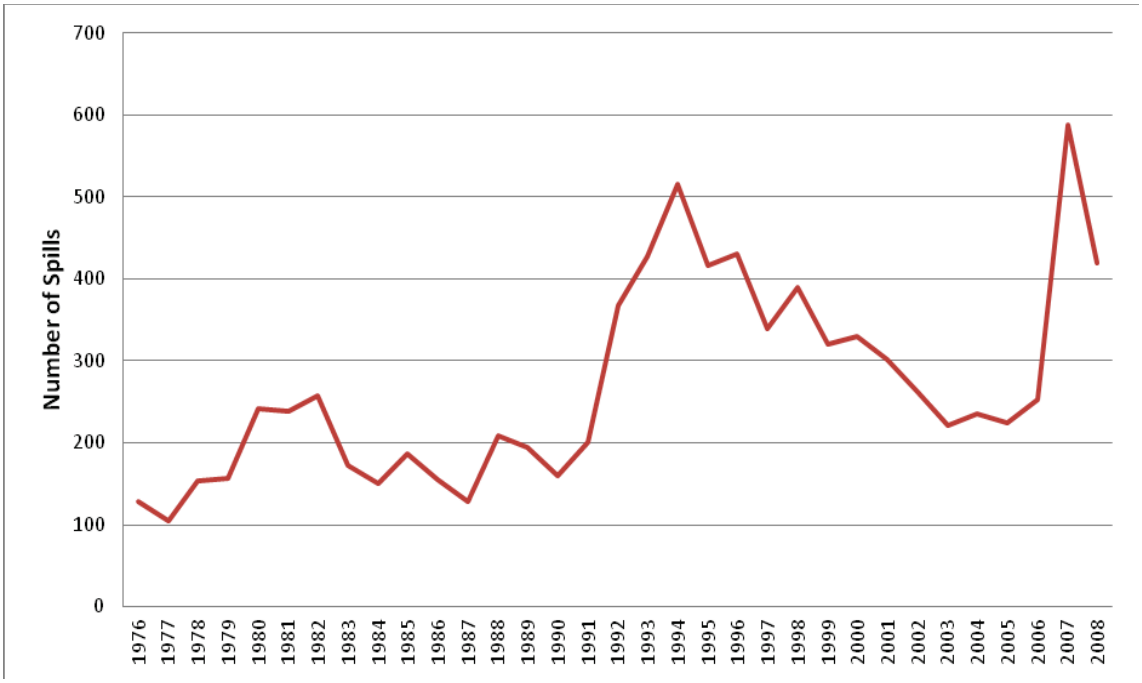
Table 5.1 Oil spill incidents in the Niger Delta region of Nigeria.

S/NO	Year	Oil Spill	Qty in barrels lost
1	1976	128	26,157
2	1977	104	32,879
3	1978	154	489,295
4	1979	157	694,117
5	1980	241	600,511
6	1981	238	42,723
7	1982	257	42,841
8	1983	173	48,351
9	1984	151	40,209
10	1985	187	11,877
11	1986	155	12,905
12	1987	129	31,866
13	1988	208	9,172
14	1989	195	7,628
15	1990	160	14,940
16	1991	201	106,828
17	1992	367	51,132
18	1993	428	9,752
19	1994	515	30,282

20	1995	417	63,677
21	1996	430	46,353
22	1997	339	59,272
23	1998	390	98,345
24	1999*	320	20,000
25	2000*	330	30,100
26	2001*	302	76,960
27	2002*	262	19,980
28	2003*	221	9,916
29	2004*	236	8,317
30	2005*	224	11,921
31	2006**	253	n/a
	Total	**8879**	**2,748,308**
	Average	**269**	**91,610**

Source: Nwilo and Badejo (2008), *Yo-Essien (2008) and, ** Ajakaiye (2008)

Figure 5.4 Number of Spills



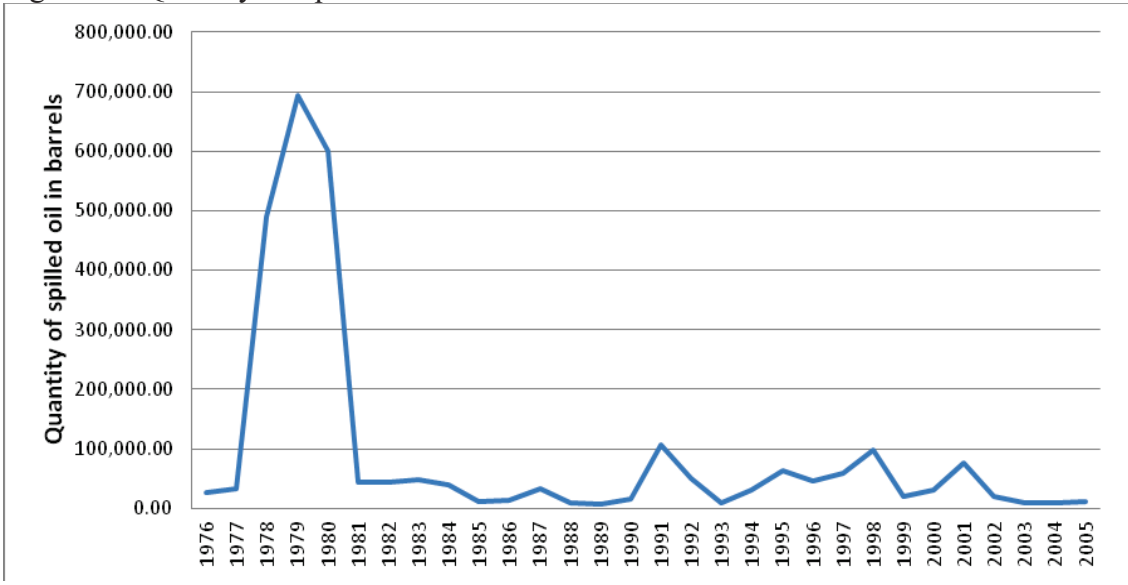
Source: Nwilo and Badejo (2008), *Yo-Essien (2008) and, ** Ajakaiye (2008

From Figure 5.5, we notice that there was a period of significant decline between 1998 to 2006 when a democratic regime promised amnesty to the militants in the oil region.

However, from 2007 we can see a sharp increase in the number of oil spills because of failure on the part of the federal government to keep its promises to the militants in the region. In Figure 5.6, the high quantity of spilled oil noticed between 1976 and 1982 is largely due to the frequency of violence and reckless damages done to oil facilities in the Niger Delta region during a period of military regime, when the people of the region felt undermined (Ajakaiye, 2008).

As mentioned earlier in chapters 1-3, the main causes of oil spills have been identified as pipeline blowouts, corrosion, failure, maintenance error and sabotage.

Figure 5.5 Quantity of Spilled Oil in Barrels



Source: Nwilo and Badejo (2008), *Yo-Essien (2008) and, ** Ajakaiye (2008

The result of the responses from the 30 respondents to the in-depth interviews is displayed in Table 5.2 below. Here, the respondents were asked to state the single most important cause of oil spillage in the Niger Delta region.

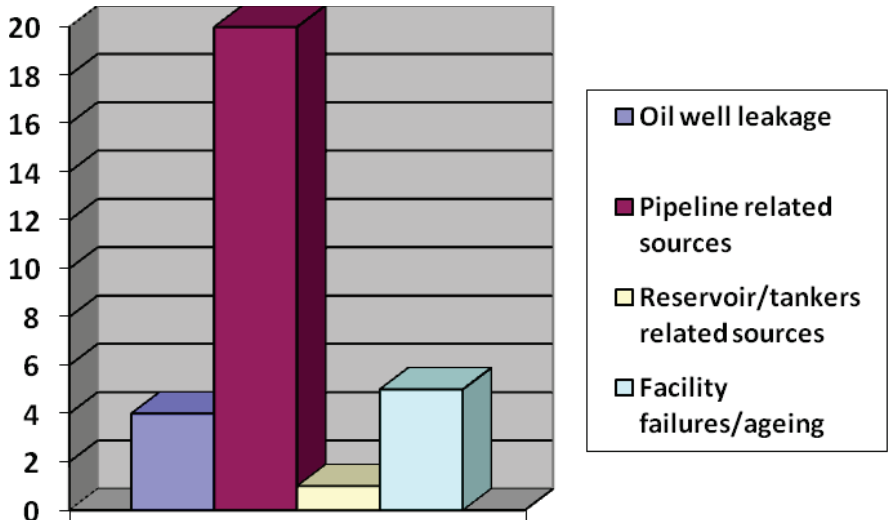
Table 5.2 Causes of oil pollution recorded in the study area expressed in percentage. This is also presented in a chart (Figure 5.6) below.

Sources	No of respondents	Percentage
Oil well leakage	4	13
Pipeline related sources	20	67
Reservoir/tankers related	1	3

sources		
Facility failures/ageing (Mechanical and engineering errors associated with other oil installations apart from pipelines)	5	17
Total	**30**	**100**

Source: Fieldwork survey, 2010.

Figure 5.6 A chart showing causes of oil pollution as expressed by respondents



Source: Fieldwork survey, 2010.

From table 5.2 and figure 5.6 above, the impact of oil and gas pipelines is something of concern to the communities. When asked to rank the causes of oil pollution in their local communities, 67% of the respondents blamed the pipelines for most of the oil pollution incidence that have affected their sources of water, land, vegetation, health and socio-economic activities negatively; whilst only 3% of the respondents attributed the oil pollution to reservoir/tankers related sources. Besides oil pollution, it was also gathered from discussions and interviews with the local people that the construction on pipelines

in their communities has caused some damages to their cultural artefacts and sites of cultural values, for instance the Igbesu shrine at Tombia was affected in the course of constructing the Tombia-Yenagoa gas pipeline network. Also, at Okirika where the oil pipelines were left on the surface, there were complaints from the respondents that the elderly men and women found it difficult to cross those pipelines to and from the market, farm and rivers. The surface pipelines were claimed by the respondents as causing accidents (broken legs and arms) to children who see the pipelines as play grounds. However, discussions with the oil company staff showed how the staff frowned at some of these claims by the local people. The staff contended that they have often done their best to minimize the impact of pipelines on the local communities and blamed the communities for sabotage on oil facilities. In the next section, particular cases of oil spillages caused by oil and gas pipelines are presented.

5.3.1 Causes of Oil Spills from Pipelines in the region.

This section is entirely devoted to the analysis of oil and gas pipelines as a major cause of oil spill in the Niger Delta. It considers oil spills in the Niger Delta as a whole and narrows it to the study location in particular. Apart from the oil spill cases in the three study locations, the research further sought the opinions of the respondents, during the group discussion and in-depth interviews, of any other cases outside their locations but within the Niger Delta region of Nigeria and their respective causes, the result is shown in Table 5.3 below, whereas Table 5.2 specifically reports on the three case studies of this research.

Table 5.3 Oil spills and their causes in the coastal region of Niger Delta

CASES	CAUSES	DATES
Edegbeni, Bayelsa State	Pipeline explosion	2009
Egbni, Rivers State	Facility failure	2004
Elele, Rivers State	Bunkering	2003
Ikot Ada Udo, Akwai-Ibom State	Pipeline Explosion	2004: January and May
Kokoloma, Bayelsa State	Pipeline rupture	1994, 2010
Ogoni land, Rivers State	Pipeline damage by millitants	1977

Okrika, Rivers State	Bunkering	2003
Olibiri, Abia State	Millitants	2009
Oloibiri, Bayelsa State	Pipeline vandalization	2005
Oloma, Bayelsa State	Pipeline explosion	1999
Peremabiri, Bayelsa State	Millitants due to the destruction of their shrine by Shell during oil pipeline construction.	2000 and 2006

Source: Field survey, 2010

Having seen the various impact-generating activities of the oil and gas pipelines, the next section analyzes the data collected on the negative impacts of the pipelines on the communities and environment of the Niger Delta region of Nigeria.

5.4 Negative Impacts of Oil and Gas Pipelines

In this section, the research highlights some of the environmental and socio-economic impacts of oil and gas pipelines using data derived from empirical materials and the literature. The first of these are air, water and land pollution.

5.4.1 Air, land and water pollution

> *"The absence of marine pollutant abatement infrastructure in the Gulf of Guinea has led to uncontrolled discharge of pollutants and effluents"* (Ukwe *et al.*, 2003:400).

In 2006, the United Nations Development Programme (UNDP) pointed out that between 1976 and 2001; a total number of 6,817 oil spill incidents were recorded in the Niger Delta, with a significant loss of approximately 2.1 million barrels of oil to the environment. However, Moffat and Linden (1995) do not only blame the activities of the oil multi-nationals in the Niger Delta, but also the Nigerian government, because decades of non-existent environmental regulations have allowed oil companies to

operate their facilities without incorporating the costs of environmental damage into their decision-making policies.

Air, land and water pollution occur in the course of petroleum pipeline construction. As a planning officer said:

> "In the course of oil pipeline construction, crops and vegetation are being destroyed, which can metamorphosize into fire outbreak and make lives difficult for people. The fishes and fishing activities are equally affected" (Interview 5, Local Planning officer, 2010).

For example, it was gathered from the empirical findings in the course of this research that large volume of dust and air-borne particulate matter, originating from construction sites during pipeline route digging, were discharged into the air in one of the study cases (Eleme community). When the air is laden with such dust, it can cause health hazard for some people. Pollution studies around Bille community in Rivers State of Nigeria have shown that several people are suffering from eye-related problems and asthmatic attacks due to the dust-laden air that prevails within a few kilometres radius of the oil pipelines construction sites (Aigbedion, 2005). As mentioned earlier (See section 5.2.4), oil spillage, resulting from oil pipelines, has caused extensive water, air and land pollution in many parts of the Niger Delta Region.

Another negative impact of the oil pipelines which the research analyzes below is the kind of damage they cause to the vegetation of Niger Delta.

5.4.2 Damage to the vegetation

> *"One of the effects of the significant number of oil spill is the loss of the mangrove trees which were unable to survive the toxicity of its immediate habitat"* (Nwilo and Badejo, 2006:126).

In an attempt to construct oil and gas pipelines, oil companies have constructed canals that in some cases have caused saltwater to flow into freshwater zones, destroying the

fresh water ecological system. Oil companies constantly dredge river channels to facilitate navigation. Similarly, oil spillage adversely alters the biodiversity of the environment as it destroys soil, plants, animals and water resources as a result of the toxicity of oil. In 1980 for example, about 340 hectares of mangrove forest were lost to oil spillage in the Niger Delta Region of Nigeria as a result of pipeline blow-out at a Texaco offshore location (Awosika, 1996).

As indicated from speaking to a member of a non-government organisation (Interview 2, NGO, 2010); vast hectares of vegetation in the form of natural forest or crop plantation have been lost due to oil and gas pipelines networking. The NGO member referred to above further narrated that at Eleme and Okrika communities of Rivers State, a large amount of vegetation were stripped due to route clearing.

Tolulope (2004) supports the NGO member when he stated that, in the Niger Delta region, oil spillage has equally affected the growth of vegetation; consequently, the growth of economic crops like kola nuts has been drastically reduced within the vicinity of the spill due to the amount of oil that retards vegetative growth. Apart from information collected on air pollution and damage to vegetation of the Niger Delta region of Nigeria, data was also collected on the coastal and ecological disturbance which is reported below.

5.4.3 Coastal pollution and ecological disturbance

In the context of this research, the term coastal pollution is used as defined by the United Nations Group of Experts on Scientific Aspects of Marine Environmental Protection (GESAMP):

> *"Introduction by man of substances into the marine environment resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of sea water and reduction of amenities"* (GESAMP, 1969:60).

In 1993, a study by the Organisation for Economic Cooperation and Development (OECD) showed that waste disposal and pollution control is one of the critical

competing demands for coastal and marine resources. Nakashima (1997) makes it clear that oil and gas activities pose some significant threats to the long-term sustainability of coastal ecosystems through their hydrocarbons operations and the corresponding marine transportation of their products worldwide. Such impacts are well known locally as confirmed in the following statement:

> "Oil spillages associated with the oil and gas pipelines can lead to ecological disturbance which affect the floral and faunal populations as well as the water bodies in our communities" (Informal interview 2, Traditional Ruler, 2010).

The biodiversity of communities living in the region are affected in various ways. According to the empirical materials obtained in the course of this research, the gas pipelines construction at Ughelli community in Delta State of Nigeria affected the plant and animal populations. Some of the animals were said to have migrated to other parts of the Niger Delta region. In like manner, the oil spill that occurred in Peremabiri community of Bayelsa in the year 2000 was said by interviewees to have affected both soil and water, resulting in the death of, especially, fish and other aquatic creatures, as well as some terrestrial animals particularly those that feed on fish and lower plants.

