



The Impact of Oil Exploitation on the Socio-Economic Life of Orogun Community, an Oil Producing Community in Delta State, Nigeria

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Abstract: Following the rebasing of Nigeria's economy, it now occupies the topmost position in Africa. However, this feat can be attributed to a large to revenues accruing to it from crude oil exploitation, since Nigeria is a mono-product economy. The states in the Niger Delta have the largest concentrations of these oil deposits. Expectedly, this is supposed to translate into economic prosperity for these "fortunate" states and communities. Sadly, the reverse is the case. There have been cries of marginalization, environmental pollution, climate change, unemployment, prevalence of sicknesses and diseases due to the activities of crude oil exploitation in these oil producing communities. It is against this backdrop that this study was conducted. Orogun community was selected as a case study because of its prominence in the comity of oil producing communities in Delta State, and also for the fact that despite its enormous contributions to Nigeria's GDP, very little or no research has been conducted to ascertain the negative impact of oil exploration on its socio-economic life. The study identified that the activities of crude oil exploration companies are impacting negatively on the development of the community. Farmlands have been rendered infertile, thereby hampering agricultural output and productivity. Rivers and streams have been polluted as a result of oil spillage, leading to the reduction in the availability of fishes and other aquatic products, resulting in untold hardships being experienced by the indigent populace. In order to ameliorate the situation, this paper recommends that a proper legislation and a regulatory framework guiding the operations of the oil exploration companies should be put in place. In addition to that state interventionist agency, DESOPADEC, should be rejigged and made to be more alive to its responsibilities.

Keywords: Oil Spill, Orogun Community, Oil Producing Communities, Marginalization, Resource Control, DESOPADEC

1. Introduction

Rural communities in Delta state, especially oil bearing communities are characterized by high level of under development and human degradation. Rural dwellers are subject to suffering, sickness, lack of portable water, poor housing, no access to quality education as schools are either dilapidated or not in a functioning state. It is explicit to mention, that there is a wide gap between cities and rural communities of Delta State. However, the purpose of government's existence is to make life more meaningful for its people. The case of oil bearing communities in Delta state is worse, due to the activities of oil exploitation which render the soil infertile, burn vegetation and kill useful soil organisms thereby hampering agricultural output and

productivity. [1] and [2] in their work argued that before mineral resources are harnessed they pass through the stages of exploration, mining and processing which result in different types of environmental damages and hazard. Other impact are noticed in reduction of the availability of fish and other aquatic products, there by leading to an increase in prices, environmental pollution and other untold hardships experienced by the indigent populace.

The development of any nation cannot be achieved without a corresponding development of its communities because 75 to 80% of the inhabitants in developing countries are in the rural communities. In Tanzania for instance 74% of the population lives in rural areas [3] It is in the rural communities that the population is still growing at a higher rate amidst poor social and economic infrastructural support

[4]. According to [5] more than 70% of the Nigeria population dwells in rural communities that contains over 80% of the natural economic resources and over 90% of the nation's agro-workers. However, agitation for the need to develop the Niger delta a region took a front burner not only in Nigeria but also in the Western world with several nations (UK and France) pledging to assist the country in the development of the region.

Armed struggle became the tool with which attention of the centre world was drawn to the plight of the people whose goose lays the golden egg but never get the opportunity in having a say as to how it is shared. Insecurity became rife, criminality crept into the system and political solutions was hatched. This came in the form of increase in derivation and the eventual creation of the Niger Delta ministry and the Niger Delta development commission at the centre.

