

IMPACT ASSESSMENT OF OIL COMPANY CONCENTRATION ON THE MANAGEMENT AND TRANSFORMATION OF POST PRIMARY SCHOOLS IN EMOHUA LOCAL GOVERNMENT AREA OF RIVERS STATE, NIGERIA

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Abstract

Crude oil is one of the main stay of Nigerian economy and majorly got from different parts of Rivers State. The study is to access the impact of oil company concentration on the management and transformation of post primary schools in Rivers State. The researcher used descriptive survey design to discuss the impact of oil company concentration on the management and transformation of post primary schools in Rivers state. The population of the respondents was 450 respondents comprising of all the Principals, and some teachers selected from all the secondary schools in the Local Government of the study. Stratified random sampling techniques were used to select 150 out of 450 respondents used for the study. Two research questions were raised for the study. Oil Companies and their Impact on the Management and Transformation of Post Primary Schools Questionnaire (OCIMTPPSQ) were used for data collection. The instrument was validated by two experts. One from Educational Management and the other from Measurement and Evaluation, Psychology and Guidance and Counselling Departments, Federal University Dutsin-Ma, Katsina State. The reliability index of 0.72 was realized after subjecting it to test-retest reliability method at 0.05 significance level. Spearman Ranking Order Statistics was used to analyze the work. It was discovered and concluded that the oil companies had very little positive impact compared to the enormity of oil exploitation in Rivers State. The study made some possible recommendations among others are the provision of sustainable infrastructures to the schools by the oil companies; scholarships should be awarded to the students at all levels; science laboratories should be built and equipped to encourage the science students and for employability.

Keywords: Impact, Oil Company, Concentration, Transformation, Post Primary Schools.

Introduction

Rivers State is richly endowed with a number of natural resources such as crude oil, natural gas, oil palm, fertile arable lands and navigable waterways. The presence of these natural resources attracted a lot of multinational corporations and even the Colonial Administrators at the beginning of the 20th century. (Obowu, 2009) confirmed that the colonial Administration's trading companies: Niger Company, and Messrs Thomas Welse Company, had in the first decade, of the 20th century set up a trading beach and warehouses at Choba, Aluo and Oduoha-Emohua Beaches in the then Ikwerre/Etche Local Government Area of Rivers State. The early presence of these companies is sequel to the presence of large quantities of palm oil and kernel in the area. These were the major commodities of the legitimate trade he added.

However, the primary concern of this work is for the assessment of the impact of oil company concentration towards the management and transformation of post primary schools and their host communities in Rivers State. Efforts are also made to show other negative impacts which the activities of these companies have had on the secondary schools in particular and the state in general. Also, the contributions of these companies will be compared to their level of exploration. This will enable the researcher the opportunity to find out if such contributions are commensurate to their exploitations.

There are very few existing literatures on the effect of oil exploration in the coastal communities of the Niger Delta but little or nothing on the impact of oil exploration on the post primary schools in Emohua local Government Area (EMOLGA) and Rivers State in general. Oil prospective in Nigeria started in 1937 but the actual production began in about 1956 in Oloibri in the present BAYELSA state, Nigerian Impact Assessment Agency (NIAA 2014). The Shell British Petroleum Development Exploration Party was one of the first to be granted oil mining concession. By 1956, it became Shell British Petroleum Development Company (SBPDC) of Nigeria. This company was the sole operator in the federation. By 1960, oil had been found in commercial quantity in Nigeria NIAA 2014) continued.

The discovery of oil in a large quantity according to (Twunmasi and Merem, 2006), attracted other multinational oil corporations to join between 1960 and 1962 in the hot search for crude oil. (Colwell 2009) also confirmed the entry of other Trans-National Companies. He further added that the entry of the other companies made the Federal Government to reduce the areas covered by Shell B.P. Concession from 40 square mile to 15,000.