Aigbedion and Iyayi (2007) further lament the effects of oil spillage on Niger Delta communities when they note that whenever oil spill occurs, the soil gets soaked in oil, and water will be filmed with oil, consequently, the ecosystem suffers not only disequilibria but also pronounced degradation with dire consequences on the food chain.

In addition to the negative impacts of oil and gas pipelines discussed above, two other areas of negative impacts of the pipelines include the degradation of natural landscape and the impacts on the socio-economic well-being's of the locals. Data on these two areas are analysed below.

5.4.4 Degradation of natural landscape

> *"The valuable ecosystems are therefore placed under intense anthropogenic pressure, where many pollutants are accumulated in these sensitive natural landscapes"* (Sanchez-Cabeza and Druffel, 2009:88).

Patin (1999) maintains that the coastal zone is where the main living resources of the ocean reproduce and at the same time, it serves as home to most of the known oil and gas fields. Talking of the assimilation capacity of the ecosystem, Beatley *et al.* (2002) argue that, over time, the recuperative abilities of the natural environment in this zone will not be able to withstand the pressures from the oil and gas sectors without a significant alteration or degradation.

The degradation of natural landscape was clearly observed with the Eleme vegetation where oil pipeline construction has resulted in the destruction of scenic landscape and has left widespread erosion and some alluvial heaps behind. A resident at Eleme noted this during an informal discussion.

Figure 5.7 A waterfront polluted by an oil spill, 2008

Source: Amnesty International, 2009.

When asked about the efforts of the company to help reduce the degradation of the natural landscape, responses from the oil company staff suggest that there are huge

challenges in working in the Niger Delta region. These challenges they expressed in the areas of their relationship with the host communities; securities of their lives and properties; and their relationship with the Nigerian government in terms of policies and procedures guiding their operations.

On the other hand, the oil companies blamed the communities for making them undertake multiple negotiations before they could be allowed to work. They argued that the issues concerning oil and gas pipelines is a matter in which the generality of the populace should be involved, since they have observed that most of the time, the communities are not well represented by their representative, particularly on the issue of compensation.

They further expressed some bitterness about the fact that the Niger Delta youths come from the surrounding towns to the companies to stage rioting. They also blamed the government which has not performed well in providing infrastructure and has not approved a certain sum for infrastructure provision. This they said has forced them to use the money from their vote to settle with the communities, often as their needs arise. The next section dwells on the socio-economic problems of the oil and gas pipelines to the Niger Delta communities.

5.4.5 Socio-economic problems

> *"In addition to the significant economic benefits that could be derived from the oil industry in the Niger Delta region are the negative ecological and socio-economic impacts"* (Yumkella, 2003:222).

The temporary employment opportunities available in the course of oil and gas pipelines networking often lead to migration of people from many parts of the country to the construction sites. The migration often results in the formation of "ghost towns", which are normally abandoned once the pipelines are installed. This was alluded to during a group discussion at Okrika where a participant stated that:

> "It is a common feature in many parts of the Niger Delta region to see temporary settlements and social amenities depending on the duration of the oil and gas pipelines constructions" (Group discussion 3, respondent 6, 2010).

In some cases in the Niger Delta region, oil and gas pipelines constructions have caused several conflicts between communities and among farmers and landowners. For instance, interviewees attributed the major cause of the Eleme and Okrika land conflict of 1999 to the Okrika refinery oil pipelines that pass through the two towns. This conflict arose between the two communities because of the understanding that the more the community land taken up by the pipeline rights of way, the greater the compensation.

Apart from conflicts, some of the field data reveal cases of destruction and damages to cultural heritage in some communities through which the oil and gas pipelines pass. As presented in Table 5.3, for example, the "Egbesu shrine" at Peremabiri in Bayelsa State, was destroyed in 2000 during the Shell oil pipelines construction, causing a great conflict between the company and the community.

5.5 Benefits of Oil and Gas Pipelines

This section looks at the positive impacts of oil and gas pipelines' activities on the Niger Delta communities as gathered from the empirical materials. First is the issue of employment provision.

5.5.1 Employment provision

During most of the stages of the oil and gas pipelines network, the research gathered that different categories of skilled, semi-skilled and unskilled personnel were employed to perform administrative, manual and community relations' jobs. However, for most of the host communities, there is no permanent employment.

> "Many of the job opportunities that were open to us were transient and unskilled jobs. This frustrated some of us seeking permanent work" (Group discussion 4, respondent 3, 2010).

From the empirical findings, the local economy, especially the trading sector, was temporarily invigorated as was reported by a respondent who witnessed the Eleme oil pipeline project. Traders specialising in edible goods and general consumables did enjoy a period of transient boom. The increase in the demand for means of getting in and out of the project area certainly created an even greater boom period for commercial boat and vehicle operators, both from within and out the project area.

Though the locals argue that most of the employment opportunities available to them were on short term basis, if in the course of the project, a few youths acquired new skills and experiences, such benefits will become assets to them and the community, even after their disengagement. Secondly, if they are able to save part of their earnings while in the temporary job and choose to invest with it, they may end up becoming future job creators and, possibly, employers themselves. (It was gathered in the course of the fieldwork, however, that it is not a common practice for the Niger Delta youths to make savings from their earnings from temporary jobs they engage in during oil and gas pipelines constructions.) Another way the communities benefit from the oil and gas pipelines is in the area of infrastructure provision, which is analysed below.

5.5.2 Provision of infrastructure

> **"**Yes I agree the companies do sometimes provide infrastructure for the communities, but how long do these infrastructures last, and how many of us can those infrastructures serve?" (Group discussion 5, respondent 1, 2010).

As earlier discussed in section 5.4.5, the movement of various fortune-seekers into the Niger Delta communities during oil and gas pipelines construction had always impacted on the existing economic and social infrastructure in different ways. Since the need for residential and business accommodation had always increased alongside excessive stresses put on the available health facilities, three staff of the Nigerian Gas Company who were interviewed have all argued that they have often been in the business of providing cottage hospitals, school buildings and transport boats.

However, the level of adequacy and durability of these infrastructures are questionable. From the views of the residents who responded to questions on infrastructure provision, the communities express their level of dissatisfaction with the quality, duration as well as the quantity of the various infrastructures the companies claim to have provided. These made some communities doubt whether the oil companies are really keeping to the agreement that 10% (as approved by the national government) of the oil company's profits be used to secure infrastructures for the communities where pipelines run. A respondent to an informal interview puts it this way:

> "10% of the company profits have been proposed to be used for infrastructure development of communities where oil and gas pipelines run through. But whether the government will enforce that or not, I do not know" (Informal interview 2, Local resident, 2010).

However, from personal observation during the fieldwork in the Niger Delta, what was observed about the state of infrastructure provision clearly supports the claim of the local communities. Most of the cottage hospitals were without drugs, only a single building was donated each to the schools visited and many roads were in bad conditions, referred to by the locals as "death traps." The research observes that there is an urgent need for the government to ensure that the oil companies really spend the money meant for oil producing communities' development. On the issue of money in perpetuity for oil and gas pipelines maintenance, information gathered during the field work presents some degree of divergence of opinion. On the one hand, the local communities tend to believe that both the government and the oil companies are failing to spend the money meant for the maintenance of oil and gas pipelines, thereby exposing the communities and the environment to oil and gas pipelines related problems. On the other hand, the oil companies maintained during field interviews that they are being pushed into a corner, for the reason that one of the principles on which they operate requires that they must not exceed £2000 in their spending to clean up communities polluted by oil and gas pipelines related problems. Therefore, since the oil companies are living close to the communities, they become the major target of the aggrieved communities even if the pollution is beyond their spending capacities

5.6 Centralised Planning System and the local missing link

During an interview with a local planning authority, it was gathered that:

> "The local planning authorities have often been contacted only at the point when the oil companies are sourcing for land" (Interview 2, Local Planning Officer, 2010).

The argument of the planning officer above clearly shows the level of non-involvement of physical planning in the networking of oil and gas pipelines in the Niger Delta communities. Another planning officer also lamented the fact that EIAs for oil and gas pipelines, at the moment, are prepared by hired consultants who usually call for public hearings when physical planners are invited to participate. The outcomes of the hearings are neither made known to the physical planners nor the public.

When asked during an interview why physical planners are not involved, an oil company employee said:

> "We have not seen a need to involve the physical planners since the Department for Petroleum Resource (DPR) is capable of handling all the issues relating to the oil and gas pipelines and has all the codes and standards" (Interview 4, Oil Company Staff, 2010).

Reacting to the claim that the DPR has the capabilities to handle all the issues relating to oil and gas pipelines, a high ranking officer at the national office of the Nigerian Institute of Planning hinted that the Institute has recently started voicing its grievances about its non-involvement in the planning of major oil infrastructure development projects in Nigeria. The officer argued that the DPR has not heeded the call to appoint and get physical planners involved partly because many of the directors of planning at DPR, at the moment, are engineers. Involving town planners may therefore mean that some of the directors may lose their positions.

Another oil company employee puts the issue of involving physical planners this way:

> "We only involve planners if the pipeline is passing through the town" (Interview 3, Oil Company Staff, 2010).

From the staff explanation given by the employee, the major problem facing the oil companies is that after pipeline installation, many villages begin to spring-up along the pipeline routes.

During field observation in the course of this study, it was seen that most of the communities around the pipelines are recognised by the government, which provides electricity and roads. This research holds that any community of human beings or settlement recognised the government ought to have some level of physical planning. One of the respondents from the local planning authorities said that:

> "most of the communities in the oil rich region of Nigeria have never had any planning because the local planning authorities have not taken initiatives to plan the settlements and they never expected some of these communities to grow spatially and population-wise to the level they have at the moment" (Interview 1, Local Planning Officer, 2010).

A review of some of the documents obtained from the local planning offices reveal that there is no properly articulated legislation guiding the growth and development of the communities in this region. The traditional rulers and community heads do the planning through the traditional institutions. However, from what most of the planning officers said, the key problems relate to the land ownership system in place and the inadequacies in the payment of compensation when land is being requested for developmental purposes.

The traditional system of planning currently operating in the Niger Delta region of Nigeria recognises provision of sites for agriculture, markets, health posts and a few educational facilities. The Village Heads give out agricultural land to farmers, especially the non-indigenous ones, based on agreed principles of sharecropping. Areas of success for traditional planning include the siting of a market and the current sales of land, which follow a given layout-plan. However, good accessibility, potable water, drainage

and sanitary facilities are still lacking in many communities in the Niger Delta region irrespective of the provisions of the traditional plan notwithstanding.

5.7 Summary and some remarks

Using environmental and socio-economic data from the fieldwork, and relating this to the literature, this chapter has been able to identify, in line with the concept of environmental justice, some of the negative and positive impacts (distributive justice) of oil and gas pipelines activities in the areas studied. While some of the impacts can be categorised as short term, the majority fall into the long term category and have major impacts on the host communities and the environment (see Table 5.4 below). The research notes that at all stages of the petroleum pipeline networking; the negative externalities far outweigh the positive impacts of the pipelines on the environment and the communities. Thus, there is a call for urgent and necessary intervention by all stakeholders to harmonise their policies in order to achieve a concerted goal of protecting and sustaining the coastal settlements and the environment of the Niger Delta region of Nigeria.

Based on the findings of this study, the Niger Delta communities are faced with serious environmental degradation as a result of oil pollution caused by leakages or explosion of oil and gas pipelines. This does not solely affect the natural environment but has significantly impacted on the lives of the inhabitants of these communities.

The findings also revealed that there is great awareness regarding oil spillage occurrences and their impacts among the people in the communities studied. This could be due to the incessant occurrence of such cases, not only within these communities but also across the entire region. As such, it can be inferred that oil spill is a common phenomenon in the Niger Delta region (refer to Tables 5.2 and 5.3). Although the causes of the spills have been attributed to a range of factors including facility failure, pipeline rupture and vandalism, bunkering, sabotage, and militancy, the communities ascribed most of the blame to the oil companies, because of their negligence in preventing most incidences and their failure to provide appropriate oil and gas pipeline maintenance measures, that would curtail the menace of oil pollution through pipelines in the region.

However, the oil companies claim that the communities are given due compensation and benefits they deserve through the communities' representatives; but these benefits do not sometimes get to the masses at the grass-roots level, which means the communities are not well represented. This indicates the need to devise a means for ensuring the distribution of benefits to people who are mostly affected at the local level. This advocates for an environmental management programme in the context of environmental justice for the region. Having analysed the field data on distributive justice, the next chapter analyses the data on procedural justice and justice of recognition and situate the analysis in the context of some existing literature.

Table 5.4 below shows the numerous negative impacts of the oil and gas pipelines on Niger Delta environment and communities. There are, however, some positive impacts (benefits) of the pipelines to the communities in particular, and the country at large. Some of these benefits are presented as well as in Table 5.5 below.

Table 5.4 the various oil and gas pipeline activities and their environmental and socio-economic negative impacts

Project Phase	Project Activity	Impact Description	Negative (-VE)	Long term	Major	Minor
Pre-construction	Land take and Acquisition	Loss of economic resource by owners of acquired land (Ec & En)	√	√	√	
		Unavailability of acquired land for alternative uses (En & Ec)	√	√	√	
	Vegetation clearing and topsoil removal	Ecosystem alteration and destruction (En)	√	√	√	
		Habitat destruction and alteration (En)	√	√	√	
		Soil erosion (En)	√	√	√	
		Conflict (Between communities and companies) (So)	√	√	√	
		Housing pressure and infrastructure decay (So & Ec)	√	√	√	
		Decay in social values and crimes/social vices (So)	√	√	√	
		Loss of valued ecosystem components (En, Ec & So)	√	√	√	
		Loss of wildlife of conservation importance (En & Ec)	√	√	√	
		Exposure of ecosystem to hunters, firewood users etc (En)	√	√		√
Excavation,		Distribution/displacement and migration of wildlife of either conservation or livelihood importance (En & Ec)	√	√	√	

sand filling and dredging of access canals and creeks		Alteration of natural drainage patterns at dredged spoils disposal locations (En)	√	√	√	
		Alteration of hydrographical characteristics (En)	√	√	√	
		Increased tendency for river bank erosion and creation of artificial canals (En)	√	√	√	
		Loss of aquatic resources of conservation importance (Ec &En)	√	√	√	
		Impediment to free movement of people (So)	√	√	√	
		Accident to children (So)	√	√	√	√
Redundant/left over facility	Abandoned facilities	Aesthetics risk to human and alteration of environment (So, Ec & En)	√	√		√

Project Phase	Project Activity	Impact Description	-VE	Short Term	Long Term	Major	Minor
Mobilisation of workers and materials	Equipment/ personnel transport	Accidents/traffic delays due to movement of pipe facilities and other sea going vessels (So)	√	√		√	
		Disruption of fisheries/fishing activities (So & Ec)	√		√	√	
Construction	Piling	Ecosystem alteration and Habitat destruction (En)	√		√	√	
	Access Road/Camp Accommodation Construction	Noise/Air pollution (So & En)	√	√			√
	Electric Cable Laying	Fragmentation of ecosystem due to clearing of pipeline Right of Way (En)	√		√	√	
		Effects on marine life (Ec & En)	√		√		√
Pipeline and commissioning	Excavation and trenching	Accidents arising from open trenches during excavation (So & Ec)	√	√			√
		Soil erosion from excavation (En)	√		√	√	
		Wildlife displacement/ecosystem imbalance (En & Ec)	√		√	√	
	Radiography	Exposure to harmful materials.(En & So)	√	√			√
	Hydro testing	Soil erosion from water leakages during hydro testing (En)	√		√	√	

***Source**: Field work observations, 2010*

LEGEND: En indicates environmental impact
Ec indicates economic impact
So indicates social impact and Ec indicates economic impacts

Table 5.5 the various oil and gas pipeline activities and their environmental and socio-economic positive impacts

Project Phase	Project Activity	Impact Description	Positive	Short Term	Long Term	Major	Minor
Post Construction	Oil and gas transportation	Reduction in environmental pollution (En)	√	√			√
		Leftover materials for the locals (So)	√	√			√
		Revenue generation (Ec)	√		√	√	
		Conformity to national and international standards (En)	√		√	√	
At all stages of Oil Pipelines network	All pipeline project activities	Employment opportunities (Ec)	√	√			√
		Infrastructure provision (So)	√	√			√
		Compensation/royalties to communities (Ec)	√		√	√	
		Leftover construction facilities for community benefits (Ec)	√	√			√

***Source**: Field work observations, 2010*

LEGEND

So indicates social impact
Ec indicates economic impacts
En indicates environmental impacts

CHAPTER SIX

6.0 PROCEDURAL JUSTICE AND JUSTICE OF RECOGNITION: INFORMATION EXCHANGE, DECISION-MAKING, LEGAL CONTROLS AND COMMUNITIES' CONCERNS.