2. The Background of Oil Resources in Nigeria

Nigeria lies on the Atlantic Coast of West Africa with a population estimated to be close to 167,912,561 million and with more than 250 ethnic nationalities with Hausa/Fulani, the Yoruba and the Igbos as the dominant ethnic groups and languages [6]. It is divided into 36 states with Abuja as its federal capital. The 1914 amalgamation of two British protectorates (Northern and Southern Nigeria) and the colony of Lagos by Sir Frederick Lugard led to the creation of the geographical entity known today as Nigeria. She gained her independence from Great Britain in October 1 1960. However, oil resources were discovered in large quantities at Olobiri community in Bayelsa state in 1956, while exploration started in 1958 [7] This seemed to have set the tone for the oil-fuelled curses that later befell the country. Therefore, to many Nigerians, the discovery of oil resources remains a turning point in the socio-political culture and the entire political dynamics of the country [8] For instance, oil resources supported a legacy of three decades of military misrule. [9] opined and as pointed out by [10] that it hindered the growth of democracy in the country. The contribution of oil resources to various military coups, political and civil unrest such as the 1967-1970 civil war left behind a very bad experience. These political and economic crises were subsequently followed by various conflicts in the oil-bearing communities in Nigeria. This is because the Nigeria state controls how crude oil explored, exploited, processed, sold and how the revenue accruing from it is managed or distributed [11] Consequently, this led to a culture of protest as well as struggle for power and state patronage. [8] posited that a major feature of the oil dominance of Nigeria's political economy is the pervasiveness of high stake rentier's politics. High stake rentier politics coverage and interlinks rentier feature of the economy with neo-patrimonial traditions of post-colonial state and the society to produce a convoluted political culture marked by 'clientelistic' desperation in both related accumulation and state-society

relations. (Obi,2007) supported the above observation with the claim that oil has since the end of the civil war in 1970, become a central factor in the Nigeria's political economy and a rather sensitive management of the country's vast diversities, inequalities and pluralities as they relate to ethnic, religious, regional and competing claims for the control and ownership of oil. With such development, oil resources have continued to fuel violent struggles and conflict in the host communities. Such examples of State violence included the killing of the people of Odi oil community in Bayelsa State by the Nigerian military in the year 2000 [12]. Moreover, the violent revolt against the oil multinational companies by various oil-bearing communities such as Ogoni oil uprising against shell, which led to the loss of many lives [11] Other conflicts among the ethnic groups and the communities within the region included the 1997 Warri crisis between the Ijaw, Urhobo and Itsekiri ethnic groups [13][13]. Oil solely dominated the country's economy until the late 1990's when sectors like telecommunication started making visible contribution to the economy [14]. At one period in the country's existence oil resources accounted for about 93% of its export, 75% of foreign exchange earnings and 45% of its gross national product [15]. Nigeria oil production makes it the World 13th largest producer globally and the sixth oil exporting country (OPEC). Oil resources from 1970 to 1990 have also generated \$231 billion for Nigeria's domestic economy, which constitutes between 21 and 48% of the gross domestic product [16]. Financially it accounted for around 79.5% of total government revenue thereby making it the main bedrock for sustenance of the Nigerian state [6] This development has impacted negatively on the country's economy resulting in the neglect of the agricultural sector which was once the country's pre-independence main source main source of revenue. Lesser attention is paid to the manufacturing and other sectors of the economy, thereby making the country a mono product economy, which solely depend on the petroleum sector. This concentration on oil resources has led to the less than 20% contribution of other sector to national income [14][14]. However, Orogun as an oil-bearing community in Delta State is luxuriously endowed with oil. The farmlands of Erhobar, Eke-Idiovwa, Obodietti, Ovara-Umusu and Imodje have over forty two oil well [17][17]). Thus, [18][18] reports from the oil drilling companies in the locality states that Orogun has the sweet petroleum which is the most desired for the production of petrol and other bye products.

2.1. Oil Communities in Delta State

Delta State is located in the south-south geographical region of Nigeria. The state lies between longitude 5° and 6° 30 North. The state has population of 4,098,391 with a total of 17440km (2006 Population and Housing Census). It has 25 Local Governments Areas. This implies that with a 3.2% population growth rate the estimated population of the state in 2011 is 4,797,466 and 5,109,416 in 2013. The state is the leading producer of oil and gas production in Nigeria accounting for about one quarter of the daily volume of oil

