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The Effect of Georesources Exploitation on Fishing and Farming in the Niger Delta Region of Nigeria

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Abstract **– Niger Delta is one of the world's largest wetlands. It covers a large area of Nigeria and depending on the political, ecological or hydrological definition, of what constitutes the Delta, it now includes significant portions of Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and Rivers. There is a long and terrible record of environmental destruction and human rights violations in the oil-producing regions which has resulted in low production in agricultural produce in Nigeria. The gross level of environmental degradation and oil spillage caused by oil exploration and extraction in the Niger Delta has gone unchecked for the past 30 years which has reduced fishing and farming activities. Evidence shows that the oil companies operating in Nigeria have not only disregarded their responsibility towards the environment but have acted in complicity with the military's repression of Nigerian citizens. The profit-driven collusion between multinational oil companies and the past and present Nigerian governments has cost many lives and continues to threaten the stability of the region.**

Keywords **– Niger Delta, Environmental Degradation, Environmental Destruction, Ecological Depletion, Depletion of Fauna, Georesources, Oil Spillage.**

I. INTRODUCTION

Nigeria, the most populous country in Africa, is also one of the best endowed in terms of natural resources. Yet, it is one of the poorest countries in the world. As is the case with many oil-rich developing countries, oil reserves have proved a mixed blessing for Nigeria. Since 1974, only 14 years after independence, oil production for export has been by far the main source of revenue for the government. Nigeria, after nearly four decades of oil production, had by the early 1990s become almost completely dependent on petroleum extraction economically, generating 25% of its GDP (this has since risen to 40% as of 2000). Despite the vast wealth created by petroleum, the benefits have been slow to trickle down to the majority of the population, who since the 1960s have increasingly been forced to abandon their traditional agricultural practices. Annual production of both cash and food crops dropped significantly in the latter decades of 20th century, cocoa production dropped by 43% (Nigeria was the world's largest cocoa exporter in 1960), rubber dropped by 29%, cotton by 65%, and groundnuts by 64%.[2] In spite of the large number of skilled, well-paid Nigerians who have been employed by the oil corporations, the majority of Nigerians and most especially the people of the Niger Delta states and the far north have become poorer since the 1960s.

The Delta region has a steadily growing population estimated to be over 30 million people as of 2005, accounting for more than 23% of Nigeria's total population. The population density is also among the highest in the world with 265 people per kilometre-squared (reference NDDC). This population is expanding at a rapid 3% per year and the oil capital, Port Harcourt, along with other large towns are growing quickly. Poverty and urbanization in Nigeria are on the rise, and official corruption is considered a fact of life. The resultant scenario is one in which there is urbanization but no accompanying economic growth to provide jobs. This has led to a section of the growing populace assisting in destroying the ecosystem that they require to sustain themselves.[2]

There is a long and terrible record of environmental destruction and human rights violations in the oil-producing regions of Nigeria. The gross level of environmental degradation caused by oil exploration and extraction in the Niger Delta has gone unchecked for the past 30 years. Evidence shows that the oil companies operating in Nigeria have not only disregarded their responsibility towards the environment but have acted in complicity with the military's repression of Nigerian citizens. The profit-driven collusion between multinational oil companies and the past and present Nigerian governments has cost many lives and continues to threaten the stability of the region.

The environmental degradation resulting from oil and gas production in the Niger Delta has attracted the attention of environmentalists and other experts, who look at the region within the larger context of globalization. The implications for livelihoods in the delta have been a major bone of contention, with quite intense fallout in localities where oil exploration takes place. Many arguments revolve around who is responsible for most of the ills of oil exploration. The government, oil companies, youths who vandalize pipelines, or the global community? The world today recognizes the importance of environmental sustainability to the development of nations. Goal 7 of the MDGs...Ensure environmental sustainability...seeks to reduce environmental degradation arising from natural and manmade causes as well as inefficient use of resources, and to improve environmental management through private sector participation and environmentally friendly technologies.

II. Overview of the Niger Delta Region

The Niger Delta, the delta of the Niger River in Nigeria, is a densely populated region sometimes called the Oil Rivers because it was once a major producer of palm oil. The area was the British Oil Rivers Protectorate from 1885 until 1893, when it was expanded and became the Niger Coast Protectorate. Some amazing paradoxes have come from the development of the Niger Delta region. The Niger Delta, as now defined officially by the Nigerian Government, extends over about 70,000 km² and makes up 7.5% of Nigeria's land mass. Historically and cartographically, it consists of present day Bayelsa, Delta and Rivers States. In the year 2000, however, Obansanjo's regime expanded its definition to include Abia State, Akwa Ibom State, Cross River State, Edo State, Imo State and Ondo State. Some 31 million people[1] of more than 40 ethnic groups including the Annang, Ibibio, Efik, Ijaw and Igbo people, speaking some 250 dialects live in the Delta. The South-South Niger Delta includes Akwa Ibom State, Bayelsa State, Cross River State, Delta State, Edo State, and Rivers State.