> *"Procedural justice is not concerned directly with how environmental quality, risks and resources are distributed; but with the processes through which decisions about the environment are made. This raises policy issues of access to information, the adequacy and inclusiveness of procedures of participation in decision-making and access to legal recourse"* (Walker, 2010: 3).

6.1 Introduction

Having described the socio-economic and environmental effects of the oil and gas pipelines on the coastal environment of the Niger Delta in terms of distributive justice, the aim of this chapter is to describe the various procedures and policies, particularly but not only those on environmental management, in terms of procedural justice and justice of recognition. These procedures and policies have systematically led to the costs of oil and gas pipelines being borne by the oil producing region of Nigeria. This will combine information from the empirical data and readings from related literatures.

According to Walker (2011), procedural justice is conceived in terms of the ways in which decisions are made, who is involved and who has influence. Thus, in order to provide a glimpse of the ways government policies have affected the development potentials and environmental protection of the area, it is necessary to provide background information on a number of modern institutions and organisations operating in the Bayelsa, Delta and Rivers States of Nigeria.

To do this, it is important to analyse the views of the respondents on policy issues of access to information, the type of recognition and level of involvement of the locals in decision making that affects them; and their access to legal redress. Additionally, the manner in which communities perceive and respond to the construction of oil and gas pipelines in their terrain and to certain other developments in the oil sector are quite important, in so far as this guides their relationships with the oil companies and with

other communities. This is particularly of interest in view of the existing conflicts between major oil companies and the host oil-bearing communities. The fieldwork data are analysed and their contribution to understanding the communities and environment of the Niger Delta described. The next section dwells on the concepts of procedural justice based on the field data and some related literature.

6.2 Procedural Justice

6.2.1 The Adequacy and Inclusiveness of Procedures of Participation in Decision-making

Among communities in the oil producing areas of Nigeria, development is seen not only in terms of modernisation (i.e. the provision of basic infrastructure facilities) but also in terms of the satisfaction of basic needs, such as health services and basic shelter among others (Okonjo-Iweala, 2009). It is also perceived in terms of both economic and political empowerment of the local people. It is expected that this task is not only the responsibility of the government but should be enhanced or facilitated by the infusion of foreign private capital into their region. It is therefore expected that multi-national corporations operating in their areas would help provide the enabling environment for economic and political empowerment, by providing not only such infrastructure, like roads, but also basic amenities like pipe-borne water and electricity as well as scholarships and employment opportunities for graduates, youths and young school leavers.

Thus, the communities expect that the oil companies should step in, and succeed where the government has failed, in providing the basic needs of the people. Accordingly, a local resident put it this way “as long as the basic needs of our people are being neglected, we shall continue to attack the oil facilities” (Group Discussion 2, respondent 3, 2010). In a region where the people are increasingly becoming enlightened with regard to their rights as citizens, and are also becoming aware of how much is being derived from their communities as oil revenue both for the government and the oil companies, it is seen as reasonable to demand a fair share of these revenues, at least in the provision of basic infrastructure and basic needs for the communities and the involvement of the locals in decisions that affect them. A very vocal member of a group discussion lamented that:

> "In the past 54 years, his nationality had offered Nigeria an estimated US$50 billion in oil revenue, but received nothing in return except a blighted countryside, an atmosphere full of carbon dioxide, carbon monoxide and hydrocarbons. His community, he added, is now a land in which wildlife is unknown, a land of polluted streams and creeks, of rivers without fish, and a land that has turned to ecological disaster. We cannot accept the situation" (Group Discussion 2, respondent 2, 2010).

Interviews with some local residents of the same community reveal that the community, in its demands on the oil company, maintained that the company should not only conduct an environmental impact assessment study of its activities in the area over the past 35 years, but that, it must at the same time conduct a social impact assessment study and compensate the people for the dislocation of the economic life of the community. In addition, it must provide alternative employment within its organisation for all those displaced by its activities, pay tenant rates for its installations in the area since 1958, review and pay rent for all lands seized from the people since then, provide adequate housing for all those affected by its activities, establish model farms, nature parks and fish farms, and resettle all those forced to resettle in modern towns.

Group discussions with the local people make it clear that one major problem of environmental management in the Niger Delta region of Nigeria is the failure to take the people into confidence and involve them in issues pertaining to the management of their local environment and resources. This study observes that this failure probably accounts for the rise of local pressure groups, which has been a feature of the Niger Delta region of Nigeria in recent times.

Presently, the trend in many parts of the world, especially since the environmental summit in Rio de Janeiro, Brazil in 1992, has been towards aligning the goals of conservation with the needs of local people for social and economic development. The notion of conservation-with-development is one that is being canvassed in order to involve people at the grassroots level in environmental and resource management.

It is the view of this study that it is important to promote this grassroots' approach to future environmental management in the Niger Delta region of Nigeria. The next section considers the way the oil companies relate with the local communities.

6.2.2 Community-company relations

The relationship between the oil-producing communities and the oil companies is influenced by many factors, including legal standing, feelings of marginalisation and neglect among the communities, a high level of poverty, the impacts of oil activities on their environment and socio-economic activities, and their expectations of what the oil companies should be doing (Iledare, 2008).

The oil companies operate in the Niger Delta region under a series of enabling legislation, including the Mineral Act, the Petroleum Act, the Oil Pipeline Act, Petroleum Production and Distribution (Anti-Sabotage) Decree, the Land Use Decree, and the constitutions of the Federal Republic of Nigeria, 1979, 1989 and 1999, respectively. These laws (as previously discussed in section 3.5) form a major source of problems for oil producing communities. Interestingly, communities are aware of this. A participant at a focus group, for instance, stated that:

> "Right from the time the colonial government left Nigeria, there was no doubt in the minds of the oil rich Niger Delta people that natural resources and in particular, land, petroleum resources and other economic potentialities belonged to the autonomous people of Nigeria where they were, and we had no misgivings of the magnitude of the emergence of a petroleum decree and land use decree, whereby all the most important natural resources of our people would be confiscated by the central government and we would be left a ridiculous 13% (the present oil revenue allocation to the region) of the huge revenue that our territory produces. We cannot bear this any longer" (Group Discussion 4, respondent 6, 2010).

However, the research gathered that in a bid to ameliorate the suffering of the people in the oil producing communities, oil companies spend some amount of money on community projects. These include the provision of social amenities like electricity,

pipe-borne water, health and educational facilities and scholarships. Despite the efforts of the companies, the local communities feel dissatisfied. Informal interviews with some local residents suggest that some causes of dissatisfaction include the following complaints:

> Some opinion leaders/chiefs collude with contractors to falsely certify job completion in order to share a percentage of the contract sum to the detriment of the community because of lack of real accountability;
>
> The projects are not economically viable, self-sustaining or easily maintained, so that they break down soon after installation and commissioning due to neglect of the overall petroleum industry objectives; and
>
> Projects are initiated and executed without consultation with and involving the benefiting community (for instance, where items of hospital equipment were provided, but the community has no healthcare institution).

Undoubtedly, there could be many cases that serve as examples of failed community-company communications as pointed out by Bayart (2003). In this research, two cases are provided as exemplars below:

> "A company-sponsored construction of a six-classroom block even though the community preferred the completion of its previously abandoned secondary school project which would have accommodated more students" (Interview 4, Local Resident, 2010); and
>
> "A market provided to the community by a company was not put to use because the community was not consulted in the initiation and execution of the project" (Group Discussion 4, Respondent 2, 2010).

Having spent some time analysing the community-company relations in this section, the next section presents an analysis of the nature and manner of procedures that surround compensation payments to the host communities.

6.2.3 Compensation payments

The issue of compensation payment is prominent in conflicts between oil companies and their host communities. The research findings show that in general terms, the communities try to seek from the oil companies compensation that is commensurate with the nature and level of damage inflicted on their environment, social life, economy and infrastructure. Since these communities are predominantly farming and fishing communities depending almost exclusively on their farmlands and waterways for their survival, the study observes that great importance should be attached to compensation that reflects the relationship between the oil companies and their host communities.

A great deal of conflict over compensation normally results from the perceived, and sometimes actual, failure of the oil companies to provide adequate and timely compensation. There are many reasons for these:

> "Conflict comes between us and the oil companies whenever there are ineffective communication with affected communities and unnecessary delay in payment" (Group Discussion 3, respondent 2, 2010).

However, an interview with an oil company employee suggests that the inability of the oil companies, many times, to respond quickly to the issue of compensation payment is as a result of:

> "Unrealistic tenders and formalities of claims often submitted by the affected communities" (Interview 3, Oil Company Staff, 2010).

However, another perception by the local populace that compensation payments are too low in relation to the actual losses could have some serious effects on the oil companies' relationship with their host communities over a long period of time. Some of the respondents to the informal interviews, who felt there are usually long delays in compensation payment, identify the agents of delay as follow: the Public Affairs Department, the Investigation team and the Finance Department. They also lamented that the delays have become more pronounced in recent years, and attributed this development to the changing fortunes of the companies, corruption and the factional divisions within the oil-producing communities.

In another dimension to this issue of delays in compensation payments, data from some oil company staff showed that some of the factors behind the delays are outside the control of the oil companies. First among these is the problem associated with the Federal Government's inability to meet its financial obligations to the oil companies. This always affects each company's ability to meet their financial obligations to their host communities. Secondly, some of the staff of the oil companies who responded to the in-depth interviews mentioned that divisions in the communities sometimes lead to delays in payment of compensation because of the difficulty in identifying credible representatives of the people.

The research observes that, closely linked to the issue of compensation, another major source of conflict between the oil companies and their host-communities is the non-employment of graduates and youths from the host communities in the oil region. This has led to disturbances and/or protests directed against the oil companies. Most of these protests are often initiated and led by the youth. However, when probed in the course of the research interviews, the oil companies argued that they operate a local content agenda that means they employ as many youths and members of their host communities who possess the necessary employment eligibility criteria.

Lastly, the research notes that the channels of communication between the oil companies and their host communities are not adequate. This is supported by some local people who claimed that they are sometimes so overwhelmed by the complexity of the bureaucratic processes that they are reluctant to lodge a legitimate complaint. In other cases, they maintained that they do not really know whom to talk to, or where to lodge their complaints. An accumulation of such grievances over time may later be expressed in the form of violent protests and demonstrations, or in the form of sabotage against oil companies' interests. Additionally, it was gathered in the course of the research that, in some cases, some unauthorised officials of the companies may make unauthorised promises to the communities which, when not fulfilled, aggravate conflicts between them. The next section analyses the level of poverty and legal access of the local residents.

6.2.4 Poverty and inability to seek legal redress

Poverty is well known to be an effect of many dimensions of environmental degradation. This is particularly the case in the Niger Delta where many of the rural poor live in areas of extreme environmental fragility. A local resident noted that poverty in the Niger Delta region of Nigeria is due to:

> "A lack of security in the physical elements of good living, resulting from inadequate access to the means of generating and sustaining those elements" (Interview 5, Local Resident, 2010).

This might be interpreted to mean that inadequate technology and income for efficiently creating and sustaining gainful employment, good health and good housing, among others, are good indicators of poverty. A respondent at one of the group discussions with the local people of the region lamented:

> "The numbers of the poor in our communities are unacceptably high today, and are increasing, especially since the natural capital stocks such as fisheries, tropical forest and biodiversity, are fast decreasing" (Group Discussion 2, Respondent 4, 2010).

Poverty could be linked to the environment in complex ways, particularly in natural resource-based economies. As earlier stated in Chapter one, about 70% of the population in the Niger Delta live in rural areas and derive their income from agriculture, fishing and other primary production activities. From the research findings, some of the major concerns of the local people (as already discussed in Chapter five) include land degradation, water and air pollution, lack of access to drinking water, deforestation, and loss of biodiversity.

The research observes that degradation of resources has the potential to reduce the productivity of the poor people of the Niger Delta region who must rely on those resources. It could make the poor even more susceptible to issues of inequity. Poverty makes accommodation of what the people perceived to be unjust extremely difficult, and contributes to lowering social and economic resistance.

Birdsall and Londono (2007) state that the poor, with shorter time horizons, and usually, less secure access to natural resources, are unable and often unwilling to invest in natural resource management. The massive persistence of poverty in the face of the oil economy generated within the same region, presents a problem for the macro-economic development of Nigeria, because the Niger Delta people feel that they must benefit, if the social stability needed for overall economic growth is to be assured.

Readings from the literature and the findings of this research suggest that some of the forces creating poverty are essentially social. Therefore, they should be surmountable, especially since they reflect systems of resource allocation that are made by society, and which can be reversed. Some of the answers in this region could lie in creating the conditions for the rural poor to earn more from their work. Overcoming poverty may not necessarily reduce growth but may be a pre-condition to growth, as it can make the poor to be more productive. Nobody in the region, after all, wants to be poor, and only a small minority appeared to accept it passively in the course of the interview. The poor are rarely without initiative. Alleviating poverty will therefore, require building upon that initiative, and helping to organise cooperation and providing material support.

In 1992, the International Fund for Agricultural Development (IFAD) had shown quite clearly that such support does not have to take the form of hand-outs. Instead, it entails access to conservation technology in relevant areas and more importantly, resources to invest. To IFAD, poverty is a production problem and poverty alleviation is an investment. Goodland and Daly (1993) observe that the trickledown theory of economics and prevalent attitudes toward the poor prevent them from being properly integrated into the country's economic structure. A local resident believes the people of the Niger Delta are poor because:

> "We have been prevented from using the same resources available to others in the nation – land, credit, infrastructure, technology, social studies and education" (Interview 3, Local Resident, 2010).

The above respondent expresses the general state of access to legal recourse and the causes of poverty among the rural oil producing communities in the region. The next section deals with the issue of justice of recognition as it emanates from the field data.

6.3 Justice of Recognition

6.3.1Inadequate education and information

In the course of the research, discussions with the various stakeholders on the ways the oil and gas pipelines affect the Niger Delta people and their environment have aroused great emotions that indicate mutual suspicion between the local people, on the one hand, and the oil companies and industrialists on the other hand. There continue to be difficulties regarding each other's perceptions about the overall networking of oil and gas pipelines in relation to the management and development of the region. As an expression of worker (2011)'s ideal of justice of recognition, a local respondent during a group discussion put it this way:

> "Lack of concern about the local people's indigenous knowledge and its possible utilisation in environmental planning, is a major lapse on the part of decision-makers and planners" (Group Discussion 4, respondent 1, 2010).

As such, if the local people are to become genuine partners in the operations of the oil and gas pipelines as well as the development of the environment and resources in the Niger Delta, greater efforts need to be put into learning about indigenous resource management systems.

On the other hand, the local people might need to be given more education on modern principles and methods of environmental management and resource conservation. This idea has proved effective in Kenya and Zanzibar (Hale *et al.*, 2000). However, before the people can join hands with planners and decision-makers in working out realistic mechanisms for coping with the impacts of oil and gas pipelines analysed in chapter 5, the local people also need to know more about the operations of the oil industry and its possible impacts. The next section is an analysis of the level of adequacy and inclusiveness of policies of women's involvement in decision making in matters of oil and gas pipelines in the region.

6.3.2 Limited empowerment of women

Women in the Niger Delta play a key role in the traditional economy of the region. This was stressed previously in Chapter four within the sections on the occupations of the

local people in the region. In many cases, they are not only the producers but also the marketers of goods. And they play a much more significant role in these areas than some of the men. In spite of this, a woman respondent to an interview stated that:

> "The basic decision-making in the general social sphere is almost always the monopoly of men" (Interview 2, Local Resident, 2010).

The implication may be that this separation between decision making and decision execution in resource development could affect the efficacy of resource and environmental management activities. Furthermore, the fact that women are in many cases overworked, could equally affect several aspects of their lives. Given this state of affairs, a meaningful empowerment of the women could lead to a significant rational and purposeful management and utilisation of resources. The next section summarises the chapter.

6.4 Summary and Some Remarks

The oil companies are at the moment enjoying a reasonable rapport with the community chiefs and some of the youths (who also happen to be rulers in many communities of the Niger Delta region). In any case, many of the locals are less than completely satisfied with the oil companies because of claims of marginalisation, lack of involvement, participation and recognition given to some groups in the region as they relate to the policies and procedures of the oil industry. The people have the feeling that the oil companies and the government of Nigeria enjoy most of the proceeds of oil and gas, even though the local people are the immediate landlords to the oil industry. The locals are also dissatisfied with the government and oil companies and their policies on compensation payment, which only tend to favour the elites and the local politicians. They believe that this has contributed to their level of poverty.