Crude oil exploitation in Rivers State started at Ebocha in the early 1960s Newswatch. (Ite and Ibok, 2013) confirmed that gas flaring started at Ebocha in 1964. During this period shell B.P., Nigerian Agip oil Company (NAOC) and Elf Nigerian Limited gained concession to operate in Rivers State. (Ellah, 1992) outlined that Elf Nigeria Ltd had the oil mining lease (OML 58) to operate in Rivers State, precisely the Egi area of Ogbaland with land mass of about 43%, while Nigerian Agip Oil company operated under the license (OML 61) in about 440 square kilometers, that is about 48% of the land mass. Shell also operated on the fringes of Rivers State.

Though, there were other oil servicing companies such as SAIPEM Nigeria Ltd, Schlumberger, Dowell etc., the oil industry in Rivers State is dominated by NAOC, ELF and Shell Petroleum Development Company of Nigeria. The concentration of these crude oil industries in Rivers State has had a tremendous and unquantifiable environmental, economic and social impact on the institutions in EMOLGA in particular and Rivers state in general. Though, some of these areas are not in the scope of the study, they are briefly discoursed because of the crude oil impact on the people and the state in general.

Environmental Impact

Oil drilling is highly noted for environmental pollution. This is due to the concomitant gas flaring into the atmosphere and radio-active fallout. (Eweji 2006) defined environmental pollution as “ the unfavorable alteration of the surroundings wholly or partly as a result of man's activities through direct effects of changes in energy patterns, radiation levels, chemical constitution and abundance of organisms”. He went further to state that pollution is a pervasive phenomenon.

The oil companies have totally changed the land scape in EMOLGA and in Rivers State. Large hectares of land are used for drilling locations, burrow pits are dug here and there and oil pipes crisis-cross every nook and corners of the state. In Rivers State, environmental pollution (like Gas flaring) has accounted for incidents of premature and still births, blindness, high mortality rate, cancer, respiratory ailments, defacement of buildings, decimation of plant and animal lives, deforestation, and depletion of fish from the rivers, especially in Ogoni and EMOLGA land (Amadi, Abbey and Nma 1996). Also, an eye witness discovered that at the time of this study the Rivers and Creeks all over Emohua and its environs were polluted with oil exuding from broken oil pipelines damaging the fresh water ecosystem (Nnamdi, 2021). He went further to posit that for over 10 years now, this has brought so much hardship to most of the fishermen whose livelihood is purely dependent on fishing.

Economic impact

The impact of oil exploration in Rivers State is very prominent in the economic sphere. (Nwilo and Badejo 2006) has it that the presence of these oil companies has contributed to the growth of most of the towns in the state, Omoku and its environs, Degema, Bonny, Emohua, Ogoni, Port Harcourt etc., and equally metamorphosed the sprouting out of small and medium scale industrial and commercial ventures. The greatest effect is on land and water (Kampa and Castanas 2008). While writing on economic history of Rivers State, he described land as the mainstay of the economy of the state. Today most of the Rivers people lack arable land because of large expanse occupied by the oil companies. Above all, land in the state is no longer fertile because of oil exploitations, spillages and gas flaring. Briggs, Yoshida and Gershwiru(2015) stated that “farmers in part of the state are in dilemma. Their crops do not do well again, or even survive long enough for eating let alone to the market”. This depicts the degree of land devastation and degradation by oil company activities.

Having been aware of this adverse effect on land and crops, NAOC established an agricultural extension project, “The Green River Project” at some strategic areas of the state. The Green River Project, according to NAOC (2002) News (No.1, Vol. 1:7) is the latest contribution made by the NNPC/NAOC/PHILIPS Joint Venture towards the economic development of Nigeria.

The Green River Project assisted the farmers in growing, preserving and procuring improved varieties of crops and fertilizers. Today, this is not sustained.