The Niger Delta is an area of more than 28000 square kilometers of mangrove swamps meandering waterways which stretches for over 300 miles from the Benin River in the West to the Cross River in the East. Thus, even most colloquial discussions of the Delta have tended to include Delta, Bayelsa, Rivers, Akwa Ibom and Cross River States. These are (South-South) oil producing states in addition to Edo, Abia, Imo and Ondo States (now).No doubt, Niger Delta is one of the world's largest wetlands. It covers a large area of Nigeria and depending on the political, ecological or hydrological definition, of what constitutes the Delta, it now includes significant portions of Rivers, Bayelsa, Delta, Ondo, Edo, and Akwa Ibom. It is on record that World Bank report says Rivers and Bayelsa States cover two thirds (i.e. 62.3% of the Niger Delta whereas Delta State occupies another 15-20 percent of the Niger Delta. Oil production has been going on in the Niger Delta Region for over 50 years together with the flaring of natural gas. Understanding why this unsustainable practice has lasted for such a long time in the country entails the unraveling of the dynamics of the influence of multinational corporations over resource management in developing countries. It must be emphasized that the entire issues of curbing gas flaring or terminal gas flares boils down to one question: who manages natural resource exploitation in Nigeria, the government or Multinational Corporation. Despite the oil production in the region, the multinational companies have failed to liaise with the people of Niger Delta Region for sustainable projects and developments. Like Frazer Seitel (1987) as cited by Ajala, V. O. (1993) says "community relations involve orchestrating interactions with the host communities". Additionally, Abraham Lincoln once said, "With public sentiment nothing can fail, without it, nothing can succeed". In other words, every organization finds its equilibrium within the environment (host community) in which it resides in the same way that an individual co-exists within a family unit. It is abundantly clear that oil is the bedrock of the Nigeria's economy. Succinctly put, oil is the oxygenated blood that energizes all facts of our national life. Therefore, oil/gas and allied industries are expected to use their professional and trained image managers or alternatively, the Public Affairs/Community Relations or Liaison Officers to interact with the host communities to know their basic and urgent needs that is sustainable projects and not the cosmetic types. Community relations is all about communicating in the various forms, personal contact, open house, recruitment exercises, training and retraining as well as being involved in the community activities.

During the colonial period, the core Niger Delta was a part of Eastern Region of Nigeria which came into being in 0000 (one of the three regions, and later one of the four Regions). This region included the people from colonial Calabar and Ogoja Divisions, which are the present Ogoja, Annang, Ibibio, and the Efik people (see old Calabar Kingdom), the Igbo people, and the Ijaw, with Igbo as the majority and the NCNC (National Council of Nigeria and Cameroon) as the ruling political party in the region. NCNC later became National Convention of Nigerian Citizens after Western Cameroon decided to cut-away from Nigeria and became a part of Cameroon.

In 1953, the old eastern region had a major crisis due to the expulsion of Professor Eyo Ita from office by the majority tribe of the old eastern region. The minorities in the region, mainly people of the old Calabar Kingdom, the Ijaw and Ogoja demanded a state or region of their own, the Calabar-Ogoja-Rivers (COR) state. The struggle for the creation of COR state continued and was a major issue on the status of minorities in Nigeria during debates in Europe for Nigerian independence.A second phase of the struggle saw the declaration of an Independent Niger Delta Republic by Isaac Adaka Boro during Ironsi's administration, just before the Civil war.

During the Nigerian civil war, Southeastern state was created which had the colonial Calabar Division (old Calabar Kingdom), and colonial Ogoja Division. Rivers State was also created. Southeastern state and River State became two states for the minorities of the old eastern region, and the majority Igbo of the old eastern region had a state called East Central State. Southeastern State was renamed Cross River State and was later split into Cross River State and Akwa Ibom State. Rivers State was later divided into Rivers State and Bayelsa State.Phase three saw the request for justice and the end of marginalization of the area by the Nigerian government with Ken Saro Wiwa as the lead figure for this phase of the struggle. The indigents cried for lack of development even though the Nigerian oil money is from the area. They also complained about environmental pollution and destruction of their land and rivers by oil companies. Ken Saro Wiwa and other leaders were killed by the Nigerian Federal Government under Sani Abacha.Unfortunately the struggle has gotten out of control and the present phase, the phase four, has become militant in nature.