There is a widespread feeling that for the activities of the oil companies to be successful and for the negative effects of the oil and gas pipelines to be minimised in the study area, it is necessary to devise ways to reach out to the local communities in order to address any outstanding issues related to oil and gas pipelines networking in the region and create an atmosphere of enduring harmony, conducive to business and pleasure and

friendly to the environment. With the aim of achieving this, the research calls for an environmental justice (EJ) approach (one that aims to involve all the necessary stakeholders in all matters of oil and gas pipeline construction and maintenance as well as environmental management, grant the local people equal access to information and legal recourse) towards the sustainable development of the Niger Delta Region. The next chapter contains details of the proposed EJ framework.

CHAPTER SEVEN

7.0 Environmental Justice in Policy: Towards the sustainable Development of the Niger Delta Region of Nigeria.

> "*The environmental justice movement is potentially of great importance, provided it learns to speak not only for the minorities inside the USA but also for the majorities outside the USA (which locally are not always defined racially)"* (Martinez-Allier 2002:14).

7.1 Introduction

This chapter considers a way in which fairness and justice could be integrated into environmental risk policy and environmental management practice in the study area. Considerations are also given to the extent to which current policies address environmental justice concerns and principles. The potential reforms that could make Niger Delta environmental management policy sensitive and fairer to issues of environmental inequality and injustice are also discussed.

Hence, this chapter presents a management framework using the environmental justice (EJ) approach with a view to minimise the effects of pollution from oil and gas pipelines on the coastal communities and environment of the Niger Delta region of Nigeria and to move the region forward in the direction of environmentally sustainable development. The chapter presents the various functions of the environmental justice framework for managing the Niger Delta communities and their environment.

7.2 Management Framework

Chapters five and six present the analyses of the current trend in the degradation of the Niger Delta environment. If the option of a "do nothing" approach is taken, the negative impacts of the oil and gas pipelines on the communities and the environment will be sustained. If this situation is allowed to persist, the Niger Delta region will continue to face more of socio-economic and environmental challenges that would eventually result in more loss of lives, properties and declining income for both the government and the rural masses.

However, a management framework for addressing the key issues and specific actions is presented. As discussed in Chapter two, EJ is a discourse that has both the human and environmental protection as core objectives. In this case, environmental justice campaigns for the benefits from the oil and gas pipelines to accrue in such a way that minimises environmental degradation. Therefore, environmental justice framework has three fundamental objectives: First, to promote the sustainable utilization of coastal resources, especially, oil and gas while minimising the negative impacts of their transportation. The second is to bring the relevant stakeholders on board in decision-making; whilst the third focuses on encouraging the enforcement of the laws and regulations concerning the construction and maintenance of oil and gas pipelines in Nigeria.

Related objectives include reducing conflicts over coastal resources and fostering equitable distribution of benefits among stakeholders. The management framework is an ecologically and socio-economically based approach to environmental management that is a significant departure from the traditional oil and gas sectoral approaches, which have proven unable to deal with the complexities that characterize coastal zone problems.

7.3 Critical Action for the E.J. Framework

The literature reviews in chapter two and the views expressed by some respondents in chapters five and six, suggest that it is possible to strive to achieve environment justice in the Niger Delta region of Nigeria. However, in order to achieve this, environmental justice requires some actions to be taken at the national level: establishing appropriate policy frameworks, the availability of and access to environmental information systems and exchange, institutional issues and the development as well as initiation of action plans. Also, there is a need for the stakeholders at all levels to deliberately take the issue of enforcement seriously for any meaningful implementation of EJ policies and frameworks. If not the most, one of the most important constraints is lack of enforcement of the multiple existing regulations. For each of the identified impacts of the oil and gas pipelines in chapter five, regulatory instruments are in place, which if enforced, would have significantly reduced environmental degradation.

7.3.1 Policy reform

There should be an enabling legislation for coastal development planning. A lesson is drawn from an industrialised world, where despite a variety of existing controls and regulations to reduce pressure on the coastal zone, specific laws have been passed to give a greater precision to the legal status of coastal zone management and control. Some of these laws include the Coastal Zone Management Act of 1972 in the United States of America and the Marine and Coastal Access Bill in the UK (Beatley et al. (2002).

This environmental policy change should provide clear incentives for all stakeholders to work towards environmentally sustainable development in the Niger Delta region. As detailed in chapter six, there is a lack of accountability and public participation in decision-making. When government-owned companies and the private oil and gas companies are not accountable to the local communities, the pipeline activities generate impacts (in terms of land, vegetation, water and air pollution) and no systematic dialogue is established with the host communities, this is one of the reasons for sabotage through oil spill incidents. However, the management framework will modify the current regulatory framework and enforce the doctrine of the Polluter Pays Principle (PPP) thereby improving the efficiency of the protection of the environment.

7.3.2 Disruptive economic forces

In some parts of the world, environmental management has had to contend with the clash between economic and ecological perspectives (Olomola, 2005). The research notes that, whilst it is often very easy to point to the economic benefits to be derived from economic development projects, it is not often easy to quantify the benefits of conservation. From the research findings, this is very true of the Niger Delta region where the economic motive has been very strong in dictating both the pace and direction of development. Indeed, the pride of place occupied by oil in the Nigerian economy gives it much leverage in policy formulation and decision-making about environmental management. The government would not want to do anything that would unduly constrain the operation and development of this vital sector of the Nigerian economy.

In addition, further analysis of the empirical materials show that the urban-industrial location bias of both government and private sector investment in the Nigerian economy

with limited involvement of the rural masses in decision-making is a major force putting pressure on the natural environment and resources of the Niger Delta region. For example, there is much natural resource exploration to satisfy the needs of the major industrial centres in the study area – Port Harcourt, Warri and Ughelli. Such resources, according to a respondent during a group discussion, include:

> "Timber, fish, fuel, wood, construction materials (gravel, sand, clay, earth) and foodstuffs, etc" (Group Discussion 2, Respondent 5, 2010).

Another important economic constraint observed in this study relates to the fact that environmental management often requires huge financial investment which may not yield quick returns. In these circumstances, a member of an NGO stated that:

> "Private investors are usually not willing to participate in such ventures. Hence, the government is usually left with the option of providing much of the funding" (Interview 3, NGO, 2010).

The research observes this as one of the reasons why environmental management has to compete with other sectors of the economy for limited government funds.

7.3.3 Institutional weaknesses

It seems clear that efforts to manage the environment in the Niger Delta region of Nigeria are often thwarted by institutional weakness. According to a local physical planning officer:

> "Most of the state and local government institutions involved in environmental management lack funding, trained staff, technical expertise, adequate information, analytical capability and other pre-requisites for implementing comprehensive policies and programmes" (Interview 4, Local Planning Officer, 2010).

In the case of oil and gas pipelines networking in Nigeria and the associated environmental management, overlapping mandates and jurisdiction between FEPA

(Federal Environmental Protection Agencies) and DPR (Department for Petroleum Resources) frequently contribute to counterproductive competition. Private sector involvement is also not widely practiced. Sectors other than oil clearly need to improve their participation and efficiency to minimise the effects of oil and gas pipelines on the environment and communities of the Niger Delta region. Many private organisations and companies still perceive environmental management as conflicting with their project interests. Such weaknesses, combined with lack of policies and institutional arrangements to incorporate environmental concerns in developmental plans, create serious obstacle for encouraging sustainable development which is the subject of discourse in the next chapter. The next section of this chapter discusses the type and flow of information that is necessary for the enforcement of any meaningful environmental management approach that is based on the principles of environmental justice.

7.3.4 Information systems

Sound policies and decision making require accurate information (Patin, 2009); however, information collection, analysis, management and dissemination are not very strong in the Niger Delta region of Nigeria. For example, the Department for Petroleum Resources (DPR), as the oil and gas industry regulator, cannot give detailed information on the number of oil spills and pipeline locations, neither can NOSDRA (National Oil Spill Detection and Response Agency), the agency responsible for oil spill detection and responses (see table 7.1). The management framework will address such information requirements. Critical areas for improved management as identified include: i) Spatial information and analysis; and ii) Pollution inventories and risk assessment. Baseline information gathering is a key factor in the management framework. The following indicators will be used to assess the impact of the framework and will be gathered prior to the framework implementation.

7.4 Indicators for the assessment of the impacts of the EJ Framework

7.4.1 General Indices: Oil and Gas Pipelines and Pollution Inventories .

Table 7.1 Oil and Gas Pipelines and Pollution indices for the EJ framework.

(i) Spatial Information	**Remarks**
The various types of oil and gas pipelines that run across the region	At the moment, neither the DPR nor NOSDRA can confidently provide or claim to have the necessary data on these key indicators about oil and gas pipelines and the associated pollution inventory. This was made clear during the interviews conducted for staff of these departments.
The ages, life cycles and total length of these pipelines	
The total number of local communities which these pipelines traverse	
Ratio of surface to sub-surface pipelines	
Ratio of functioning to non-functioning (e.g. abandoned and decommissioned) pipelines	
(ii) Pollution Inventory: Frequency of oil and gas pipelines spillages, the types of pollution caused, the total number of communities affected, estimated annual loss due to the spillages as well as the frequency of pipelines' maintenance and routine check-ups	

Source: Field Survey, 2010.

This study has shown that one of the causes of conflict between the local people of Niger Delta region and the oil companies is that of compensation payment over the past few decades as a result of the lands taken from the communities for pipeline projects across the region. This is because over the years, the number of those eligible for compensation has naturally multiplied owing to multiplication of families and individuals seeking compensation. This has been possible because land in most of these communities has not been registered and the government agencies and departments (see table 7.1 above) have no accurate data bank where they can easily obtain necessary information. As a result, the conflict over claim of compensation persist in the region

because any heirs of the affected families automatically become eligible for compensation as long as they can have access to gun and are of 18, the statutory age of maturity in Nigeria (National Assembly Nigeria, 1999). Information on land acquisition and registration will serve to limit ownership of particular pieces of land to the identifiable adults at the time the land is registered. This study has also recognised the need to build adequate and accurate data on bio-diversity for the purpose of effective ecosystem management in the region. There is also a need for accurate data bank of the oil and gas pipelines and their frequent impacts on the local communities. This information will help in the effective working of the environmental justice framework in the sense that it would be easily to know the individuals and groups that are affected by the pipeline projects, it would help to determine the level of impacts, measure the loss to all parties and help to determine appropriate responses. However, as the environmental justice framework is not expected to be static, but flexible, the indicators for pipeline and pollution inventories are not limited to the ones suggested in table 7.1.

7.4.2. Costs and benefits emanating from oil and gas pipelines (Distributive justice)

The following information will be needed for the implementation of the EJ Framework. Firstly, there is a need for information about the numbers of communities affected by oil spill and the levels of effects. This will help to determine the types of compensation to the affected communities and to ensure only the affected communities benefit. Secondly, data on the value of losses to oil pollution (land, farm, fishes and fishing facilities, domestic, cultural artefacts and vegetation etc) on the parts of both the communities and the government are needed as this will make the local people to have regards for oil facilities, rather than continuous sabotage. The government and the agencies, with this information, will equally be motivated to ensure compensation go to the people affected. Information needed here is on the number of people affected in terms of income and occupations as this will help to give an idea of how an average Delta people is affected by the pipelines and help to verify the claim that the pipelines have further aggravated their poverty. In addition, information is also needed on the other kinds of socio-economic costs of pipelines to the local communities; and lastly, there is a need for information on the benefits of pipelines to the communities they traverse.

The research study found that in 2010 the oil and gas industry still contributed over 70% of the nationally collected revenue. This shows that petroleum resource is still the most important resource to Nigerian economy. The crude oil which is presently being exploited in the delta region is mostly refined in the same region and distributed through a network of pipelines to consumers across the country (Odoh and Iyi, 2005). However, the distribution of this important national product for national use has been bedevilled by complaints of injustice. Administration of the associated national wealth accruing from the sale of the oil has been described as inequitable (Brume, 2007). According to World Bank (2004), the pool of common resources that the oil and gas industry generates for national consumption in Nigeria, to the common good, has polarised society into a small privileged elite and an underprivileged majority who live below one American dollar a day. These communities that exist along pipeline in Nigeria are predominantly inhabited by groups of low income people, most of whom could only procure such products from the illegal black market at exorbitant rates (Onuoha, 2008). There is no national framework for management that integrates the role of the communities across the length of the pipeline. Inequality in the distribution processes of petroleum products in the country and the persistent inability of the local communities to access the products that they know are being transported through their towns and villages have made some communities exhibit inimical tendencies towards the pipelines and oil companies (Onuoha, 2008). With a people who are uncomfortable about the pipelines, and in the absence of any formal or informal arrangement to maintain surveillance over the pipelines, and where access to petroleum products is further limited by a growing artificial scarcity, the communities felt abandoned by the government in the application of oil revenues for their social and economic benefits. Sadly, when vandals occasionally damage the pipelines to misappropriate the oil being pumped through it, they cause a chain of social and environmental problems in the already impoverished communities that lack basic infrastructure and services, which could have helped them to fulfil their cultural, material and spiritual needs in equitable ways. Thus, these communities now have to contend with oil spill and the incessant intimidation. As a respondent did mention during a group discussion;

> "Having suffered some forms of injustice from the neglect of the government, the oil companies and, in recent times, the vandals, our communities have lost faith in any promise by the authorities and the

> multinational oil companies and we have become vulnerable to the risk of bodily harm or even death" (Group Discussion 4, Respondent 2, 2010).

The helpless people in the pipeline communities still attempt to scavenge from the spoils of oil in the wake of vandalism. The research attributes this to the fact that the community members that are spatially close to the pipelines are neither given the due recognition they deserve nor are they included in the management of the oil and gas pipelines. The needed processes that might encourage recognition and participation of stakeholders in the environmental management of the region, the people to initiate them and the likely problems and opportunities are discussed extensively in section 8.3.4 of the next chapter.

7.4.3. Decision-making (Procedural justice)

Here the major information required includes those about the processes through which decisions about the environment are made as well as access to information. Any available data on the level of adequacy and inclusiveness of procedures of participation in decision-making; and access to legal recourse are needful in this case. The involvement of community based non-governmental organisations in the management of the environment and public infrastructure, such as oil and gas pipelines and roads, has made a substantial contribution to improvements in environmental management in Russia (Wernstedt, 2002). When activated, this kind of public-private partnership framework would make virtual monitoring and routine maintenance of oil and gas pipelines possible. This also holds the potential to providing an alternative concept for resolving spatial environmental challenges like the crisis the petroleum pipelines presently pose to the Niger Delta environment.

According to the Nigerian Federal Environmental Protection Agency report of 1991, a joint task force on environmental protection (JTFEP) set up for the implementation of such an option in the management of critical environmental issues which are perturbing the operation of a massive, critical, state-owned infrastructure has recorded tremendous success. In this case, the approach involved an economic incentive option which was meant to influence action in the task of environmental management and infrastructure

protection. The option of incentives as part of a broad based management plan for the petroleum pipelines has the potential to positively engage the local people to use their energy towards the protection pipelines and the environment. It can equally propel corporate organisations, both private and public, into evolving corporate responsibility programmes that can engender a protective approach towards the petroleum pipelines in the communities where they operate.

7.4.4. Recognition (Justice as recognition)

In all matters around oil and gas pipelines and the various groups (youth, elders, women, tribe, etc.) in the study area, there are needs for information about who is given respect? Who is valued? And who is not valued? It is expected as embedded in the principles of EJ that all stakeholders, irrespective of class, status, ability, age, culture and gender should be valued, recognised and be involved in the EJ framework for it to succeed. Chapter six shows that currently, government agencies, oil companies and the communities have little incentive to share information. There is a need for a change that will make information, especially, the one that concerns the locals, available and accessible to them. However, information exchange and management will help to mitigate two of the major underlying causes of environmental degradation in the Niger Delta region of Nigeria: lack of accountability and public participation in decision-making. Accountability will improve as the information base and decision-making process evidently become more open and transparent.

The research finds that the high level of petroleum pipeline impacts on the environment across the case studies would be drastically minimised if the people were recognised as stakeholders and grafted into the management framework. Data analysis from interviews, group discussion and some key informants reiterated the need to entrust the people in the communities with the responsibility to protect the environment and the pipelines. For instance, at Eleme, the level of frustration expressed towards the oil companies and their pipelines as well as the lack of recognition they had received in pipeline matters indicate that it is time to develop frameworks and programmes for the management of both the petroleum pipelines and the environment, where the local communities will be fully recognised and given ample opportunities to participate.

Recognising the communities as stakeholders will give the people the needed impetus to take initiatives for the protection of the pipelines and the environment. Some community members have expressed their willingness to be involved in the management of the pipelines. They claim that the new wave of environmental challenges in their communities has paved ways for incessant invasion of their communities by non-members for the purpose of pipeline vandalism and oil theft.