produced [19]). The state is composed of various oil producing communities with underdeveloped environment. In addition, it is safe to sound that the quality of the environment is critical to the survival and maintenance of animal, plants, and human existence in particular. No wonder [20] ranked environmental degradation as second to economic depression that is currently facing the world. [21] Stated that environmental degradation is critical because the ability of the environment to support and sustain life depends on the proper natural balance of its properties: soil, water, plants, and animals. He further posited that the environment has to possess the right temperature, needed oxygen and carbon dioxide in its atmosphere, good rich soil, water, rivers, lakes, ocean, precipitation, vegetation and other condition that are necessary for the sustenance of life. Oil resource exploitation, which involves chemical seismic wave generation, is a major source of environmental degradation particularly through liquid discharges and oil spill as well as gas flaring. Petroleum renders the soil infertile, burns vegetation, and kills useful soil organisms thereby hampering agricultural output and productivity. [1] and [2] in their work argued that before mineral resources are harnessed they pass through the stages of exploration, mining, and processing which result in different types of environmental damages and hazard. They went further to say that petroleum consists of complex mixture of aliphatic, alicyclic, and aromatic hydrocarbon, as well as polar organic compounds. These components are transformed into other structures on entering the environment.

The following is the record of oil spill in Delta State from 1995 to 2005.

Table 1. Oil Spill Data SPDC (1995-2005).

Year	No of spills	Volume in barrels (bpd)
1995	235	31,000
1996	326	39,000
1997	326	39,000
1998	240	30,000
1999	248	60,000
2000	320	20,000
2000	330	30,100
2001	302	76,960
2002	262	19,980
2003	221	9,916
2004	236	8,317
2005	224	11,921
Total	2,944	377,194

Source: [22]

Oil spill either in crude or refined form, gas flaring or deforestation are common phenomena in oil communities and have cause several environmental degradation in Delta State. This is because they contaminate the environment and cause water and land pollution with dire consequences on human health, aquatic and terrestrial life due to the toxic nature of the chemicals being discharged [23]. Besides, once the environment is contaminated it becomes a potential threat years after. Fishes living in surface water are killed and fishermen are rendered jobless. Also, when there is an oil

spill oil starts spreading immediately making its gaseous and liquid components to evaporate. Some get dissolve in water and even oxidize and yet some undergo bacteria changes and eventually sink to the bottom by gravitational action. The soil is contaminated with a gross effect upon the terrestrial life. As the evaporation of the volatile molecular weight component affect the aerial life so the dissolution of the less volatile components with the resulting emulsified water affect aquatic life [24]. In Nigeria, about 62.8% oil spill affected farmlands [25]. A major impact was a reduction in the availability of fish products, thereby, leading to an increase in prices.

Statistics also indicates that 9,107 oil spill incidences occurred in Nigeria between 1976 and 2005 resulting in about 3,121,909.8 barrels of oil spilled into the environment [26]. Some of the major spill in the state included the Escravos oil spill (Funiwa 5 blowout) of over 400,000 barrels spreading through the Delta region polluting about 1,200km [27]. In the disaster, about 180 people died while 300 people contacted various illnesses through drinking polluted water and eating contaminated foods in the affected area. In 1986, it was estimated that eight major creeks and villages were affected. Several barrels of oil were lost and economic activities paralyzed in the affected areas. The damage done to fishnets, ponds, and traps of the farmers was said to be over two million naira [26]. Also, the Jesse spill of 1998 resulted in a serious fire incidence that claimed over a thousand lives and ravaged the ecosystem [28]. [29] and [30] all agreed that chemicals discharged from oil spills have toxic effects on soil, water, air and animal life. Oil spill is also responsible for deforestation. [31] Found heavy metal concentration in Warri area of Nigeria, and the oil industry constitutes a potential hazard to its immediate environment due to high level of waste. Agriculture, which is the mainstay of the rural economy of the area, is therefore threatened and human life, by extension, is in danger. The acts of environmental degradation have resulted in direct or indirect increase in road traffic accidents, destitution, HIV prevalence and other transmitted diseases. A corollary study by [32] on the potential effect of oil pollution on women living near oil fields also observed that such women exhibit symptoms such as mycosis, tiredness, itchy nose, sore throat, headache, red eyes, ear pain, diarrhea, and risk of spontaneous abortion was high among these women. Similarly, a higher incidence of cancer was discovered among men and women in areas were exploration was done for 20 years. The result also stated that women were observed to have an increase in hematopoietic cancers, while many children also have distended bellies and light hair a condition commonly referred to as Kwashiorkor, a protein deficiency syndrome [21]. The peculiar nature of the environmental degradation is global in nature. This is because pollution created in one country has an impact on another country. For instance, the destruction of a part of the Ozone layer by a country has an impact on all nations. This explains why the issue of environmental degradation has become a concern for all and sundry. Unfortunately, in Nigeria tax regulation and government complicity (particular