Ordinarily, the Niger Delta should be a gigantic economic reservoir of national and international importance. Its rich endowments of oil and gas resources

feed methodically into the international economic system, in exchange for massive revenues that carry the promise of rapid socio-economic transformation within the delta itself. In reality, the Niger Delta is a region suffering from administrative neglect, crumbling social infrastructure and services, high unemployment, social deprivation, abject poverty, filth and squalor, and endemic conflict. Enormous possibilities for industrial development abound in terms of the abundance of raw materials in the region, but these remain unrealized. Beyond vast oil and gas deposits, the delta is blessed with good agricultural land, extensive forests, excellent fisheries, and a large labour force. But juxtaposed against the potential for economic growth and sustainable development are deteriorating economic and social conditions that have been largely ignored by contemporary policies and actions (Jonathan 2004: 20-21).

Global warming by the IPCC (1990), working with records over the last 100 years, have shown that a strong correlation exist between greenhouse gases emission and climate change and between global temperature and sea level rise. World Bank ranked coastal erosion as needing moderate priority attention in the Niger Delta(Table 1) Also, the Nigerian Environmental Study/Action Team (NEST, 2004), reported that sea level rise and repeated ocean surges will not only worsen the problems of coastal erosion that are already a menace in the Niger Delta, the associated inundation will increase problems of floods, intrusion of sea-water into fresh water sources and ecosystems destroying such stabilizing system as mangrove, and affecting agriculture, fisheries and general livelihoods.

III. Agricultural Practices in the Niger Delta Region before the Discovery of Oil

Prior to the discovery of oil in large commercial quantities in the Niger Delta in the 1950s, much attention was paid to rural transformation. Substantial resources poured into agricultural facilities, basic education and primary health care. This was the period when agricultural settlement was established in many parts of Nigeria. The Western Region served as the benchmark for free education, agricultural settlements, industrial development and the promotion of small-scale industries, among other things. Regional advantages were given serious consideration, so groundnuts were cultivated in the north, cocoa in the west, and rubber and palm oil in the east. The discovery of large stores of petroleum shifted attention to urban industrialization and the extraction of these resources. People were pulled from rural areas to urban centres, which widened gaps between the two. Agricultural productivity plummeted, while urban areas began suffering from strains on infrastructure, unemployment and a proliferation of social vices. The Government's inability to promote balanced development during the oil boom has had serious repercussions for livelihoods. Sustainable livelihoods require people to have access to economic activities, especially employment. The link between employment and sustainable livelihoods derives from the second aspect of human development, which emphasizes the use people are able to make of their acquired capabilities for employment, productive activities or leisure.

In the Niger Delta, aside from the tremendous oil and gas wealth, the region is endowed with a large number of working age people, along with land with the potential for cultivation and fishery resources. These provide platforms for cottage industries. Appropriate policies and programmes, including those focused on developing entrepreneurs, could nurture a wide range of small to medium enterprises. Any programme related to sustainable livelihoods should pay attention to this sector. Table 2 presents small and medium enterprises in the Niger Delta. Of the 2,377 enterprises surveyed, 29.8 per cent are in manufacturing and 39.3 per cent are in tertiary services and construction, both of which are relevant to an industrialization strategy

IV. Effects of Georesources Exploitation on Fishing

The effects of Georesources on farming include:

- Destruction of fresh water ecological systems
- Depletion of aquatic Fauna
- Socio and economic deprivation
- Loss of fishing grounds

Destruction of fresh water ecological systems

In the attempt to shorten travel time and improve access to oilfields and production facilities, oil companies have constructed canals that in some cases have caused saltwater to flow into freshwater zones, destroying freshwater ecological systems. Increased access to new areas has also aggravated illegal logging activities. Oil companies constantly dredge river channels to facilitate navigation. The material dredged from the canals is often dumped on the channel banks, which disrupts the hydrology of these essentially flat and low-lying coastlands. The elevated banks restrict the free flow of water and create ponds that can be detrimental to vegetation and the local ecology. The dredging of rivers can also create negative environmental impacts downstream.