Before the comings of oil companies about 35% of Rivers people were farmers, especially fish farming and agriculture were predominant. Presently, less than 5% of the people practice fishing and agriculture even at the subsistence level. This is because of the incessant oil spill into the Rivers and land which kills so much land and aquatic lives. Consequently, fishing and farming are no longer lucrative ventures in the state, leading to the people seeking for white collar job in the urban areas to enable, feed, live and to be able to pay their children's fees. As a result, farming, fishing and hunting are left in the hands of the old ones. From all indications, the concentration of oil companies in the area has altered the economic activities of the state as seen from the inception. To this effect, the sources of livelihood of parents for the provision of food and school fees have been hampered.

Social impact

The social impact of the presence of these oil companies on the peoples and institutions are enormous. In order to alleviate the sufferings of the people the oil companies have tried to provide some infrastructural facilities such as pipe-borne water and electricity for most of the villages where they are located. "Elf News" (Vol.1, No.15 July-August, 1985:11) stated that Elf Nig. Ltd embarked on two million Naira (2,000,000.00) water scheme in some villages where they are located to provide water for the communities. They were supported by Rivers State Rural Development scheme. Similarly such projects were also embarked upon by NAOC, in Omoku, Obrikom, Obie Okwuzi, Agah, Emohua, and some part of Port Harcourt, etc. On the part of electricity, NAOC made tremendous contributions by providing constant electricity supply to most of the villages around their locations through gas turbine.

On the contrary or negative side, (Ellah 1992), noted that the concentration of oil companies in the state has had a great sociocultural impact on the multilingual languages, culture, and marriage system of the state. He further explained that prior to the inception of these oil companies, it was a taboo to see a male and a female student sit together to discuss sexual relationship in the public. Today the opposite is the case. Female students, even the married women, are usually found around the oil company base soliciting for men. In addition to this, the social evil of prostitution has been introduced into our schools, high wave of crimes like stealing, kidnappings, secret cultism and destruction of lives and properties have characterized EMOLGA in particular and Rivers State in general from the inception of these companies. Other social vices, such as divorce, unwanted pregnancies, abortion, smoking and gross contravention of social norms and values became the order of the day. Most of these vices are alien to the society where the oil companies are located. These have also led to so many school drop outs (Ellah 1992) posits.

Impact on Post Primary Schools

The linking of the post primary schools and the importance of the existence of oil companies in EMOLGA and Rivers state cannot be overemphasized. Leeson (2010) stated that the school has six major needs to liaison with the industries concerned. These are curriculum development, technological information, education guidance and counseling, material and human resources and moral support. This implies that the concentration of oil companies in

the area should be of a great advantage to schools and its environs. The major objective of secondary education as stated in the National Policy on Education, (FRN 2014) is to prepare the child through secondary education for useful living within the society. Based on this premise, the schools should be able to produce people who would be capable of taking up appointments in these oil companies.

Philip in (Leeson 2010) agrees that industries could help the schools in conjunction with the government to achieve their goals, hence opined that school/industry links have to be seen as an instrument for change across the curriculum as a whole, to make education and the development of every individual pupils as meaningful as possible for life in modern industrial society. The oil companies cannot to a large extent, help the secondary schools to achieve their goals if there is no adequate linkage.

Igwein (Eweje 2006), described the school as a micro-society in a macro-society. This presupposes that the post primary schools have been suffering from aerial and economic side effects of oil companies' explorations and exploitations. Consequently, the impact of the oil companies on the schools in the area as stated by Leeson (2010) will be looked into as follow:

Curriculum

The curriculum of the post primary schools is developed by both the State and Federal Ministries of Education, but the school in its implementation puts into consideration the immediate environment in which it is sited. The need of the society in which the school is sited could influence the change in the curriculum. Gbamanja (2012) posited that in developing curriculum, provisions must be made for modifications when the need arises for innovations or a total change as it is appropriate for the society.

Since the oil companies are dominant in Rivers State, one would expect them to introduce some industrial courses in the post primary schools. Leeson (2010) stated that this could be done by the evaluation of parts of a school scientific or technical syllabus by a firm and as well help with the practical application of a particular course. Such courses may include computer education, Mining, and even the provision of technical facilities and expertise. Gbamanja (2012) also agreed with this view, hence he included that professional bodies such as NUT, STAN, and several engineering and medical bodies among other factors should influence curriculum change.