7.5 Different levels of Interventions and Stakeholders' roles in Implementing the Recommendations

This section is devoted to the discussion on the different levels of interventions recommended by this study and the roles of the stakeholders in the implementation of the interventions. These interventions, which will be discussed below include indigenous people development plan, environment and social compliance, compensation offset, capacity building and technical assistance, mechanisms to foster the implementation of mitigations, oil spill prevention and management, and independent panel of experts to oversee the implementation of the environmental justice framework.

For the successful implementation of the environmental justice framework for the region, the study recommends an indigenous people development plan to be prepared by the petroleum department, the local planning authorities and the oil multinationals with full consent and involvement of the local people of the Niger Delta region as well as the related NGOs working in the region. The development plan should include citizenship activities that would provide things like identity cards and assistance to the oil producing communities for inscription of adults on electoral and voters registers, this will promote recognition of the local people, which is a core emphasis of this study. Such a strategy has worked well among the local people living along the Chad-Cameroon oil pipeline (Orellana, 2005). Also, the plan should make provision for the implementation of health care and medical diagnosis. Some of the existing health centres have not been active. The medical experts of the implementation team (see the last paragraph of this section) should encourage vaccination and campaigns on basic health standards and hygiene as well as the danger of AIDS. Promotion of education in the region should also be a major component of the development plan for the indigenous people. The oil companies and the Nigerian government should donate school buildings and supply school facilities to children and the communities using the oil proceeds. As

the region is mainly agrarian, due support should be given to agricultural production with the assistance of government agricultural agencies. The oil companies should also support the communities by providing seeds, selected plants and tools during the crop season. The study further calls on the government agencies in the petroleum department to embark on the funding of pilot houses in various fishing and farming camps, whilst the oil companies should support the local communities in the construction of traditional houses. The World Bank made a similar recommendation in 1998 to the major stakeholders of Sabol natural gas pipeline project that runs from Mozambique to South Africa. In additional, the study recommends that the oil companies should increase the total number of local employees from the region, at least, those who meets the minimum employment criteria. These are issues that the research considers as core components of the indigenous people development plan for the region.

One of the causes of the impacts of the oil and gas pipelines on the local communities of the Niger Delta region as found in this study is the non-compliance to the environment and social aspects of the pipelines construction, operation and maintenance. Thus, in line with the recommendations of Goodland (2005) for effective compliance to the contents of environmental assessment reports for the Chad-Cameroon oil pipeline, this study recommends environmental and social compliance in the following key aspects. Firstly, the oil companies and the environmental justice project monitoring experts should ensure that the pipeline construction should not take longer than the required number of months as the low speed of construction would serve a serious constraint in impact prevention, as such, the environment and social impact assessment of pipelines should begin as soon as the feasibility planning starts. Also, route selection is one of the means of reducing environmental and social impacts. The local communities and the planning authorities should be fully involved at the stage of route selection to reduce severe impacts on sensitive features and vulnerable local communities. Secondly, the study recommends the oil companies operating in the region to bury their pipelines below the grounds with the welds properly inspected early enough, this will help tackle the issues of impediment to human, vehicle and animal passages and protection of the 30m-wide right of way from other land uses. Also, as much as possible, the pipeline construction engineers should see a means for pipelines to follow existing infrastructure like the soft shoulder of a gravel or laterite road. Thirdly, the study recommends that the oil companies and the government at all levels in Nigeria should encourage the freedom

of speech of the local people against the oil and gas pipelines projects and the right of local communities to receive a share of the pipeline royalties.

On compensation offset, the study recommends that the oil companies should create local and national parks and tourist centres for the segments of the pipeline right of way running through farm lands and forests, a strategy that has been found very helpful in the case of Chad-Cameroon oil pipeline project (Goodland, 2005). These would provide some employment opportunities for the local people, as a way to boost employment generation and local content empowerment for the region.

> *" Nigeria loses 25 billion Naira daily to oil theft, an estimated loss of 150,000 barrels of crude oil every day at oil price of $105 per barrel and a naira exchange rate of 160 naira to a dollar. They use explosive or even just hacksaws to cut open pipelines and siphon out oil, a practice known as bunkering" (Ian Craig, Daily Trust, 22/02/2012:1).*

The study recommends that instead of a continuation of the waste of resources quoted above, the oil companies should engage the local people in the surveillance and policing of the pipelines to compliment the efforts of the government police, so that part of this money wasted daily (25 billion naira) should be used to pay the employed locals and the rest could be used in other meaningful infrastructure provision and maintenance.

Capacity building and technical assistance are two key factors the study considers as necessary for the improvement of policies, skills and institutions. As oil and gas projects in the Delta are in full operation states, there is a need to strengthen the government capacities (human and institutional). On human capacity, the major issue as found in this study bothers on the general lack of competent staff, for instance, the planning authorities and the department for petroleum resources. The study recommends that there should be staff evaluation and demotion for non-performers as well as hiring additional staff to meet the present functional needs after due assessment. Talking of the institutional setup on the other side, the study recommends the creation of local environmental agencies in all the oil producing States and a national oil company. These agencies and companies should collaborate to draft the terms of reference for institutional studies and review the petroleum strategic documents for the region.

Steinhardt (2005) supports this view as a result of her experience from Sabol natural gas project in South Africa.

On the mechanism to promote mitigations implementation, the study observes that the failure to adequately implement the various mitigations contained in the oil and gas assessment reports is a general problem that the oil companies struggle with on daily basis. The study recommends that the national government should place a mandating performance and compliance bonds on oil companies, whilst the physical planning departments must embark on more effective supervision and monitoring, and enforcement of meaningful penalties and fines should be widespread than is generally the case at the present. This has proved workable in the management of the Thailand's Yadana pipeline (Rajesh, 1996).

On oil spill prevention and management, the study calls on the oil companies whose reputations are tarnished and who lost money in fines, oil and clean-up costs to develop great incentives for the prevention of oil spills. The oil companies should ensure that equipment and training are fully in order, fining mechanisms are always checked and performance and evaluation bonds are sent out at regular intervals. The whole range of issues surrounding oil and gas pipeline project decommissioning, reinstatement, rehabilitation, reclamation and restoration surety bonds and performance bonds should be made a standard for oil companies in the region by the Nigerian government, as was suggested for the Bolivia-Brazil Pipeline (Pato, 2000). The five overarching objectives of the environmental justice framework recommended by this study for the region, are first to prevent the impacts of the oil and gas pipelines on the local communities and environment, second to minimise the impacts that cannot not be wholly prevented, and third to mitigate the remainder minima impacts. Fourth, the residual minimal impacts should be fully offset in a way that the impacted environment and communities are better off with the pipeline project. Fifth, benefits to the communities, particularly the affected people should be maximised. The study recommends the oil companies to bury the pipelines in a way that the pipelines are without access road and do not cut across waterways and rivers, a similar recommendation was made by Paine (1996) after the Exxon Valdez oil spill, but maintained by helicopter, should inherently generate less impact. The study shows that pipelines impact negatively on people and the

environment either because of failure to implement assessment or lack of adequate assessment.

Independent panel of experts to oversee the environmental justice framework is designed to have high levels of environmental assessment, oil and gas pipelines functionality, biodiversity, infrastructure planning and provision, stakeholders' formulation and management, decision-making processes, resettlement and other safeguard expertise. The framework requires the establishment of a panel of experts that supports the efforts of the governments and the oil companies during the environmental assessment preparation through to implementation. The study envisages that this would work well and add value to the framework. World Bank report of 1998 and Goodland (2005) both admit that a similar approach has worked satisfactorily for the West African Gas Pipeline Project. To prevent any misconception about the environmental justice agenda for the region, the study calls on the panel of experts to always make sure that there is a flow of communication with primary and secondary stakeholders and meaningful engagement with the local communities to keep them informed and ensure proper dialogue. In addition, the panel must work to ensure prudent revenue management in a transparent and accountable manner. It must also take due diligence to ensure that all segments of the environmental justice framework work well to the attainment of the goals and objectives of the framework for the Niger Delta region of Nigeria.

7.6 New Institutional and Regulatory Mechanisms

The management of the Niger Delta environment requires involvement of all levels of government. The local government and planning authority are involved because they govern where development takes place, where resources are found, and where the benefits or pollution impacts are mainly to be felt. The national government has to be involved because responsibility and authority for ownership and maintenance of oil and gas pipelines, EIA for major projects, environmental protection, and other marine affairs (oil and gas, navigation, national security) rest here. Regional levels of government such as the Niger Delta Development Commission (NDDC), Ministry of Niger Delta and local organisations are involved because all entities that have responsibility in the coastal area have a role in the EJ process (Clark, 1996).

As noted in the literature review section on EJ, the major agencies and professional committees with members drawn from relevant agencies will be established to participate in the preparation of the process. This approach is adopted in order to avoid the organisational rivalries between line agencies such as NNPC, NDDC and the Ministry of the Niger Delta.

However, this study reveals that an approach centred on recognition and participation, whereby the communities will be embraced as stakeholders in the management of the pipelines and the environment will succeed rather than anything more of the use of force, as the situation is at the moment. This will help to bring some levels of justice to the yearning and aspirations of the local communities.

Because the situations in these communities has become increasingly dangerous, not only for the people and their environment, but also for the oil and gas pipelines, the government has embarked on hard measures against the local communities by sending military men to guard the entire Niger Delta region (Obi, 2009). The research observes that the government operates a kind of policy that views any form of violation of law and order in the region as a deliberate attempt to disrupt oil production and state security. The crises in the region, has given the region a restive and volatile picture with the growing spate of armed combat, violence, kidnappings, etc.

Be that as it may, the core concern still centres on the urgent need for institutional and state policy reforms as means of protecting the rich ecosystem and Nigeria's national interests in a current globalising economy. This would involve the co-operation of the communities and other stakeholders for a meaningful management programme. The current multiple and interwoven bodies of legislation makes no reference to the issue of community recognition and pipeline impacts. This shows that the prevailing impacts of the petroleum pipelines on the Niger Delta environment have yet to be given the desired attention in the scheme of things. The growing mistrust between the oil companies, the government and the local communities can be resolved by articulating a new environmental and pipeline management framework agenda that seeks popular forms of stakeholder recognition and participation in the context of environmental justice.

The major agencies and professional Committees, that will coordinate the environmental justice framework proposed for the region, shall comprise of the NNPC, the Ministry of Petroleum, NDDC, the Ministry of the Niger Delta, the Ministry of the Environment, NOSDRA, NESREA (National Environmental Standard and Regulation Enforcement Agency), NIOMR (National Institute of Marine Resources), NITP (Nigerian Institute of Town Planners) and other line agencies. The first step will be to ensure that the institutional goal is modified to incorporate the key principles of EJ as outlined in Chapter two, particularly to focus on proactive environmental planning, impact assessment, pollution prevention and management. Secondly, the goal should aim to ensure proper enforcement and adequate remediation mechanisms sufficient to prevent future impacts. In addition, the institutional goal should incorporate emphases on stakeholders' participation, recognition and ownership. Furthermore, there is a need to develop an appropriate incentive-based regulatory framework that will take into consideration the interconnection between Niger Delta resources and uses.

The federal constitution of Nigeria places a mandate on the national authorities with primary responsibilities for protecting the citizens, as well as the built and natural environments from man-made and natural disasters (National Assembly of Nigeria, 1999). It has a major constitutional role in providing the enabling environment for enhancing the performance of state, local authorities and community-based institutions. One of the problems observed across the case studies is that centralisation of executive power within the federal systems in the region makes it almost impossible for the decision makers to be close to the local communities due to socio-economic constraint and spatial distance. Moreover, when power is centralised, it has a spatial dimension in concentrating resources and development in the headquarters, often at the detriment of development in other places, particularly in remote communities, like those located near the petroleum pipelines. Therefore, the research notes that a comprehensive decentralisation of decision-making to regional, local and community levels would tend to enhance local initiatives, maximise the use of resources, respond to threats and real needs of the people, give the local people the due recognition, and build appropriate systems for defining responsibilities and accountability in the administrative systems around the management of the impacted environment of the Niger Delta region.

More so, the involvement of non-governmental organisations (NGOs) is important, as seen from the analysis in chapter five, for the development, in cooperation with their community-based counterparts, of culture of environmental protection and safety among the local communities (Borrini, et al., 2004). Non-governmental, civil society and community-based organisations around the pipelines could be activated to translate the obligations of the national oil company in Nigeria and the multinational oil companies into meaningful programmes of action that promote the ideas of environmental justice in the region.

The national government of Nigeria is, by constitution, responsible for providing certain services envisaged in an exclusive list that forms part of the 1999 Nigerian constitution (National Assembly Nigeria, 1999). As noted, petroleum prospecting and transportation is included in this list, putting exercise of control over it as the exclusive preserve of the federal government in Nigeria. However, the same constitution has also mandated the federal government with responsibility for ensuring that local authorities have the necessary powers, personnel and resources to sustain good quality infrastructure and services throughout the states they supervise (Ekwo, 2011). Thus, the governments at the federal and state levels should assume a key role in promoting environmental justice, which is so easily beset by the impacts caused by pipelines in the region. Some of the ways the governments can do this are by creating a socio-economic environment to support and encourage the initiatives of individuals and their community organisations to improve living conditions, or in a way contributes to the goal of environmental justice; by providing an institutional structure for maintenance of basic infrastructure and services and to do this in response to local priorities and needs; by promoting policy and fiscal environment which allows local authorities to make land management decisions and have the resources to guide development along the oil and gas pipelines; by providing financial resources for promoting national sustainable community development projects and objectives at local authority level; and also, by creating incentive and regulatory structures to promote more sustainable levels of resource use that prevent the local people from damaging the pipelines, but rather, see themselves as custodians of the pipelines and their environment.

7.7 Summary and Remarks

This chapter outlines the indicators that are necessary for the implementation of EJ framework for the Niger Delta region. By considering the various principles and dimensions of EJ, it emphasises that the protection and management of the coastal environment and settlements of the Niger Delta region is a matter of interest to EJ. As such, it specifically calls for institutional reforms and a positive change in the present direction of decision-making, as a way to attain a meaningful EJ framework that will incorporate the core elements of procedural and distributive justice as well as those of justice of recognition. The next chapter draws a conclusion by summarising the research findings, providing answers to the research questions earlier generated in chapter one, discusses the research limitations, contribution to the existing wealth of knowledge, particularly but not only, on environmental justice and oil and gas infrastructure planning as well as a discussion on the issues for further investigations.

CHAPTER EIGHT

8.0 CONCLUSIONS

"The research conclusions may provide a context for answering the strategic question but it is your judgement, your ability to decide options and actions that are critical at this stage" (Minocha, 2006:223).

8.1 Introduction

In this chapter, the conclusions are made based on the research findings and literature review. Following the first section, summarising the outcome of the foregoing analytical chapters, conclusions are drawn on two key areas. First is on policy reform to address environmental injustice in the region. Secondly, it centres on managerial issues as they relate to the local and external stakeholders of the oil and gas pipelines and host communities regarding effective implementation of EJ framework.

8.2 Summary of Findings

This study has adopted an environmental justice approach as its theoretical and conceptual basis for assessing and managing the impacts of oil and gas pipelines on the environment and socio-economic activities of the rural oil producing communities in the Niger Delta region of Nigeria. It has been shown that the pipeline impacts have some significant overall effects on their environment and the livelihoods of the local people.

A healthy and clean environment is an essential component in the quality of everyday life. Although the quality of environment varies between different areas and communities, people who are socially and economically disadvantaged often live in the worst environments. For example, as the study has argued in chapter two and supported by empirical evidence in chapter five, many communities in the remote parts of the Niger Delta region are experiencing alarming rate of industrial pollution and have little access to infrastructure and social amenities.

These problems have affected the health of some of the local residents and added to the burden of socio-economic deprivation. They can also limit the opportunities available for local people to improve their lives and could make them the most excluded and vulnerable layer of the society.

The causes of this injustice are often complex and long-standing. Some result from the historical location of industry and communities, whilst others relate to the impacts of new development, such as the oil and gas pipeline networks. Often, such environmental problems result directly from the actions of those who do not live in the affected communities; while those most affected have not been included in decision-making that affects their settlements and the quality of their environment. Resolving environmental injustice and ensuring that all people have access to a good quality environment in the present and future are crucial steps towards sustainable development.

According to Agyeman and Evans (2004), EJ provides useful ways to deal with issues of procedural and distributive equity. However, in Nigeria, the campaign for environmental justice is beginning to build awareness and there is an opportunity to learn some of the procedures, practices and processes of reflection and evaluation that have appeared in recent times in the African, Asian, South American, UK and U.S. literatures, as well as the emerging policy responses.