Depletion of aquatic Fauna

Major oil spills heavily contaminate coastal shorelines, causing severe localized ecological damage to the near-shore community. Ever since the discovery of oil in Nigeria in the 1950s, the country has been suffering the negative environmental consequences of oil development. The growth of the country's oil industry, combined with a population explosion and a lack of enforcement of environmental regulations has led to substantial damage to Nigeria's environment, especially in the Niger Delta region. With the expansion of oil production, the incidence of oil spills has increased considerably in the region. Spills occur accidentally and through the deliberate actions of the local people, who sabotage pipelines in protest against the operations of the Federal Government and oil companies. Available records show that a total of 6,817 oil spills occurred between 1976 and 2001, with a loss of

approximately three million barrels of oil. More than 70 per cent was not recovered. Approximately six per cent spilled on land, 25 per cent in swamps and 69 per cent in offshore environments. In recent times, oil spills appear to be caused more by willful damage to facilities than by accidents. The environmental effects of oil pollution are well known. They include the degradation of forests and depletion of aquatic fauna. Long-term impacts are also possible, as in cases where mangrove swamps and groundwater resources are harmed. An impact assessment of the 1983 Oshika oil spill in Rivers State by Powell and White (1985) confirmed the death of floating and submerged aquatic vegetation, especially water lettuce. Dead crabs, fish and birds were also reported. The Niger Delta has experienced two major oil spills. The Funiwa oil well blowout in 1980 and the Jones Creek oil spillage in 1998. These resulted in the greatest mangrove forest devastation ever recorded worldwide

Socio and Economic Deprivation

Sustainable livelihoods require people to have access to economic activities, especially employment. The link between employment and sustainable livelihoods derives from the second aspect of human development, which emphasizes the use people are able to make of their acquired capabilities for employment, productive activities or leisure. In the Niger Delta, available data show that formal and informal sector activities are generally at a low level, meaning that access to employment and other economic activities is limited. Except for Abia, Edo and Ondo states, the unemployment rate is much higher in the region than the national average.1 Similarly, the underemployment rate is generally higher, except in Edo, Bayelsa and Abia states. A particularly disturbing dimension is the incidence of unemployment per household. For example, 5.8 per cent of households have one to two dependents without a job, 15.3 per cent have three to four dependents without a job, and 72.5 per cent have five or more dependents without a job (DPC, 2001). A high level of unemployment increases the dependency ratio, which worsens poverty. Data from the NDDC (2005) portray the same pattern of findings on unemployment. The lack of work, as a good direct measurement of unemployment, has been most markedly pronounced in Delta, Rivers and Bayelsa states, which also have the highest incidence of youth restiveness and conflicts. The percentage of unemployed household members on the basis of lack of available work in those states by far surpasses the average for the region, although equally high percentage points in Abia, Akwa Ibom, Cross River and Imo underscore that unemployment is high across the region. This obviously has implications for income inequality and poverty. In the on-going debates about the Niger Delta region, significant emphasis has been placed on the devastation of the environment and ecological balance by oil and gas exploitation, as well as by other industrial activities. People in the region believe strongly that the environmental predicament contributes to social and economic deprivation, further complicating the development situation. The issues at stake include rapid and uncontrolled urbanization, occupational changes, the loss of fishing grounds, the disappearance of livelihoods and land shortages, among others. These changes have in turn threatened cultures, traditional systems and values, and the authority structure in the region.

Loss of Fishing Grounds

One of the greatest challenges to human development in the Niger Delta region is how to win people back to the traditional livelihoods that sustained them in the past. As in other parts of the country, younger people have left the rural areas. Fishing and agriculture have suffered so much from environmental problems and social challenges, and from the neglect of successive governments, that it is very difficult to motivate young people to take an interest in these livelihoods. Many youths, even those still residing in rural areas, are more interested in rent-seeking from oil operations in the form of standby money or oil bunkering, hostage-taking and sabotage of oil pipelines.

Quarrying activities spurred by the construction boom were not limited to land; the demand for high-quality fine sand also led to the mining of river channels. River sand mining destroys the aquatic habitat and disrupts the hydraulic capacity and relationships in the river channels. Fishing communities suffer as a result. On top of the destruction caused by the oil industry. Fishing has become less productive and profitable in many areas, with reduced catches and lower incomes compared to income from oil-related activities. The efforts of local fishermen to maintain or improve upon their income levels result in over-fishing. Many swamps, rivers and creeks where fish spawn have been destroyed or polluted.

Furthermore, oil spillage has also contributed to the loss of fishing grounds. For example, an impact assessment of the 1983 Oshika oil spill in Rivers State by Powell and White (1985) confirmed the death of floating and submerged aquatic vegetation, especially water lettuce. Dead crabs, fish and birds were also reported. The Niger Delta has experienced two major oil spills. The Funiwa oil well blowout in 1980 and the Jones Creek oil spillage in 1998.