during the military era) are also some of the problems associated with the high level of Delta ecosystem depletion. Sustainable development, management, and improvement of the environment play significant roles in the prosperity or depression of a society. For instance, it is a common knowledge that poor soil will result in poor farming and poor living. Conversely, good soil will produce good farming and good living condition. [33] Established that since the commencement of oil and gas exploitation in the region, the experience had been that of untold hardship in the social, health and economic aspects of life coupled with ecological destabilization. In another work, [34] argued that though oil has contributed to the foreign exchange of the country, its negative impact on socio-economic life on the immediate oil bearing communities and its inhabitant has left a balance sheet of ecological, social and physical disaster.

2.2. The Impact of Petroleum Exploitation on Orogun Community

According to [35] the various stages of mineral, oil business, geophysical/ prospecting drilling, production, refining and distribution has caused a lot of environmental stress. Because of operational accident, equipment failure and some other reasons, some quantities of oil are released into the environment during oil exploration, storage, processing, and distribution. This consequently causes environmental pollution. Impact of oil spillage is noticeable in the flora and fauna of the oil producing communities [36]. [35] Opined that the oil spillage has latent physical impact on the people arising from land preparation for seismic activities, oil platform sites, access roads, right ways of pipeline and test samples pits. This inevitably has led to land alienation, deprivation, deforestation, and degradation with scanty compensation paid to land owners notwithstanding. Associated with the above problem of land is the removal of soil cover, attendant erosion as the case may be [36]. One of the long term effects of these activities is usually a reduction in crop yield in an environment not known to be naturally fertile [26] and [36]. The towering flames resulting from gas burning now seem to the host communities as inevitable consequences of oil production without any health or environmental risk. Soured gas produces sulphur oxide, which are released into the atmosphere. The combination of the compounds mixes up with oxygen and water and produces acid rain with negative effects on the environment. Considering the serious negative effects of gas flaring on the environment the Ministry of Petroleum and Natural Resources proposed that gas flaring would end in Nigeria by 2003. The oil producing companies jointly fought against the policy as much as they could. In a communiqué, the oil companies argued that accelerating the programme is national policy and an issue of great economic importance that requires huge investment for the acquisition of the requisite technology, which is not easy to come by. Consequent upon the pressure from the multinational companies, the government rescinded on its initial 2003 deadline and extended it to 2008. Such a compromise on the

part of the government makes one to wonder how committed government is to its resolve of attaining terminal flares in the next five years [37].

However, [35] identified the impact of oil exploitation on oil-bearing communities, which is also applicable to Orogun community as follows:

2.2.1. Exploitation of the Socio-Economic Activities

It is certainly not a new thing that the ecological and economic consequences of petroleum development would have multiplier effect on the social and cultural life of the people of Orogun oil community. Farmers are forced to turn to other occupations because of the degradation of their land [38]. Farmers and fishermen who are unable to adjust usually migrate to nearby urban centers such as Warri, Sapele, and Ughelli in search of greener pastures. The implication of this movement is that the problem of unemployment is worsened in the aforementioned urban centers [35]. This situation led to the shutdown of Erhoikie flow station leading to the loss of estimated 44,880 barrels per day by the Nigerian Petroleum Development Company as they vowed to remain there until their demand are meant. Defending their actions, Hon. Idiovwa, said for over fifty years SPDC had marginalized the Orogun community on their facility. According to him, when SPDC divested to NPDC they were not involved even though several letters were written asking for the community representation since none of their sons or daughters was in the management cadre or among the unskilled workforce of the NPDC. This is more disturbing when considered against the backdrop that this flow station is tied to over 42 oil wells. However, in January NPDC made a publication rating this flow station as the second highest producing flow station in the whole Delta Central Senatorial District, this notwithstanding, the community is still poor. The leader of the protesters added that, in the whole of Orogun community, there is no medical facility, the market is in terrible shape, and women, youths, and community leaders are highly marginalized in the operations of the company. Mrs. Mary Dohwoevuroye Obuko, a women leader in the community added her voice thus, “when NPDC took over the mess SPDC left behind in the community in 2013, they said they were aware of the issues and promised to remedy them. After six months they came up with a quick win project as promised but which later turned into a quick kill project” [39].

2.2.2. Exploitation of the Socio-Cultural Life

Aside from the deleterious impact of oil exploration, and more ills associated with oil industry there are several socio-cultural setbacks suffered by the Orogun oil community. Oil field workers find the teenage girls in their immediate host communities as a ready pool from which they could gratify their sexual urge. In each exploitation site, these migrant workers leave behind venereal diseases, morally polluted girls, and school dropouts. Most societal life support systems like village gods and divinities are been violated. Yet, unlike labour intensive agricultural practices, the petroleum industries offer little or no employment to the displaced and

jobless people [35].

2.2.3. Exploitation of Plants and Aquatic Animals

One conspicuous aspect of the negative impact of the oil industry is certainly the alteration of the ecosystem. Spilled oil is washed into the channels of rivers and streams in Orogun communities, which causes great havoc in the short run. This havoc includes surface and ground water quality deterioration in terms of portability, aesthetic value, and recreational functions [35]. The ecosystem impairment also involves destruction and reduction of fish and aquatic life of the waters. Further findings by [40] revealed that there is vegetation gradient trees slopes towards the gas flare sites. Perhaps, more serious than the colossal waste, is the environmental impact of gas flaring rendering the land unsuitable for cultivation. This has inevitably led to loss of numerous economic and botanical valuable plants. Traditional healers must now search further into the interior before they can obtain herbs, roots, and barks of trees for treatment of diseases [41].

2.2.4. Exploitation of Human Health

This is one of the fundamental ways the free but harmful means of disposal of natural gas has done so much damage to the health of the people [35]. The Nigeria conservation foundation reveals that in 1994 alone, Nigeria emitted 37 million of carbon dioxide and 12million tones of methane. This means that Nigeria oil fields contribute more to global warming than the rest of the world [42]. [43] Reveals that gas-flaring sites around the western Niger Delta in general generates tremendous heat, which is felt over an average radius of 0.5km thereby causing thermal pollution in the sub-region. [40] Carried out measurement around several gas flare sites; found out that temperatures were as high as 40 degrees Celsius. Indeed, the high temperatures around the gas flare sites are an indication that a distinct microclimate had been created by oil spillage. Some of the fishes and animals that escape instant pollution are known to have taken in some toxic substances, which in turns get into human beings that eat them. This will in turn cause infections on man coupled with other side effects in the form of genetic mutations [44]. Another very disastrous environmental threat is occasional fire outbreaks resulting from pipelines vandalization.

2.2.5. Exploitation Through Oil Companies

It is no exaggeration to say that Orogun people have suffered undue political manipulation, intimidation, degradation, victimization, oppression, neglect and injustice without due regard to their loyalty and support to Delta State Government. Associated gases are routinely flared in the course of producing and processing the oil. It seems that the Nigerian case attract more attention given the volume of gas flared since the beginning of commercial oil production in the country. When compared with oil production in the advanced countries data collected by the Alberta Energy and Utilities Board (EUB) in Canada shows that in 1996 about 92% of gases were conserved or used in some other ways. The remaining 8% was flared. This socially responsible

attitude towards gas conservation, as demanded partly by environmental requirements in Canada and other advanced countries, does not apply in Nigeria. [37] On the other hand, the companies do very little in terms of transferring technology to the local communities. They prefer to come with experts in numerous numbers from their home countries. The role of the companies in the development of oil producing communities including Orogun is not encouraging. This is because their sole objective is maximizing profit without taking corporate social responsibility (CSR) into consideration.