In this study, the analysis of oil and gas pipelines impacts in relation to the environment and socio-economic status of the Niger Delta region, has carefully tried as much as possible to avoid some weaknesses pointed out in some studies from the U.S., Africa, UK, and elsewhere. The results show clear forms of undesirable oil and gas pipeline impacts (environmental and socio-economic) when analysed across the Niger Delta region as whole. The next section provides answers to each of the research questions posed in Chapter One, section 1.3.

8.3 Environmental Justice and Oil and Gas Pipelines in the Niger Delta.

This section opens the thesis's research questions to structure a discussion about the current situation and possible future for environmental justice debates in Nigeria with respect to oil and gas pipelines.

8.3.1 The main impacts of oil and gas pipelines on the environment and socio-economic activities of the Niger Delta communities

Apart from the impacts of the pipelines on the environment of the region, the governance framework of the Nigerian petroleum industry leaves the oil-producing

communities with little or no recognition and involvement in most of the decision making that affects them and their communities. The interviews and focus group data show that this situation has further contributed to the socio-economic and political challenges and environmental degradations in the oil producing communities.

A number of respondents and reports have commented on how the impacts of the Nigerian oil and gas pipelines are seriously affecting the environment and the socio-economic activities of the region. The empirical data and the literature further reveals that a lack of enforcement mechanism, weak government spending and investment in the region as well as infrastructure provision and maintenance has combined to impact negatively on Niger Delta ecosystem. It is also clear that the degradation inflicted on the Niger Delta environment include loss of farm lands, soil fertility, land and sea plants and animals; and water and land pollution, among other losses.

The growing rate of poverty, infrastructure underdevelopment and dysfunctional social services in the region further contribute to environmental degradation in the region. Field observation showed that even though poverty is a common phenomenon in Nigeria, the gaps between the poor and the rich are easily seen in the study locations, no wonder, UNDP (2006) reports that the rate of decline in the human development indicators is higher in the region, compared to other parts of the country. Moreover, since the oil companies' operation are mainly capital intensive, one would expect the level of unemployment and underemployment to continue to be higher in the states of the Niger Delta, where the oil activities are concentrated, than other parts of Nigeria. Furthermore, apart from the fact that the analysis in chapter five shows that environmental degradation has had a significant impacts on agriculture and other occupations, the high wages of many of the oil company staff have led to high prices of local products, which have affected the abilities of many people to afford these products. As a consequence, it has become very uneasy for many to afford their essential needs like education, housing, healthcare and transportation.

8.3.2 The Importance of regulation and compliance: the economic and social impacts.

The documentation strand within the empirical evidence reveals that there is a statutory requirement from all oil companies operating in Nigeria, which stipulate that they should abide by the highest standards in all matters of safety in the course of their operations. This includes particularly, adopting certain measures to limit pollution and oil spill incidents. Chapter three presents a good number of the laws and regulations guarding petroleum industry operators in Nigeria. However, both the ineffectiveness of the national regulatory agencies and the shallow legal institutions, have contributed to the non-enforcement of such requirements. This was a view supported by Amnesty International (2009).

Accordingly, the research has shown from the analysis chapters that the official response to disasters caused by oil and gas pipeline spillages has not been adequate and early enough. Although the oil company staff claimed they have a limit, especially financially, to which their contracts with the government of Nigeria allow them. This sometimes made the land and fish ponds, contaminated by oil spills due to sabotage and facility failures, to undergo natural processes of recovery. Locating pipelines and combating the crimes against them are major challenges for rescue operations in part because the appropriate technology to do this is lacking and nobody has taken the initiative to address this. Thus, this thesis partly agrees with Ekwo (2011) that some of the deleterious impacts result from the fact that the pipeline rights of way is not demarcated.

An EJ approach will help to achieve an enduring sustainable and proactive management approach that will not only enhance effective utilisation of the unique potentials of the various stakeholders and ensure that they work for a common goal, but will also empower the poor located near the pipelines, hence reducing the vulnerability of citizens to oil and gas pipelines spillages and explosions. This will help to tackle the rate at which ordinary citizens of the region drift below the poverty line (World Bank, 2004; Special Committee on the Review of Petroleum Product Supply and Distribution, 2000), and raise awareness about safety for the majority of the people at risk from the negative impacts of oil and gas pipelines. Having revealed the complexities of the oil and gas pipeline activities that operate to make the petroleum pipelines in the region such a

threat, the need arose to articulate an environmental justice framework that reduces the impacts of oil and gas pipelines in the Niger Delta region. It is imperative for this study to construct an elaborate environmental justice-based pipeline and environmental management instrument that provides for an integrated framework, detailing roles for all stakeholders.

8.3.3 Stakeholder participation.

It has been seen from the research findings and literature that oil producing communities are not adequately recognised and involved in oil and gas pipeline decisions that affect them. The thesis observes that communities need to be supported, recognised and involved in decisions that affect their local environment. There is the need for all stakeholders to continue to provide information and a support process that helps people to make better judgements about their environment. There should be improved action by government and others to involve and include the interests of disadvantaged communities in decision-making and ensure that environmental responsibilities are taken seriously by all and in the interest of all. As shown in this study (see section 8.4), the local people need to be amply recognised and encouraged to participate in the management of the oil and gas pipelines which have been the sources of different challenges in their communities. Policy making in respect of the management and maintenance of oil pipelines should be participatory, so that all stakeholders in the development process can have a part in making the key decisions and also share in the responsibility of implementing them. This maximises the chances that scarce funds will be judiciously spent in a way that addresses the most pressing challenges as they are perceived locally. However, the issues of power hierarchy, transparency and accountability in the administration of the anticipated community benefits from oil and gas revenue have always been at the heart of community actions and grievances against the multinational oil companies and pipelines. In an attempt to address the mistrust already created in the minds of the people, local people should be part of decision-making about community projects, so those responsible for planning and overseeing implementation will be accountable to people, not only in the short term, but also over the life of the project. Transparency is an essential requirement for a lasting environmental justice in the oil and gas pipelines communities.

As shown in this study, the oil communities have always been excluded from any forum where issues that concern them are discussed, because of the notion that external consultants working for the government and oil companies know their developmental needs and challenges better. This has often led to the conception and implementation of projects that were not acceptable to the people as reported in this study. To achieve a situation where the local people feel able to embrace the project and equally, to engage in its long-term maintenance, the policies aimed at them should be formulated with their active participation. The inclusion of economically and socially marginalised groups should be recognised as a fundamental premise of policies for development in oil producing communities. As such, governments at national, state and local levels should adopt poverty alleviation measures, such as paying locals to maintain the pipelines, enter into community contracts for infrastructure work, and direct assistance to those living in absolute poverty within the communities as a way of realising a change in their perceptions about the pipelines.

This study has shown that failed expectations also form part of the grievances of the local people in the region. Many relief materials promised the people by both the government and the oil companies have hardly been fulfilled, further creating mistrust in the already strained relationship between the communities and the organisation. The locals should be involved from the very beginning so that the package of measures decided for any community will be in tandem with the expectations of such community. This has the potential to impact positively on people's capacity to participate and co-operate with the agencies that have a statutory or economic interest in their communities as a result of pipeline existence.

8.3.4 The roles for physical planners.

Regional and local planning authorities have the potential to play some major roles in preventing environmental inequalities. Spatial planning processes can determine the location of environmental hazards and services that affect lives and properties. Strategic environmental assessments help to assess the impacts of plans and programmes on people and their environment. However, at the moment, the research findings show that there is a general lack of involvement of physical planners in oil and gas infrastructure construction and maintenance. As a result, the research calls for proper recognition (see

section 8.4) of the physical planners (like the local stakeholders) and their roles in oil pipeline planning, in a way that would enable them to be actively involved in oil and gas pipeline activities, particularly in granting of development permits and enforcement of the EIAs. However, the effectiveness of this will depend on the level of environmental awareness of the physical planning personnel, and the abilities of the physical planners to recognise the local people in areas of their needs, cultural values and participation in planning decision. This may call for training if need be.

In the light of the above, therefore, planning and development should be responsive to high priority issues and the needs of the most vulnerable groups in pipeline communities, in balance with the sustainable use of resources available to the community and pipeline maintenance. The priority of local people in the pipeline communities as revealed by this study is the expected payment of compensation for their land, which was taken for the pipelines and other petroleum projects over three decades ago. The local communities feel threatened by the escalating cases of environmental degradation that have caused the destruction of their agrarian means of livelihood, increased poverty among individuals, led to loss of human life and contamination of the environment. The research emphasises a need for an environmental justice-based management programme that responds to issues of oil spills, vandalism, explosions and the associated misery. Such an environmental management programme will reassure the people that the oil and gas pipelines and other petroleum infrastructure within their communities might operate to empower the people, through supporting their participation in employment and community infrastructure development financing in a transparent manner.

As revealed in this study, the communities and the local authorities form the immediate hosts of the pipeline. They suffer most in the event of oil spill and fire explosion, and by their living close to the pipelines have critical terrain knowledge of the immediate environment of the pipelines. Given this critical knowledge, the communities and the local planning authorities have a vital role to play in promoting pipelines and environmental management in the region. These communities and the local authorities, like the Eleme and Okirika planning authorities, are usually the bodies that begin to deal with issues of oil spill in practical terms before the other stakeholders, both governmental and non-governmental, become aware of the incident. This is simply

because they are available and closest to the people. They are responsible for putting into effect any general policies decided by the central government within their domain and have, currently, observer status for the implementation of environmental protection projects. The wealth of knowledge they posses is the power that is crucial for turning environmental justice agenda and policies into action. Local policies, planning and regulations can serve as an effective tool in guiding the interaction between human activities and the natural environment, in a way to promote bottom-up, grassroots approaches that would not only act to minimise the impacts of pipelines, but also contribute to the development of the oil producing communities. The management action at this level should be facilitated by providing the legislative support in areas of standards and regulations that ensure legitimate actions and also facilitate access to resources needed for full implementation of the environmental justice agenda for the region. However, their roles and actions should be readjusted for the effective broad-based application to all the issues identifies in chapters five and six. Such issues include adequate compensation, recognition and participation of the local people in decision making and the involvement of other professionals and non-governmental organisations in oil and gas pipelines management. The activities at this level of environmental and pipeline management initiative should promote public enlightenment and co-operation.

Communities and local authorities actions should promote education, public awareness and training at the local level, by focusing on environmental protection and local communities settlements' upgrading as a way to gain the confidence of the people and to motivate the development of group-oriented activities. These actions should be geared to promote the dissemination of information and knowledge that will change the perception of the populace about the oil and gas pipelines, which at the moment they see as a curse rather than a blessing for their communities. As contained in the principles of the justice of recognition, this framework should be based on clear understanding of the peculiar social structure and the culture of the people in particular localities, in order to capitalise on the existing social coping strategies, and to enhance community participation and self-confidence in addressing issues relating to pipelines and environmental management. This will ensure the necessary resources go some way to meeting the developmental needs of the people, which will help change their disposition to the pipelines in a positive way. This will obviously require a broadening of the base of decision-making power, by altering the flow of authority through increased public

participation so that the concerns of the people are reflected. In addition, local authorities should foster co-operation between their departments, reduce or, where possible, remove administrative bottle-neck, review staffing arrangement and generate employment opportunities in the local communities by providing the locals with the required information and knowledge about the location of the pipelines and damages to them; improve communication skills, and provide a simpler rules for administrative procedures that would include supervision of frontline officers, pipeline project accountability and environmental justice policy implementation.

The activities at this level of the environmental justice agenda for the region should also integrate disaster mitigation measures into the planning process of settlements located along the pipelines. To achieve this, there is a need to identify and assess potential hazards and their sources and providing necessary information about the people in the communities and formulate local emergency and preparedness plans, as well as giving special consideration to documentation and research on the impacts of oil and gas pipelines. Development plans will need to take cognisance of the pipelines and, therefore, take greater interest to ensure that their impacts are minimised in the planning process. Planning procedures and implementation strategies must be related to the factors that contribute to the pipeline impacts. If, for any reason, the planning area is dominated by particular concerns exhibited across the pipeline communities, true representatives of those affected communities should be recognised and involved in the formulation and implementation of the plans. Furthermore, where informal sector stakeholders have developed large areas of oil producing communities, their representatives should be involved in official discussions over new directions for growth. As such, planners should regard themselves as part of a team which would include public and private sectors, local elites, entrepreneurs, employers, and anyone else likely to be affected by the oil and gas pipelines impacts.

8.3.5 The utility of the concept of environmental justice in exploring oil and gas pipelines impacts in a ccontext such as Nigeria.

The research calls for the adoption of the concepts of EJ. Despite the individual variations in how these concepts are interpreted, they emphasise that EJ is geared towards balancing development and conservation at different levels, ranging from local settings to international regions, in a participatory way – that is, by integrating the

numerous interests of the many varied societal sectors and groups in the management of particular areas and resources. This is obviously a demanding exercise politically, scientifically and in terms of information exchange and communication. In line with measures to prevent the abuse of the environmentally sensitive Niger Delta or allocation of unsuitable land for development, the EJ framework for managing the communities and their environment, through the democratic processes it has facilitated, enables local authorities to recognise the various needs of the local oil producing communities (see section 8.4) and direct community growth by installing infrastructure that reorients community expansion away from oil and gas pipeline areas. In addition, multi-sectoral investment planning and public/private partnerships may provide resources that enable development in particular directions or for specific purposes. In encouraging local rural economic growth in the pipeline communities, informal economic activities should be promoted across the region using the funds realised from a drastic reduction in pipeline vandalism and the associated compensation. Within the larger economy, encouraging the informal sector in particular areas such as the construction industry or small and medium-scale enterprises, can improve housing supply and employment at the same time. UNCHS (1995) and Tipple (2006) support this view. Such involvement by the public sector should be accompanied by transparency in accounting and full cost recovery, except where development is successfully targeted to very poor vulnerable groups that are prone to recruitment by vandal barons.

An environmental justice framework, in which public sector institutions and the multinational oil companies recognise and cooperate with the local people, requires a new institutional framework to bring local initiatives by citizens and community organisations before local authorities for their attention. Local non-governmental organisations (NGOs) can contribute significantly to such liaison tasks; as well as contributing in their capacity as technical advisers, trainers, and institutions which help community organisations negotiate with power structures for financial resources, to provide basic amenities that will appease the aggrieved community members and gain their confidence in ensuring that the impacts of oil and gas pipelines are minimised.

A key point here is that the level of recognition given to some groups, especially but not only the youths and women, at the moment is not adequate and the thesis would like to emphasise that a meaningful recognition (justice of recognition) should be given to all

the stakeholders in the region for the EJ approach to make a lasting impact (this is one of the contributions of this study as contained in section 8.4). The research sees this, not only as a way to solve the pipeline problems in the Niger Delta region of Nigeria, but also for EJ to continue to survive globally, it must add to its many principles, that of recognition.

To end unequal environmental protection in the Niger Delta region of Nigeria, the research advises the Nigerian government to strive to adopt five principles of environmental justice which, according to Wenz and Westra (1999), include guaranteeing the right to environmental protection, preventing harm before it occurs, shifting the burden of proof to the polluters, obviating the need for proving an intent to discriminate, and redressing existing inequalities. Relating this to the research findings, we shall look at each of these principles in the next five paragraphs in this section.

Firstly, every person living in the Niger Delta region has a right to be protected from the negative effects of oil and gas pipelines and the associated environmental degradation. Protecting this right will require not only enacting a Federal Environmental Protection Act but also the enforcement of such an Act. The Act should address both intended and unintended effects of public policies and oil companies' practices, in their disparate impacts on local residents of the Niger Delta.

Secondly, prevention or elimination of the threat before harm occurs, should be the preferred strategy of the government of Nigeria. For example, to solve the oil and gas pipelines' spillage problems, the primary focus should be shifted from the cleansing of pollutants, the restoration of water quality, and the treatment of poisoned individuals, to eliminating the chances of these occurring, by ensuring that oil and gas pipelines are adequately buried beneath the earth's surface, located far from human settlements where possible, and subject to systematic and routine maintenance by the oil companies.

Thirdly, under the Nigerian system, any local individual in the region who challenges polluters (oil companies) must prove that they have been harmed, discriminated against or disproportionately affected. Few poor people in the communities in this region can afford the resources to hire the lawyers, expert witnesses, and medical experts needed to sustain such a challenge. Thus, there is the need to shift the burden of proof to the

polluters who do harm, discriminate, or do not give equal protection to the majority of impoverished local people living in the region. Environmental justice would require the oil companies that are applying for operating permits for oil and gas pipeline construction to prove that their operations are not harmful to human health, will not disproportionately affect minorities or the poor, and are non-discriminatory. However, if such operations are found to be harmful, this thesis recommends that they should either be prevented or a commensurate compensation, valued and agreed by both parties (in line with the Department for Petroleum Guidelines), be paid to the affected persons.