The inability of the Oil Companies to influence the curriculum of post primary schools in Rivers State even when they have devastated the land and rivers which are the economic mainstay of the people, has made it difficult if not impossible for these companies to employ the youths and the products of the secondary schools. Adesina (2014) sums it up when he noted that "The products of education are needed to develop industries. It is therefore necessary that favourable attitudes to industry and technology are fostered right from the secondary school level".

Provision of Material and Human Resources

Leeson (2010) has it that industries could also enhance in the provision of both material and human resources to the schools by providing them with some necessary science teachers and

laboratory equipment. They could enhance the capacity of the teachers by given them the opportunity to attend special trainings like, workshops, conferences and seminars to up-date their knowledge in science, technology and mathematics (STM).

Although the Oil Companies in Rivers State have never served as resource centers and even as sources of human and material resources, efforts have been made to establish Green River Projects as Agricultural Projects by the Nigerian Agip Oil Company. The Green River Projects have been organizing inter-school agricultural science quiz to boost the students' interest and knowledge in agriculture as well as encourage them to take it up as a career. The organization also sends out extension workers to schools, but lacked more of these activities in the areas of science and technology related subjects.

Negative Impact on Post Primary Schools

Besides the aforementioned positive impacts, the negative effects of these oil companies abound in the post primary schools. The researcher was an eye witness to the collapse of some individuals' and school buildings in many of the communities where these oil companies exist due to the detonation of Seisemograph Nigerian Ltd (S.S.L.) in 1992. The detonation has also caused several damages to school structures and equipment. Some of these schools are very close to the oil company locations, which generate large decibels of noise. Bello (2009) advised that a school be built in a quiet place away from external noise, because it is difficult to think and learn in a very noisy condition. Since noise is incompatible with learning, one wonders what will be the fate of students in such post primary school areas.

Besides the disruption of the school peace and tranquility, the students are constantly exposed to excessive environmental pollution. (Adeyemo, 2012) confirms that such exposure is dangerous by saying that "though it is too early to categorically say what will happen to these parts of people of Rivers State who are exposed to excessive environmental noise, such noise could lead to hearing impairment in due course. The concentration of these oil companies in Rivers State has also heightened immoral behaviours among students. The female students in these schools run after the staff of these companies at the expense of their studies. As a result their performances in the school become very low.

In Emohua in particular and Rivers State in general, very few girls complete their secondary education successfully. This is because of moral decadence. A good number of these girls abandon the school; pack their belongings to co-habit with the company workers. These girls according to Ellah (1992) "indulge in assorted types of habit like stealing, smoking and drinking, and unwanted pregnancy". Presently, the companies' existence has also brought new trouble, like cultism, kidnapping and wanton destruction of lives and properties. Consequently, it will be quite unbelievable for the oil companies to claim ignorance of the environmental, economic and social impact of their operations on the society and the institutions in Emohua in particular and Rivers State in general.

To avert the doom there should be an effective radio-active waste management and disposal measures. Oil companies should pay heed to the clarion calls for the development of their areas of operation. Education is the hoop that holds development and should be given priority. Only the concerted effort of government, oil companies, and the individual

stakeholders in education can help the post primary schools in the areas to achieve their stated goals.

Statement of the Problem

In recent times, there had been significant outcry of several oil producing communities including Emohua, over the looming hazards of oil explorations and exploitations. As a result, a number of individual and prominent personalities and organizations have made concerted and clarion calls on the oil companies to develop the areas of operation or host communities. The problems posed by the concentration of oil companies on schools and their host communities in Emohua Local Government Area of Rivers State is very enormous and cannot be overlooked. Adequate and urgent attention has to be paid to save the schools and its environs from complete deterioration.

This poised the researcher to go into this work "Assessment of the impact of oil company concentration on the management and transformation of post primary schools in Emohua Local Government area of Rivers state, Nigeria".