Despite the change from military to civilian government in 1999 there is still widespread deployment of army, navy and paramilitary Mobile Police at oil facilities across the Delta. Much greater sums of money are flowing from the federal government to the Delta region, but ordinary people living in the region see little or no benefit from these funds. A 40-page report "The Niger Delta: No Democratic Dividend," considers several recent violent incidents around oil facilities and concludes that both the government and the oil company have failed to fulfill their responsibilities. Security forces continue to commit human rights violations with impunity in response to protest and acts of violence at oil facilities. The oil companies remain complicit in many such abuses despite their stated commitment to respect [45].

2.2.6. Exploitation Through Land Use Act

As is the case with other oil-producing countries, the exploitation of oil in Nigeria is carried out under some Legislation. The most important oil- related legislation in Nigeria include: the Petroleum Act 1969, oil pipelines Act 1959, Oil in Navigable Waters Act 1968, Federal Environmental Protection Agency Act 1988, and the Land Use Act 1978. By the petroleum act (continuing a colonial policy), the entire property in petroleum (mineral oils) is vested in the state. The result is that the federal government has absolute right and control over oil resources in the country, which is found only in the Niger Delta region of the country in general. It gives out oil mining rights to oil companies and receives rents and royalties from them. As has been seen above, oil has realized so much money for the Nigerian state over the years.

Under the laws of most countries, 'Land' includes mineral oils entrapped in the land. However, this is not the case with Nigeria. Section 1 of the Interpretation Act 1964 explicitly excludes mineral oils from the meaning of land. Moreover, while oil was vested in the states, ownership of land supporting oil remained vested in communities and families until 1978 when the land Use Act was made. The Act (promulgated as a Decree by the then military government) vested all the lands comprised in the territory of a state of the federation in the governor of the state in 'trust' for all Nigerians. It is significant to note that before the promulgation of the Act oil companies that had obtained mining rights from the federal government, approached oil bearing/land-owning communities for a right of access to the land for its operations. There was a way by which the

communities had some sense of participation in oil operations, as they received some compensation for granting access and for any damage to land and any surface rights thereon. It would appear that this sense of participation has been lost since the unity of land rights with oil rights in 1978 [35]. This undemocratic decree has robbed the people of Orogun of the right to ownership and control of their lives and resources.

3. Conclusion

The agitations by the people of Orogun community for a better deal in the operations of crude oil companies in their land deserve attention from both the government (Federal, State and LGA) the oil companies (IOC) and even the international community. The losses that are being incurred by Orogun community are irreparable. The lives were lost as result of oil exploration activities- related diseases, communal clashes, destruction of cultural heritage among others cannot be redeemed. The government on its own will not fare better under the present arrangement because constant confrontation by the host communities with the oil companies resulting in the shutdown of crude oil flow stations has grossly affected daily oil production estimates.

This paper suggests that government should ensure that these oil companies operating in Orogun live up to their corporate social responsibilities. They should give the indigenes equal opportunities in their recruitments. The activities of interventionist agency, DESOPADEC, established by the Delta State Government should be audited. If it has outlived its relevance then it should be scrapped. Also, the much-awaited petroleum industry bill (PIB) should be passed into law as it contains good provisions that are capable of changing the fortunes of oil producing communities in a matter of days.