Fourthly, the various laws governing the activities of the oil industries, and those that relate to the oil and gas pipelines in particular, must rest upon disparate impact, since it might be quite difficult for the local people to prove intentional or purposeful impact in a Nigerian court of law.

Lastly, disproportionate impacts must be redressed by targeting action and resources. By this, the research means that resources should be spent where environmental and other socio-economic problems are greatest, as determined by some ranking scheme (FEPA already has some ranking schemes) – but this should go beyond risk assessment. Relying solely on proof of a cause-and-effect relationship could disguise the exploitative way the polluting companies have operated in some oil producing communities in the region. Because it is difficult to establish causation, the polluting companies might continue to have the upper hand. This could encourage them to always hide behind science and demand proof that oil and gas pipelines activities are harmful to humans or to the environment of the Niger Delta region. The next section sets out the contribution to knowledge and the research limitations.

8.4 Contributions to existing body of knowledge and the research challenges

The unique contributions to knowledge and some challenges of this study have been noted. In so doing, the research aim and questions earlier articulated in chapter one were compared with the gap in knowledge gained through literature review and the findings from the case studies. This body of knowledge and the findings suggest that this research contributes to knowledge from both a theoretical and practical applications. However, the study has met with some challenges. This section itemises the

contributions of the study to knowledge and provides an account of the research challenges.

Three major contributions of this research include, firstly, the research contributes to work in environmental justice theory that promotes the idea of recognition to its core dimensions. Recognition shows the causes of mal-distribution, in this case, the negative impacts of oil and gas pipelines (as already analysed in chapter five) on the environment and socio-economic activities, affect largely the poor local people of the region; also, a lack of recognition causes some psychological and emotional harms, for instance, the thoughts of the damages done to their sites of cultural values, living the rest of their lives in an environment that is subject to continuous pollution and their high level of poverty even though their land is blessed with abundant petroleum deposit. Also, where the people are not recognised, apart from the facts that they cannot participate fully, it also subjects the people to some levels of status-based injuries such as disrespect and lack of attention to the impacts of oil and gas pipelines on the culture and social values of the local people by the oil companies and government agencies. As gathered from the interviews, this happens most often when the government deploys soldiers to attack and deal with the local warlords with the aim of protection the oil facilities and when the oil companies fail to adequately compensate the damages to cultural features in the course of pipelines networking.

Secondly, the research also contributes to knowledge in the methods used for data gathering, which helped to overcome some fieldwork challenges. Some of these challenges (discussed in detail in chapter 4 under ethical challenges) include access to the people, power display by the communities' rulers in various local communities visited during the fieldwork and the issue of getting the right representations from the local people for the purpose of interviews.

Thirdly, the research applies the principles of environmental justice in the context of the Niger Delta region of Nigeria by developing an environmental justice framework for the region, given the region's peculiar cultural and socio-political characteristics. Based on the initial readings and the review of relevant literature in chapter two, the research first redefined the concept of environmental justice framework for managing the oil and gas pipelines and the Niger Delta environment to embrace all aspects of justice in oil and

gas infrastructure and environmental management and planning. It propounded a rationale for stakeholders' recognition and participation in the management of oil infrastructure as a way of addressing the challenges of promoting justice in socio-economic and environmental terms. The EJ-based management framework for the region is about harmonising all contending and conflicting interest to promote efforts at environmental and socio-economic sustainability in the petroleum pipeline network, in a way that will benefit all the stakeholders. The study argues that the desired and due recognitions of the host communities encapsulated in terms of environmental justice can find expression in participatory planning for the overall goal of sustainable development.

Thus, when recognition takes its proper place, the interests and views of the various stakeholders become important elements in decision-making. This will help to overcome the challenges of some overlaps of interest that may emerge in the course of implementing an environmental justice framework for managing the oil and gas pipelines in the region.

Drawing on this, the research advanced three theoretical arguments. Firstly, the argument concerns the questions of who is respected, valued, not valued, and who would benefit from an environmental justice framework for the region? It was maintained that the fundamental issue is the recognition of all stakeholders within an all-encompassing agenda, which ensure justice for the interests of all parties. Secondly, the research argues the need for inclusive government and oil company procedures for participation and involvement of all stakeholders in decision-making that concerns the petroleum pipelines. In this case, the research argues that any effort to limit the participation of any stakeholder in the EJ management framework will jeopardise the concept of participatory-based management. The third argument made was that there is a role for physical planners in the mitigation of petroleum infrastructure networks. In this sense, collaborative planning practices can be activated within the purview of environmental justice. This would help to mitigate the adverse environmental and socio-economic conditions of the oil infrastructure in the oil producing communities.

From the planning point of view, the above arguments are normative and the research contends that the knowledge of the holistic meaning of petroleum infrastructure,

particularly but not only, and in this case, the oil and gas pipelines is crucial for major infrastructure development. Development activities at all levels need to balance social and environmental justice and to promote economic growth and sustainability. However, for the infrastructure to promote a higher quality of community where it is located, its development planning needs to encourage cohesive participation among all stakeholders for its post-implementation management and maintenance.

In terms of practical contribution, based on research questions and an explorative case study design; the study has used focus groups and in-depth interviews in Niger Delta communities known for violence and superficial democracy, as a first step in an effort to scope an environmental justice framework. Practically, the research shows that to achieve this goal required attention to the cultural norms of the place and the thesis demonstrates this. Thus, consent letters were first sent out to the communities' rulers through the research guides from the respective communities and participants were selected on the grounds of age, gender and literacy level to avoid intimidation and dominance of any kind during group discussion. In addition, some interviews and group discussion were held late in the night and behind closed doors in the respondents' houses, whilst some group discussions were conducted in the day time using schools and church buildings, where the militants do not normally go. More so, the researcher's identity as an overseas' student was as much as possible hidden during the fieldwork and there was no use of camera by the researcher, as it was only the research assistants recruited from each of the communities studied that helped in taking some key photographs.

This deliberative methodology for conducting group discussions in extremely violent communities could also be used in other uniquely and extremely violent communities. This methodology contribution is being sought by some second year Nigerian students of Newcastle University who are preparing to go to the Niger Delta region of Nigeria for their field works this year of 2011.

However, the research is limited in terms of the coverage of communities given the wide variations in culture over the vast territory of the Niger Delta region. Because the oil and gas pipelines network, which is the subject matter of the study traverse the entire landscape of the Niger Delta region of Nigeria and involve so many stakeholders in

pipeline communities, it was impossible for the researcher to collect data from all the communities and stakeholders. Irrespective of that, efforts were made to extrapolate the data and research findings notwithstanding. Also, in terms of generalisation of the research findings, as the case studies try to show relationship and processes in the manifestations of the negative impacts of the oil and gas pipelines on the environment and the socio-economic lives and activities of the people in the pipeline communities, they have a high degree of generality. The next section dwells on the relevance of the study and future research.

8.5 Relevance of Study and Future Research

In addition to contributing to the debate on environmental justice and the role of stakeholders in this process, the ideas developed in this study can be useful for the formation, implementation and enforcement of EJ frameworks in developing countries. The central theme from this study is the different ways EJ implementation can influence decision-making processes and the different ways stakeholders can interact with the process. Therefore, it would be useful for managers and planners involved in the implementation of the core principles of discourses like EJ to direct their attention to the interactions between the processes, the views and behaviours of the local people, and the social, economic and natural environment that shape people's use of the environment and its resources. This, the study argues, can be more fruitful than to focus on these aspects separately. Attention on these rather micro-level dynamics is important given the policy targets for environmental justice. From this perspective, findings from this study contribute to implementation processes, through which policy targets can be realised.

8.6 Informing the call for Environmental Justice

The growth in the exploration of oil and gas and the rising threat from environmental degradation and socio-economic decay pose an increasing problem for the society. From an environmental point of view, steps are needed to reduce the impacts of oil and gas activities; EJ is one way to tackle the problem, and the Nigerian government has recently introduced some policy measures directed at the oil sector in an effort to reduce ecosystem destruction and the impacts of oil and gas exploration. These include the establishment of the National Environmental Standards and Regulation Enforcement Agency which is a body responsible for implementing and enforcing environmental

laws, however, the level of enforcement by this body, as with other agencies like the Niger Delta Development Commission and the National Oil Spill Detection and Response Agency that have the custody of environment, is an issue for further investigation.

Going by the fact that EJ implementations in developing countries offer few, if any, accounts of successful enforcement of EJ guidelines (Devas and Ursual, 2003), this study – unlike much of the academic EJ literature – retains a critical position towards EJ, both as process and practice. However, the critical stance does not aim at overall dismissal of the EJ initiative and it does not conclude that the numerous problems associated with EJ failure make it a bad concept. Indeed, it is a good idea which has nevertheless become difficult to implement in developing countries unless the various stakeholders in EJ processes are provided with due recognition, transparency, and clear incentives to participate. At the moment, this seems not to be happening. How this might be achieved, apart from the various recommendations made in this study, presents an opportunity for further study. Also, another question that is beyond the scope of this research include whether the increasing participation and recognition of the local people in decision making about the oil and gas pipelines in the region amount to a just environment? However, the thesis maintains that if the ethical interpretation of environmental justice framework for the Niger Delta region is not hijacked as a political machinery, the framework will stand a better chance to yield something positive compared to the conventional environmentalism.

8.7 Integrating oil and gas into the environmental justice road map: contributions to social-environmental studies on infrastructure

The core objective of this study was achieved through the establishment of the proposition that integrating oil and gas into the environmental justice framework can effectively mitigate and reduce environmental pollution in the Niger Delta.

However, the study observes with dismay that there is no adequate plan by the government and oil companies to recognise and involve the local people in decisions that relate to oil and gas pipelines, which have impacted so much on their environment. Also, there is no designated Marine Protected Area or Coastal Zone in each of the nine

States of the region. The designation of these areas would help to protect the environment and its resources and facilitate the recuperation of the damaged ecosystem to allow effective performance of its natural functions. However, details studies need to be conducted before selecting suitable locations. This again is an issue that needs further research.

The study observes the passive role of local people in issues of environmental management (Agyeman and Evans, 2004) and, in doing so, highlights the need for further research into matters such as engaging the local communities in oil and gas infrastructure construction and maintenance and other participatory approaches in environmental protection and management.

As such, further research should focus more thoroughly on the construction and installations of oil and gas infrastructures in general, their impacts on the environment, as well as the social and economic lives of the people. Such an agenda would have, as its primary focus, an emphasis on the operations of oil infrastructure in general, and of micro-level networks in and around human settlements in particular. Additionally, further research is needed on the design of oil and gas infrastructure and installations and their integration into human settlements and environment. As the case of oil and gas pipelines shows, ideas from good product design can bring an interesting perspective to research on infrastructure impacts. Thus, a multi-disciplinary approach on infrastructures, which analyses them as a complex socio-technical system, can significantly contribute to infrastructure studies and further their development and deployment in society.

8.8 Reflection on my Research Journey and Final remarks

This thesis is the product of three years of study, in which I had a chance to combine my interest in environment and societies with insights from EJ, and hence, attempt a holistic analysis of the Niger Delta region as part of a complex environment that includes the elements of nature, technologies, infrastructures, cultures, practices, institutions and organisations.

Adopting a theoretical perspective framed in environmental and infrastructure studies, I started gradually to think about the environment, infrastructure and society as elements forming the seamless web which Hughes (1987) refers to. However, a major shortcoming found in the EJ literature is that, inevitably, the chosen perspective focuses *either* on specific groups, place and the type of justice *or* on the governance aspects (Cole and Sheila, 2001). The outcome of this academic division of labour is the proliferation of many articles that describe concrete projects as highly successful from a governance perspective without providing evidence that the projects have really led to environmental improvements (Isager, 2007). On the other hand, theories of EJ have been widely critiqued within the field of social science. Criticism has focused on the tendency of research to give less or no recognition to the socially and economically disadvantaged as well as marginalised groups (Walker, 2011).

Doing this research has taken me on a journey where, as a novice researcher with a background in environmental studies, I had to learn new concepts in the analysis of infrastructure policy, environmental justice, coastal management and research practices. The journey has taken me through various theoretical approaches through which I attempted to understand the impacts of oil and gas pipelines on the communities and environment and the roles of various stakeholders in these impacts. This led to the formulation, and consequently, the realisation of the empirical work presented in this study. At this point, the research interest was in exploring how these have impacted the local oil producing communities and their relationship with the oil companies. This study, therefore, does not tackle wider political, economic and socio-cultural processes that become embedded in theories of environmental justice, thereby influencing their roles and meanings in today's society. However, this analysis contributes to a growing body of literature concerned with how disadvantaged and deprived locals matter in the movement for environmental justice and the kind of recognition and involvement they deserve.

To conclude, through this journey, I learned the different theoretical and methodological concepts that can be used in understanding the impact of oil and gas infrastructure in society in general and for environmental and socio-economic concerns in particular. I hope that I can apply this knowledge in further research exploring local people, infrastructure, inclusive procedures, public discourse and participation, coastal

environment and settlements. This is especially important in the field of environmental justice where the promotion of meaningful involvement of all people with respect to the development, implementation and enforcement of environmental laws and policies; equal access to the decision-making process; a decent environment; and a fair share of earth's resources have been gaining more prominence (Stephens *et al.*, 2001).

The value of this research, and further research exploring the impacts of other types of infrastructure on human settlements and environments, is in highlighting the importance of the local and cultural contexts in the interpretation and diffusion of environmental justice theory through the vocabulary of social science and environmental studies.

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(A) JOURNAL ARTICLES

1. **Ogwu,** F.A. (2011) Challenges of Oil and Gas Pipelines Network and the role of Physical Planners in Nigeria. FORUM (International Journal of Post graduate studies), Newcastle University, United Kingdom, Vol 10 (1), pp. 41-51.
2. Olalekan, A., Whanda, S. and **Ogwu**, F.A. (2011) Assessment of Policies and Legislation that affect Management of Wetlands in Nigeria, WETLANDS (International Journal of the society of wetland scientists), Amsterdam, The Netherlands, Manuscript Number: WELA450R1, **in Press**

(B) CONFERENCES

1. **Ogwu**, F.A. (2009) "Petroleum Pipe Distribution System: the case of the Oil and Gas Pipelines Network in Nigeria – An environmental justice approach". Economic and Social Research Council **(ESRC**) Seminar "Changing Cultures of Competiveness", Monday 13 July, 2009; Newcastle University, United Kingdom.
2. **Ogwu,** F.A. (2011) Pollution from Oil and Gas Pipelines and the three dimensions of Environmental justice in the Niger Delta Region of Nigeria. **Justice and Governance Workshop**, Newcastle Institute for Research on Sustainability, 27th May, 2011, Newcastle, United Kingdom.

APPENDIX A

I. Sample letter to Community Heads/Kings

To: The King/Community Head

Dear Sir,

My name is Friday Adejoh Ogwu, and I'm carrying out PhD research at Newcastle University in the School of Architecture, Planning and Landscape.

For my research, I and looking into the oil and gas pipeline network in your community. I'm particularly interested in the impacts of the petroleum pipelines on the environment and the socio-economic lives of the people of Niger Delta. I notice that some oil pipelines traverse your community and was wondering if I could have the opportunity to briefly speak to you and the people of your community regarding the oil pipes. I would be very interested to learn about your experiences living with oil pipelines and your opinion on their installation, use, maintenance and impacts. I am not carrying out this research on behalf of any developer or government body, and am only interested in your views and opinions.

I will be dropping by your community during the week commencing Monday 4th of January 2010 for three weeks between 10:00am and 6:00pm. I would like to ask you some questions at your residence which will not take more than 30 minutes of your time and to spend some time (say 1 hour and 30 minutes) with some selected members of your community at the community centre. I will be coming with my research assistant and will have my University identification with me, and will not at any time enter your home.

I would really appreciate your cooperation and I thank you for your time. I look forward to meeting you and your subjects in due course.

Please note that no personal information would be collected – I will not be asking any information that is not related to what you think about the pipelines. Please be assured that any views and opinions obtained will remain anonymous and be treated with the strictest confidentiality.

Sincerely,

Friday Adejoh Ogwu
PhD Candidate
School of Architecture, Planning and Landscape
University of Newcastle upon Tyne

II. Sample letter to oil company staff

To: Head of Department/Staff

Dear Sir/ Madam,

My name is Friday Adejoh Ogwu, and I'm carrying out PhD research at Newcastle University in the School of Architecture, Planning and Landscape.