Purpose of the study

The main purpose of this work is to examine the impact of oil company concentration towards the transformation of post primary schools and their host communities in Emohua Local Government Area of Rivers State. Other purposes include:

- (i) To access the impact of the oil companies had on economy of the area and the secondary school in Emohua LGA
- (ii) To access the impact of the oil companies on the Social factors of the area and the secondary school Emohua LGA
- (iii) To access the impact of the oil companies on the Environmental factors of the area and the secondary school Emohua LGA

Methodology

The study adopted a descriptive survey research design of a correlation type. Descriptive survey is appropriate because it tries to describe the existing relationship between the oil company and the impact they have on post primary schools in EMOLGA Rivers State, Nigeria. The population of the respondents was 450 comprising the Principal, Vice Principal and some teachers selected from all the secondary schools in the Local Government of the study. Stratified random sampling techniques were used to select 150 out of 450 respondents used for the study as the sample size. Two research questions were raised for the study while, two research hypotheses were formulated to guide the study. Oil Companies and the Impact they have on Post Primary Schools Questionnaire (OCIPPSQ) was used for data collection. The instrument was validated by two experts. One from the department of Educational Management and the other from the Department of Psychology and Guidance and Counseling, Federal University Dutsin-Ma, Katsina State. The reliability index of 0.72 of the instrument was taken after subjecting the instrument to test-retest reliability method at 0.05 significance level. Spearman Ranking Order Statistics was used to analyze the hypothesis, while Simple percentage was used to answer the research questions.

Research Questions

The researchers used two research questions to get information from the respondents.

1. To what extent has the concentration of oil companies helped in the development of post primary schools in EMOLGA?
2. To what extent has the concentration of oil companies affected the environmental, economic and social positions of their host communities?

Data Analysis

In course of this work 150 questionnaires were administered using on the sport assessment method. Eighty five (85) respondents were males, representing (56%), while sixty (65) respondents were females, representing (43.33%).

Table 1: Showing the number male and female respondents.

Item No	Questionnaire Item	Total No. of Respondents	Male Respondents	Female Respondents
A	Sex	150 (100%)	85 (56.66%)	65 (43.33%)

Table 2: To find out the responses from the marital status. One hundred and twenty five (125) respondents, representing 83.33% are married, while twenty five (25), representing 16.67% are unmarried.

Fig 2: Showing the number of married and unmarried.

Item No.	Questionnaire Item	No of Respondents	No of Married Respondents	No of Unmarried
B	Marital Status	150 (100%)	125 (83.33%)	25 (16.67%)

RQ 1: To what extent has the concentration of oil companies helped in the development of post primary schools in EMOLGA?

Table 3: Showing the percentage of responses on the impact of oil company concentration in EMOLGA.

S/N	Item Statement	VGE	GE	LE	VLE	Mean	Decision
1.	Oil company has done so much in Emohua	40 (26.7%)	35 (23.3%)	10 (0.07%)	65 (43.3%)	2.34	Disagreed
2.	LGA	20 (13.33%)	30 (20%)	45 (30%)	55 (36.67%)	2.44	Disagreed
3.	Oil company concentration has adverse effect	85 (56.67%)	35 (23.33%)	22 (14.67%)	16 (10.67%)	3.55	Agreed
4.	There is cordial relationship	5 (3.3%)	25 (16.7%)	55 (36.7%)	75 (50.0%)	2.24	Disagreed
5.	The secondary schools benefited from the oil	15 (10.0%)	25 (16.7%)	50 (33.3%)	65 (43.3%)	2.24	Disagreed
6.	companies	10	25	55	75	2.25	Disagreed