References

- [1] ACLSD. (2015). *Book Series Number 9*. ACLSD.
- [2] Adekoya. (2003). Laterite Exploitation and its Impact on Vegetation. *Journal of Political Science*.
- [3] Adelaye, S. (2007). Satellite Technology in Rural Communication Systems. *Bulletin of Science Association of Nigeria*, 28, 91-98.
- [4] Aghalino, J. (2000). Petroleum Exploitation and Agitation for Compensation By Oil Producing Communities. 3.
- [5] Ajaikeye. (1985). *Resource Exploitation and Environmental Impact: A case Study of the NigerDelta Region*.
- [6] Akpoborie, I. (2008). The Oil and Gas Industry and the Niger Delta: Implication for the Environment. *Journal of Applied Science Management*, 3 (12).
- [7] Akpofure, E., & Efere, M. a. (2000). The Adverse Effects of Crude Oil Spills in the Niger Delta.
- [8] Akporhono. (2008). The Oil and Gas industry and the Niger Delta: Implicationfor the Environment. *Journa of Applied Science and the Environment*, 12 (3), 30-31.
- [9] Akporkonor, E. (2008). The Oil and Gas Industry and the Niger Delta: Implications for the Environment. *Journal of Applied Science Management*, 3 (12), 29-37.
- [10] Alakpodia, I. (1990). *Effects of Gas Flaring on the Micro-Climite and Adjacent Vegetation in Isoko Area of Bendel State*. University of Ibadan, Ibadan: Unpublished MSc Thesis.
- [11] Anifowose, B. (2008). Assessing the Impact of Oil and Gas Transportation on Nigeria's Environment. *Postgraduate Research Conference*. Birmingham: University of Birmingham, UK.
- [12] Awondola. (1997). Drought and Desertification in Nigeria. *23rd Annual Conference of the Social Science Society of Nigeria*. Sokoto: Social Science Society.
- [13] Badejo, O. (2005). Oil Spill Problems and Management in Niger Delta. *International Oil Spill Conference*. Miami.
- [14] C. O, I. (1982). Perciptible Aspects of the Environmental Effects of Oil Exploration on a Nigerian Rural Community. Status and Trends in Nigeria. *Geographical Association*.
- [15] Charles, I. (2003, 10 30). Alexander's Gas Oil Connections news and Trends: Africa. P. M News.
- [16] Essoka, P., & Uzu, U. P. (2006). An Overview of Oil Pollution and Heavy Metal Concentration in Warri, Nigeria. *International of Management of Environmental Quality*, 2 (17), 209-215.
- [17] Fagade, O. (1998). *Environmental Impact Assessment Study: Gas Supply to NNPC and SPDC Estates Warri by Nigeria Gas Company*. Warri.
- [18] Felix, O. (2009). A Paper Presented to the Senate Committee on the Review of the 1999 Nigerian Constitution.
- [19] Higgins, K. (2009). *Regional Inequality and the Niger Delta Policy Brief No5*. Oveseas Development Institute.
- [20] Hurtig, A. a. (2002). Geographical Differences of Cancer Incidence in the Amazon Basin of Ecudor in Relation to Residency Near Oil Fields. *International Journal of Epidemial*, 10 (31), 1-7.
- [21] Ifeandi, C. (1998). *Environmental Issues and Management in Nigeria Nigeria's Development-Case Studies on The Environmental Impact of Oil Production and Marketing in Nigeria*. Ibadan: Evans Publishers.
- [22] Ikein, A. (1990). *The Impact of Oil on a Developing Country: The Case of Nigeria*. Ibadan: Evans Brothers.
- [23] Ikelefe, A. (1993). Pollution in Nigeria: Causes, Effects and Control; The Case of Delta.
- [24] Ikelegbe. (1993). Pollution in Nigeria; Causes, Effects and Control. minna: National Geographic Association.
- [25] Ikporikpo, C. (1998). Environmental Impact Assessment and Human Concern in the Petroleum Industry: A Nigerian Experience. *9th International Conference on the Petroleum Indusrtly and the Nigerian Environment*, 766-782.
- [26] Ikporukpo. (1986). Sabotage and The Problem of Oil Spill Management in Nigeria. 15 (5), 306-310.