For my research, I and looking into the oil and gas pipeline network in Niger Delta communities. I'm particularly interested in the impacts of the petroleum pipelines on the environment and the socio-economic lives of the people of Niger Delta. I notice that some of your oil pipelines traverse some of the Niger Delta communities and was wondering if I could have the opportunity to briefly speak to you and the staff of your company regarding the oil pipes. I would be very interested to learn about your experiences and opinion on the ownership, installation, use, maintenance and impacts of oil and gas pipelines. I am not carrying out this research on behalf of any developer or government body, and am only interested in your views and opinions.

I will be dropping by your company during the week commencing Monday 11th of January 2010 for two weeks between 10:00am and 4:00pm. I would like to ask you some questions at your office or staff common room or any suitable place you may chose which will not take more than 60 minutes of your time. I will be coming with my research assistant and will have my University identification with me.

I would really appreciate your cooperation and I thank you for your time. I look forward to meeting you and your subjects in due course.

Please note that no personal information would be collected – I will not be asking any information that is not related to what you think about the pipelines. Please be assured that any views and opinions obtained will remain anonymous and be treated with the strictest confidentiality.

Sincerely,

Friday Adejoh Ogwu
PhD Candidate
School of Architecture, Planning and Landscape
University of Newcastle upon Tyne

APPENDIX B

Interview Schedules

Questions for Oil Company staff

General questions:
Date, time and venue
Tell me about your organisation and its role?
What is your role in this organisation and what are your main responsibilities before, during and after petroleum pipeline constructions?
How do you see the future of oil pipeline in this community?

Pipeline-specific questions

How do you evaluate the oil pipeline network as a whole?
What do you think is the importance of the pipeline in this locality?
What were the difficulties and challenges faced during pipeline management?
How do you handle those challenges?

Questions about local residents

What procedures were taken regarding the residents?
What do you think was their role in pipeline construction?
What do you think is the role of the residents towards oil pipelines in general?

Questions for the local residents

Date, time and venue
What do you think of oil pipeline in your community? Any benefit at all?
What do you think of the process of oil pipeline installation?
What was the effect of the oil pipe on your land, water, health, vegetation, culture and peace?
How did the oil companies and government agencies communicate with you before, during and after pipeline construction?
How do you feel about your income level and over all infrastructure provision for your community?

Questions for local planning authority

General questions
Date, time and venue
Tell me about your organisation and its objectives?
What is your role in this organisation?
What are your main responsibilities towards oil pipeline networking in this locality?

Project-specific questions
From the planning point of view, what can you say are the advantages or disadvantages of pipelines in this community?

What stages of the pipeline network are you involved? EIA, construction stage, maintenance, mitigation and/or compensation?
What links exist between your organisation and government, oil companies and local residents in issues that affect oil and gas pipelines?

Questions for Government Agencies (Department for Petroleum Resources)

General questions
Date, time and venue
What can you tell me about your department and its objectives?
What are your main responsibilities in this department?
What specific role do you play in pipeline networking in oil producing communities?
How do you consider the future impacts of pipeline on those communities?

Planning related questions
Do you think the planning authority is involved in oil installations in Nigeria?
What role do the physical planners play in the pipeline network?
What is your feeling about the links between government and the planning authorities in pipeline routing?
How strong is the link?
How do you communicate?
Are there problems?

Questions relating to local residents
What specific impacts of oil pipeline on local communities are you aware of?
Do you think enough is done to prevent those impacts?
Is there evidence of dialogue and communication between your organisation and oil producing communities?
How well do you think the public understands the communication and dialogue?

Questions for NGO's

Date, time and venue
Tell me about your organisation and its role?
What is your main responsibility in the organisation?
Do you play any role in pipeline networking?
For how long have you been operating in this community?
What can you say about oil pipeline network impact on this community? Costs and benefits.
In relation to the impacts (costs and benefits), how do you evaluate oil pipeline impacts on the local community, oil company and government?
What level of relationship do you think exist between the communities, oil companies and government in managing the above impacts?
How do you see the future of the oil pipeline in this community?

Questions for Academics

Date, time and venue
Tell me about your institution and its role?
What is your main job in this institution?
Do you play any role in the oil and gas pipelines network (theory and practice)
What is your candid assessment of the impacts of the oil and gas pipelines on the Niger Delta?

Are there elements of environmental injustice?
What part(s) of your course/module deal with environmental management issues?
How do you communicate environmental protection campaigns to the oil industry, professional bodies and the general public?
What specific role do you think physical planners might play in the issue of environmental equity in this region?
What further suggestions can you make as a way of limiting the impacts of oil and gas pipelines on the environment and to enhance the sustainable development of the region?

APPENDIX C

GROUP DISCUSSIONS DESIGNED FOR OIL PRODUCING COMMUNITIES, December to January, 2010
Time: 9am
Venue: Community Centre

The introduction

A clear introduction may be vital from an ethical point of view and in order to put the respondents at ease.

*Say something about myself;
*Tell respondents about the topic and state the purpose of the research;
*Tell the respondents how long the discussion is going to last;
*Tell the respondents about my role as moderator (independent, there to guide the discussion and to listen);
*Tell the group members how and why they were chosen;
*Give assurance about confidentiality and/or anonymity;
*Ask the respondents' permission to tape the interview;
*Tell the group whether the discussion is being observed and by whom and obtain their consent;
*Tell the respondents how the information will be used;
* Let the respondents know their participation is voluntary and that they are free to leave and free to refuse to answer any questions;
*Mention the "ground rules" (that there are no right or wrong answers, that it is not a test, that it is the respondents' experiences, feelings, opinions I am interested in, that all views are valid, that they can talk to each other, that they do not necessarily have to agree with each other's' views).

The main body of the discussion

Subject: Petroleum Pipe Distribution System: the Case of Oil and Gas Pipeline Network in Nigeria.
History of oil pipelines
General attitudes towards oil and gas pipelines and the pipe providers
Advantages of oil pipes and other benefits from oil proceeds
Experience of any pipeline problem or area of concern
Experiences of how the companies and or the government dealt with the problem
Reactions to how the problem was dealt with
Feelings about resolutions of oil pipes problem (satisfied/dissatisfied – probe for detail e.g. reparations)
Reactions to hierarchy and community involvement in decision making that affect them
Feelings about local resistance
Reactions to their income low level
Suggestions for improvement
Close
• Go through list with them to ascertain all group members are on list.
• Thank them and tell them of second group discussion and final presentation and possibility of getting in contact at a later date to obtain further information.
• Refreshments

APPENDIX D

Field work Check list I

Section 1

Interview No: _____

Name of Respondent: _____

Gender: **Male [ ]** **Female [ ]**

Age/Year of Birth _____

Educational Background _____

Main Occupation/ Position Held _____

How long have you been in this position? _____

Name of organisation _____

Address of Organisation _____

Date/ Time interview begins _____

Section 2

1. How long have you worked as a local planning officer in this region?
2. Do you derive any benefit from the oil pipeline network? Yes [ ] No [ ]
3. Do you live in the affected community or own land there? Yes [ ] No [ ]
4. What are your planning obligations to the community? _____
5. To what level do you involve the communities in decisions that affect them especially as they relate to pipeline construction, what groups of people are involved?
6. Which of the following pipeline activities are you involved in and to what extent?
   - [ ] Land Taking
   - [ ] Route Clearing
   - [ ] Pipeline Installation
   - [ ] Pipeline Integrity
   - [ ] Pipeline Route and manifold maintenance
   - [ ] Decommissioning of pipelines
7. Which of the following negative impacts of pipelines in this community are you aware of?

[ ] Ecological damage [ ] Health hazard [ ] Pollution of freshwater
[ ] Damage to fishing facilities [ ] Reduction of agricultural and related activities
[ ] Increased cost of living [ ] Conflict [ ] Increased water traffic accident
[ ] Threat to traditional occupation [ ] Loss of economic trees, medicinal and food crops
[ ] loss of cultural heritage [ ] Criminal activities and other social vices

8. What have you done or are doing to arrest some of these problems?_____
9. What proposals have you to mitigate negative impacts?_____
10. Do you feel the communities are being compensated adequately?_____
11. To what extent do oil companies involve you in pipeline project approval and EIA preparation?
12. Enumerate the benefits of pipelines projects to the communities_____

13. Mention other stakeholders of pipeline projects in the communities_____
14. What other socio-environmental problems, apart from the ones mentioned in (7) above, are associated with pipelines in this community and suggest remedial measures? _____
15. Are you satisfied with your level of involvement in oil activities? Yes [ ] No [ ]
16. If No, what are the restrictions and challenges and how do you intend to overcome them?_____ _____
17. What existing legislations allow your participation in oil activities?
18. Do you view the Land Use Decree of 1978 as constituting any problem in relation to pipeline networks in the communities under investigation? _____
19. Overall, what suggestions do you have for the following stakeholders with a view to minimise the adverse effects of petroleum pipes.
(i) The local Planning Authority_____
(ii) The oil producing communities_____
(iii) The Oil companies_____
(iv) The Nigerian Government _____
20. Time Interview Ended_____

Fieldwork Checklist II

Section 1

Interview No:

_____

Name of Respondent:

_____

Gender:

_____

Age/Year of Birth

_____

Educational Background

_____

Main Occupation

_____

How long have you been in this position?

_____

Name of Organisation

_____

Address of Organisation

_____

Date/ Time interview begins

_____

Section 2

1.What can you say is the current percentage contribution of oil and gas to the Nigerian Economy?
2. What about the Oil and gas reserve in the country at the moment?_____
3. How many kilometres of pipelines traverse the country?_____
4. Could you provide a statistical distribution of oil spills in Nigeria due to pipeline problems, if possible for the past ten years?_+_____
5. What are the various oil companies operating in Nigeria?_____
6. Comment on the oil monitoring programme of Nigeria if any._____
7. What statutory provisions exist for prohibiting and controlling environmental pollution?_
8. Can you give a general comment on National Policy on the Environment if any?_____
9. W hat is the government policy on compensating the oil communities?_____
10. To what extent have the oil companies complied with 7-9 above?_____
11. Has the Federal Government been enforcing this status? Give comments_____
12.How have the oil communities been represented or involved in decision-making that affects them?_____
13.Who prepares and approve pipeline projects in Nigeria?_____
14. What role do Physical Planners play in 13 above?_____
15.What are the benefits of pipeline as transport mode to:
(i) The Government of Nigeria?_____
(ii) Oil Communities?_____
(iii) The Oil Companies?_____
16. Are there negative impacts of pipelines on the host communities?Give comments_____
17. Does the Government have any plan to stop the use of oil pipelines in Nigeria? If yes,_____
18. What other alternative (s) exist?_____
19.What can you suggest as solutions to 16 above?_____
20. Are there further comments you can make to help in formulating policies for the pipeline distribution system in Nigeria, with a view to arresting its adverse effects on the environment and the Communities?_____
21. Time interview ended_____

Fieldwork Checklist III

Section 1

Interview No:

_____

Name of Respondent:

_____

Gender:

_____

Age/Year of Birth

_____

Education Background

_____

Main Occupation

_____

How long have you been in this position?

_____

Name of Company

_____

Address of Company

_____

Date/ Time interview begins

_____

Section 2

1. For how long have you been operating in this community? _____
2.What is the total length of your pipelines in this community?_____
3.The community and the pipelines: which of the two first existed here?
4.How have you been adopting the principles of "best practice" in the following pipeline activities?
[ ] Land Take [ ] Route clearing [ ] Pipeline installations
[ ] Pipeline Routing
[ ] Pipeline Decommissioning and abandonment
5.To what extent have you involved the Physical planners and the community in 4 above?__
6.Who or what Body approves and prepares EIA for your pipeline projects?_____
7. How are these projects monitored and enforced?_____
8. What can you say are the benefits of pipelines to your host communities?_____
9.Comment on the yearly distribution of oil spills in relation to pipeline in this community?_
10. What are the various socio-environmental problems associated with pipelines in the community under investigation?_____
11. How has your company been responding to these problems, do you involve the communities in seeking solutions?_____
12. Comment on the way your company has been handling issues of:
[ ] Reparations
[ ] Environmental Protection
13. What Government policies regulate your pipeline activities?_____
14. How has your company been complying?_____
15. Why do you sometimes allow multiple pipes in a community?_____
16. What about the idea of flow stations?_____
17. If all pipes go underground will that solve the problems in 10 and 11 above?_____
18. Is it possible to have overhead piping?_____
19. For how long do you estimate the pipeline activities in Nigeria will continue to last?___
20. In what ways do you think the pipeline problems, in this community in particular and in Nigeria at large, may be solved?_____
21. Time interview ended_____

APPENDIX E

List of Oil Company Staff interviewed in this research

Title	Role	Date interviewed
Accountant	His role was to keep funding for the community projects. He took part in deciding the location and evaluating the project before approval.	January, 2010
Superintendent Operations	Oversees all the company's projects in the western and southern parts of the country	January, 2010
Manager	His role was in the field and was responsible for coordinating the work of the engineers and installers on site	January, 2010
Acting Deputy Manager	He was in-charge of research and commercial departments of the company	January, 2010
Manager	He was responsible for ensuring safety and environmental protection in course of the company's operations	January, 2010

List of Civil Servants (Government Representatives) interviewed in this research

Title	Role	Date interviewed
Chief Administrator	His role is to oversee the work of the oil spill monitoring agency	January, 2010
Manger	He was responsible for coordinating the work of the Petroleum Resources Department in one of the States in the Niger Delta	January, 2010
Assistant Commissioner	He works with the Niger Delta development Commission	*January, 2010*
Deputy General Manger	He works from Abuja to coordinate the maintenance and inspection of oil and gas pipelines right of ways	*January, 2010*
Director	He worked to coordinate the activities of the ministry of environment, Abuja.	*January, 2010*

List of Local Residents interviewed in this research

Resident	Date interviewed
Local Resident 1	14/01/2010
Local Resident 2	14/01/2010
Local Resident 3	14/01/2010
Local Resident 4	15/01/2010
Local Resident 5	15/01/2010

List of NGOs interviewed in this research

NGOs	Date interviewed
NGO 1	16/01/2010
NGO 2	17/01/2010
NGO 3	17/01/2010
NGO 4	17/01/2010
NGO 5	18/01/2010

List of Physical Planners interviewed in this research

Physical Planning Officer	Date interviewed
National Executive Secretary	11/01/2010
State Director of Planning	19/01/2010
Local Planning Councillor	19/01/2010
Local Planning Officer	20/01/2010
Local Planning Officer	20/01/2010

List of academics interviewed in this research

Academics	Date interviewed
A senior Lecturer and environmental Historian	22/01/2010
A cartographer and GIS specialist	22/01/2010
A Professor and Environmental activist	25/01/2010
A Reader in Urban and Regional Planning	25/01/2010
A Senior Lecturer in the Department of Chemical Engineering	26/01/2010

APPENDIX F

List of Group Discussions conducted in this research

Group Discussions	Number of Respondents	Date Conducted
Group Discussion 1	8	05/01/2010
Group Discussion 2	6	06/01/2010
Group Discussion 3	6	06/01/2010
Group Discussion 4	8	08/01/2010
Group Discussion 5	7	22/01/2010
Group Discussion 6	8	23/01/2010

List of Feedback Presentations made in this research

Feedback Presentation	Date Conducted
Feedback Presentation 1	23/01/2010
Feedback Presentation 2	24/01/2010

APPENDIX G

NEWCASTLE UNIVERSITY CONFIRMATION OF FIELDWORK IN NIGERIA

UNIVERSITY OF
NEWCASTLE UPON TYNE

School of Architecture, Planning and Landscape
University of Newcastle upon Tyne
Claremont Tower
NE1 7RU

15 June 2009

The Executive Secretary
Petroleum Technology Development Fund
Abuja
Nigeria

c/o The Manager
PTDF OSS
Univation Limited
The Academy
Belmont Street
Aberdeen
AB10 1LB

Dear Sir or Madam

Mr Friday Ogwu – Confirmation of Fieldwork in Nigeria

I hereby confirm that approval has been granted for Friday Ogwu to proceed on fieldwork to Nigeria as part of Stage 2 of his PhD study.

Friday is expected to carry out his fieldwork from 4 October to 19 December 2009. The schedule and financial implications for the fieldwork has been considered and approved by the supervisory team on behalf of the School. Funding for fieldwork is the responsibility of the candidate or sponsor as the case may be, but a member of the supervisory team hopes to visit the candidate during the fieldwork to offer supervisory assistance and advice.

Thank you for your anticipated assistance to this candidate during his field work and do contact me if you have any questions.

Yours sincerely

NEWCASTLE UNIVERSITY
School of Architecture, Planning and Landscape

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