V. Effects of Georesources Exploitation on Fishing include

- Mangrove Forest Devastation
- Reduction in Agricultural Production
- Deforestation

Mangrove Forest Devastation

Oil spills in the Niger Delta have been a regular occurrence, and the resultant degradation of the surrounding environment has caused significant tension between the people living in the region and the multinational oil companies operating there. It is only in the past decade that environmental groups, the Federal Government, and the foreign oil companies operating in the Niger Delta began to take steps to mitigate the impacts. Large areas of the mangrove ecosystem have been destroyed. The mangrove forest was in the past a major source of wood for the indigenous people. In some places it is no longer in a healthy enough state to sustain this use. Oil that is spilled in and not recovered will have an impact

on the local environment, spreading over a wide area and affecting both terrestrial and marine resources, inappropriate clean up actions can make the situation worse. The development of the region has led to the degradation of some sites reducing their value and use. . In the past, spills have also necessitated the complete resettlement of some communities. Loss of agricultural land, for example, translates into loss of livelihood for farmers while the psychological and social problems associated with displacements include loss of ancestral homes, familiar surroundings, religious and other cultural artifacts (NDES, 1997).

Reduction in Agricultural Production

The World Bank (2005) estimated that Nigeria flares about 75 per cent of the gas it produces due to the lack of a local market and infrastructure. A study of the ambient air pollutants in the Niger Delta region by Oluwole et al. (1996) 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. Acid rain has become a major problem. Oluwole et al. (1996), for example, rainwater in some of the oil-producing communities. The gases contributing to acid rain also emanate from some of the equipment used by the oil companies. Although appropriate laws have defined flaring standards, the financial penalties have been so low that they hardly constitute a deterrent. Gas flaring amounts to a monumental waste of a valuable resource, on top of the air and thermal pollution that damages biodiversity. Flares cause noise and elevated temperatures. The heat kills vegetation, suppresses the growth and flowering of some plants, and diminishes agricultural production. Plants, animals and humans in the vicinity of the gas flares are perpetually exposed to light with no respite at night. This is harsh for nocturnal animals. The light from flares may also be affecting the endangered marine turtles in the area. Turtles' nesting patterns are influenced by light on their approach to beaches, where they lay their eggs. Additionally largely unstudied potential impacts include the effects on the migratory patterns of birds. Major industry operators are embarking on a number of gas-harnessing schemes to eliminate gas flaring before 2008. Appropriate fiscal incentives would also encourage the oil companies to comply with the extant law on gas flaring.

Many of the laws formulated to protect the environment in the Niger Delta prescribe sanctions in the form of fines and imprisonment. Some of the statutes are as follows:

(a) Mineral Oils (Safety) Regulations 1963
(b) Oil in Navigable Waters Regulations 1968
(c) Oil in Navigable Waters Act No. 34 of 1968
(d) Petroleum Regulations 1967
(e) Petroleum Decree (Act) 1969
(f) Petroleum (Drilling & Production)

These laws mandate specific government agencies to regulate and control operations affecting the environment. The Department of Petroleum Resources administers petroleum laws and regulations, But local people complain that they cannot see any evidence of enforcement. There are recommended compensation rates for the nation's oil and gas industry by the Oil Producers Trade Section of the Lagos Chamber of Commerce and Industry. There have been fairly regular increases in the rates over time. But more detailed analysis, especially in an inflation-prone country like Nigeria, would reveal that these rates are not equitable. In addition, the rates were determined in Lagos without involving the host communities. There are problems with transparency and objectivity. The 1991 Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (revised in 2002) outlines in Part VIIIB Sections 4 and 8 what should be done for any mystery oil spill, including in terms of compensation. The guidelines state that a spiller shall be liable for damages. If more than one person is responsible, liability should be joint. Victims of pollution have been poorly compensated for environmental pollution, however. Several cases have dragged on for many years. Records show that more often than not, the awards made by the courts are generally lower than the claims made by the victims. Some experts have argued that the absence of standards of liability for oil pollution and of rules for determining compensation to victims could have contributed to the way cases are delayed and/or decided in favor of the oil companies (Adewale 1988; Fajemirokun 1999; Worika 2002). Regulations 1969

In a study carried out in Ogoloma, an island community in Rivers State, it was found that a large percentage of household members engage in one agriculture activity or another depicted by Table 4.

Deforestation

Apart from the illegal logging brought on by increased accessibility to forests, oil exploitation itself has depleted biodiversity, especially at ramp sites, flow stations and terminals. Extensive deforestation has accentuated the inflow of eroded materials deposited by the major water bodies, disturbing aquatic animals in particular. Traditionally, local people have depended heavily on the non-timber resources of the forests to make a living. They extract a wide variety of forest products for domestic use and for sale in traditional markets. These include fuel wood, fibres, leaves, dyes, fruits and nuts, medicinal plants, barks and roots, spices, palm wine, snails, wild game, etc. The much-reduced forest cover has increased pressure on the remaining forests, which are now suffering from overuse that is further exacerbated by high demand from the expanding towns and cities. It has been well established that wealthier people in urban areas utilize far more forest resource derivatives than the poor who directly depend on them. People at the grass-roots unfortunately are not benefiting from the increased exploitation of non-timber forest resources. Middlemen package most of the harvest for urban markets, where they make huge gains. Very little returns to the rural economy; in general, there is a net transfer of resources from the rural to the urban areas.