- [27] Ikporukpo, C. (1983). Environmental Deterioration and Public Policy in Nigeria. *Journal of Applied Geography*, 306-316.
- [28] Imobighe, T. (2002). *Conflict and Instability in the Niger-Delta: The Warri Case*. Ibadan: Spectrum Books Limited.
- [29] Jaiyeoba, A. (2002). "Environment." *Africa Atlases: Atlas of Nigeria*. Paris.
- [30] Legwanti, D. (1995). The Politics of Environmental Destruction and the Use of Nature as Feather and Site of Learning in Convergence. 99.
- [31] Magazine, T. (2008, February 18). 50 Years of Oil in Nigeria. *Tell Magazine*, pp. 9-109.
- [32] Msoffe, G. (2009). Accessibility and Use of Family Planning Information (FPI) by Rural People in Kilombero District, Tanzania. *African Journals Online Library*, 11(2).
- [33] Newspaper, N. C. (1996, May 30). Global Warming.
- [34] Newspaper, N. M. (2014). *Nigeria Losses 44,800 bpd as Erhioke Shuts Down*. Orogun: National Mirror Newspaper.
- [35] Newspaper, V. (2014, August 25). Warri Communities Shut Erhioke Flow Station. *Vanguard Newspapers*.
- [36] Nwankwo, N. (1988). *Environmental Issues and Management in Nigeria's Development Case Studies on the Environmental Impact of Oil Production on the Environment*. Ibadan: Evans Brothers.
- [37] Nwilo, P. (2005). Oil Spill Problems and Management in the Niger Delta. *International Oil Spill Conference*. Miami.
- [38] Obi, C. (2007). *The Struggle for Resource Control in a Petro-State. A Perspective from Nigeria*. New York: Palmgrave Macmillan.
- [39] Obi, C. (2016, June). Retrieved June 2016, from www.codesria.org: <http://www.codesria.org/links/publications/monographs/cyrilobi.pdf>.
- [40] Odu, C., & Offodum. (1986). Oil Pollution and the Environment. *Bulletin of Science Association of Nigeria*.
- [41] Okonta, I. (2008). *When Citizens Revolt: Nigerian Elites, Big Oil and Ogoni Struggle for Self-Determination*. New jersey: Africa World Press.
- [42] Olusi, J. (1981). Fiscal Variables and Economic Growth in Oil-rich Developing Countries. *Journal of World Economic Research*, 4 (4).
- [43] Omeje, K. (2005). *High Stakes and Stakeholders: Oil Conflict and Security in Nigeria*. Hampshire: Ashgate.
- [44] Onoakpojerho. (2013). *Orogun and its People*.
- [45] Owabukeruyele, S. (2000). Hydrocarbon Exploitation, Environmental Degradation and Poverty in the Niger Delta. Lund: Lund University, Sweden.
- [46] Ross, M. (1999). *The Political Economy of the Resource Curse*.
- [47] S. O, A. (2000). Petroleum Exploitation and Agitation for Compensation by Oil Producing Communities in Nigeria. 1,2, 11-20.
- [48] Shell. (1995). *Nigeria Brief: The Environment*.
- [49] Tyonongo, A. (2008). Economic Implications of Environmental Degradation on the Society. *International journal of Economics and Development Issues*, 7(1), 33-38.
- [50] Ukiwo, U. (2002). *The Nigerian State, Oil and the Niger Delta Crisis*. Retrieved from www.diva-portal.org/fulltext01.pdf.
- [51] UNDP. (2006). *Niger Delta Human Development Report*. Abuja: United Nations Development Programme.
- [52] Watch, H. R. (2016, August). *Reports*. Retrieved from <http://www.hrw.org/reports/2002/nigeria3>.
- [53] Wild, A. (1996). *Soil and the Environment: An Introduction*. New York: Cambridge University Press.
- [54] World Bank. (1999). *The World Bank Annual Report, 1999*. Retrieved from Annual Report.
- [55] <http://documents.worldbank.org/curated/en/1999/01/437658/world-bank-annualreport.1999>.