VI. THE WAY OUT

Environmental Impact Assessment (EIA)
Health Impact Assessment and

Social Impact Assessment should be carried out before any developmental projects.

Disaster Preparedness, Emergency response and Relief packages for those that were affected by exploitation activities.

Proper waste management practices: education first, then, reuse, reduce and recycling of oil waste.

Strict compliance to oil and gas regulations by oil companies operating in the Niger Delta region.

VII. Conclusion

Oil spill incidents create serious environmental problems in Nigeria. Available records indicate that approximately 6%, 25%, and 69% respectively, of total oil spilled in the Niger Delta area, were on land, swamp and offshore environments. Vandalisation of oil pipes and storage facilities by pirates is the major factor responsible for oil spill incidents in the region. Oil spillage has led to pollution of drinkable water, destruction of the ecosystem, death of marine fishes and animals in the Niger Delta. Lack of strict compliance to existing environmental protection rules and regulations, with the inability of governmental and non-governmental agencies to enforce these laws have contributed to the pollution of the ecosystem of the Niger Delta. Numerous laws and guidelines exist in Nigeria for controlling oil pollution in the country. Federal Environmental Protection Agency and the Clean Nigeria Associates (C.N.A) have been empowered to combat and control oil pollution in the country. The Oil Spill Detection and Response Agency has been set up to manage oil spill incidents in the Niger Delta.

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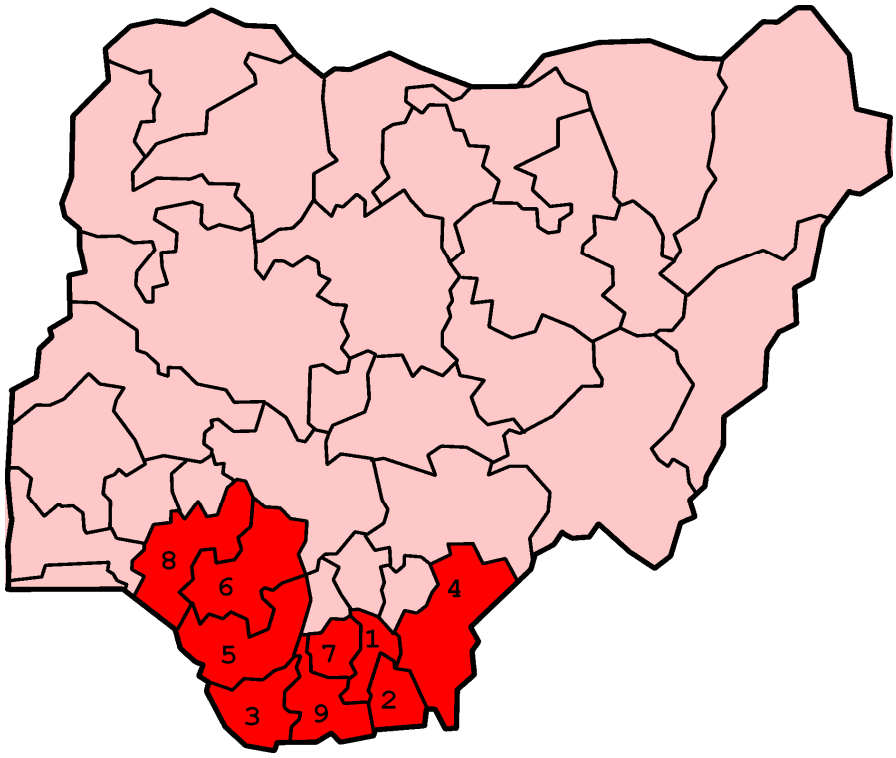

Fig.1. Map of Nigeria Showing the Niger Delta Region
1. Abia, 2. Akwa Ibom, 3. Bayelsa, 4. Cross River, 5. Delta, 6. Edo, 7.Imo, 8. Ondo, 9. Rivers

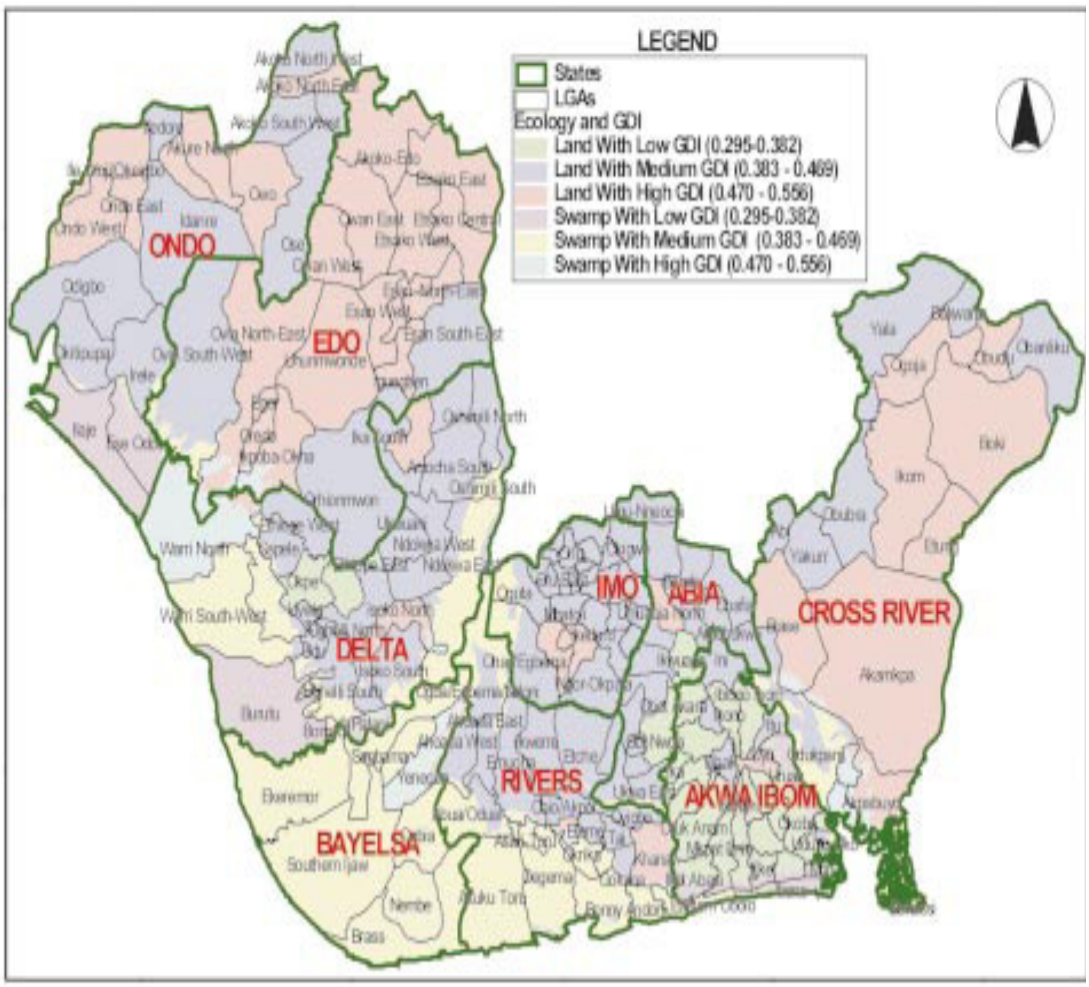

Fig.2. The Map of the Niger Delta Region

Table 1: Ranking of Environmental issues in the Niger Delta by the World Bank

Category	High priority	Moderate priority	Lower priority
Land resource degradation	Agricultural land degradation. flooding(Moderate high)	Coastal erosion Riverbank erosion	Sea level rise
Renewable resource degradation	Fish depletion. Deforestation. Biodiversity loss. Water hyacinth expansion.	Fish habitat degradation	Mangrove degradation. Nypa palm expansion.
Environmental pollution	Sewage. Vehicular emissions Municipal solid wastes. Toxic and hazardous substances.	Oil pollution. Industrial effluents. Industrial air emissions. Industrial solid wastes.	Gas flaring

Table 2: Sectoral distribution of small and medium enterprises surveyed in the Niger Delta.

	Agricultural		**Manufacturing**		**Tertiary services**		**Multiple services**	
	Frequency	%	frequency	%	frequency	%	frequency	%
Akwa Ibom	56	22.22	90	35.71	104	41.27	2	0.79
Bayelsa	76	34.55	42	19.09	84	38.18	18	8.18
Delta	80	37.56	26	12.21	75	35.21	32	15.02
Rivers	55	21.65	69	27.17	129	50.79	1	0.39
Cross river	52	20.63	56	22.22	144	57.14	0	0.00
Edo	44	17.60	54	21.60	125	50.00	27	10.80

Source: Niger Delta region of master plan sector report on micro and small scale enterprises, wider perspective Ltd, 2004 p.35.

Fig.3. Agricultural Practices in the Niger Delta before oil boom.

Fig.4. Harvesting of Tomatoes before oil boom.

Fig. 5

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Fig.6: Fishing activities in the Niger Delta before the discovery of oil.

Table 3: Time series analysis of spill in the Niger Delta

S/No	Year	No of spill	Quantity spilled(barrels)	recovered Quantity (barrels)	Net volume lost to the environment(barrels)
1	1976	128	26,157.00	7,135.00	19,021.50
2	1977	104	32,879.25	1,703.01	31,176.75
3	1978	154	489,294.25	391,445.00	97,849.75
4	1979	157	94,117.13	63,481.20	630,635.93
5	1980	241	600,511.02	42,416.83	588,094.19
6	1981	238	42,722.50	5,470.20	37,252.30
7	1982	257	42,841.00	2,171.40	40,669.60
8	1983	173	48,351.00	6,355.90	41,995.40
9	1984	151	40,209.00	1,644.80	38,564.20
10	1985	187	11,876.60	1,719.30	10,157.30
11	1986	155	12,905.00	522.00	12,358.00
12	1987	129	31,866.00	25,757.00	25,757.00
13	1988	208	9,172.00	1,955.00	7,207.00
14	1989	228	5,956.00	2,153.00	3,803.00
15	1990	166	14,150.35	2,785.96	12,057.80
16	1991	258	108,367.01	2,785.96	105,912.05
17	1992	378	51,187.90	1,476.70	49,711.20
18	1993	453	8,105.32	2,937.08	6,632.11
19	1994	495	35,123.71	2,335.93	32,787.78
20	1995	417	63,677.17	3,110.02	60,568.15

21	1996	158	39,903.667	1,183.807	38,716.860
Total		4,647	2,369,470.04	549,060.38	1,820,410.50

Source: Agbola and Olurin

Table 4: Reported oil spills 1997 – 2001

Year	Total number of reported spills	Quantity in barrels
1997	339	59,272
1998	390	
1999	319	
2000	637	84,072
2001	412	120,976

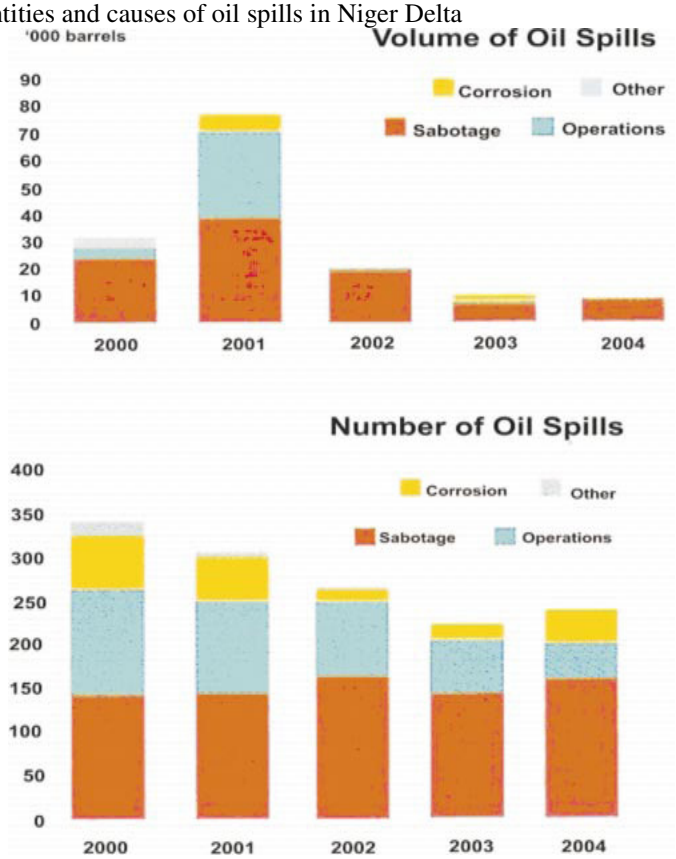
Source: Nwilo and Badejo

Table 4

Types of activity	Men engage in (%)	Women engaged in (%)
Livestock rearing	26.7	12.9
Trading	33.3	64.5
Civil servant/teacher	26.7	9.7
Fish/hunting	93.3	16.1
Gathering/selling NTFPs	20.0	22.6
Processing of farm and other related products	13.3	16.1
Work as hired laborers	20.0	3.2
Carpenter/bricklayer	20.0	
Selling food/snacks	20.0	22.6
Tailor	26.7	22.6
Others	20.0	22.6
Mean number of income-generating activities	3.2	2.1

NTFP stands for non-timber forest products such as snails, fruits, etc. Source: Olawoye 2002.

Chart 1: Quantities and causes of oil spills in Niger Delta



Source: Shell petroleum development company annual report 2004