	Modern schools were built by the oil companies	(6.7%)	(16.7%)	15	10		
7.	Students benefited from their scholarship Scheme.	75	50	(10.00%)	(6.66%)	3.58	Agreed
		(50.00%)	(33.33%)	45	65		Disagreed
8.	Very few students enjoy their scholarship Scheme.	15	25	(30.00%)	(43.33%)	2.15	
		(10.00%)	(16.67%)	20	10		Agreed
9.	Money paid to beneficiaries covers all the school needs	70	50	(13.33%)	(6.66%)	3.50	Agreed
		(46.67%)	(33.33%)	28	20		
10.	Companies build some structures for some schools	52	50	(18.67%)	(13.33%)	2.50	Disagreed
		(34.67%)	(33.33%)	35	70		
11.	Companies make donations to schools	20	25	(23.33%)	(46.67%)	2.25	
		(13.33%)	(16.67%)	40	75		Disagreed
12.	Oil companies aid science teachers to go for capacity building.	15	20	(26.67%)	(50.00%)	2.23	
	Oil companies do encourage students to study some special science subjects	(10.00%)	(13.33%)				

From table 3 above, it shows that items 3, 7, 9, and 10, representing 33.3% of the total respondents agreed that the concentration of oil companies in Rivers State have made little but insignificant impact on post primary schools in the area. Nwilo and Badejo (2006) has it that the presence of these oil companies have contributed to the growth of some of the post primary schools in the sub-towns of the state, like Omoku and its environs, Degema, Bonny, Emohua, Ogoni, Port Harcourt etc and equally metamorphosed to the sprouting out of small and medium scale industrial and commercial ventures. Contrary to this, items 1, 2, 4, 5, 6, 8, 11 and 12 representing 66.6% of the total respondents of research question one disagreed with this assertion. This is observed as (Ellah 1992) posits that the presence of the oil companies introduced so many social vices like divorce, unwanted pregnancies, abortion, smoking and gross contravention of social norms and values became the order of the day. He went further to say that these have also led to so many school drop outs and dilapidation of so many schools and individual living homes.

RQ 2: To what extent has the concentration of oil companies affected the environmental, economic and social positions of their host communities.

Table 4: Shows the responses of the respondents to research question two

S/N	Item Statement	VGE	GE	LE	VLE	Mean	Decision
13.	Students do attend quizzes curtesy of oil companies.	40 (26.7%)	30 (20.00%)	30 (20.00%)	10 (0.07%)	2.34	Disagreed
14.	Students gain employment due to the enhancement from the companies	20 (13.33%)	28 (18.67%)	28 (18.67%)	45 (30%)	2.25	Disagreed
15.	So much noise is generated from the activities of the oil companies	85 (56.67%)	50 (33.33%)	50 (33.33%)	22 (14.67%)	2.15	Agreed
16.	Increased juvenile delinquency among students	5 (3.3%)	48 (32.00%)	48 (32.00%)	55 (36.7%)	2.85	Agreed
17.	Students suffer some ailments due to workers' activities	15 (10.0%)	36 (24.00%)	36 (24.00%)	55 (36.7%)	2.95	Agreed
18.	School buildings experience cracks and leakages	10 (6.7%)	44 (29.33%)	44 (29.33%)	50 (33.3%)	3.35	Agreed
19.	Proffer measures for remedy.	75 (50.00%)	22 (14.67%)	22 (14.67%)	15 (10.00%)	2.15	Disagreed
20.	Contributions are made to commensurate Explorations	15 (10.00%)	35 (23.33%)	35 (23.33%)	45 (30.00%)	2.13	Disagreed

From the table, items 15, 16, 17, and 18 agreed with research question two, indicating 50%. This asserts that many of the respondents posit that the concentration of oil companies in the area of the study caused so much harm. Many of the school buildings are either having serious cracks or either completely destroyed due to the detonation of Seisemograph Nigerian Ltd (S.S.L.) in 2014. This has also caused several damages to school structures and equipment. Some of these schools are very close to the oil company locations, which generate large decibels of noise and gases. On the other hand, items 13, 14, 19, and 20 representing 50% disagreed with this. In line with this, Nwilo and Badejo (2006) has it that the presence of these

oil companies have contributed to the growth of some of the post primary schools in the sub-towns of the state, like Omoku and its environs, Degema, Bonny, Emohua, Ogoni, Port Harcourt etc and equally metamorphosed to the sprouting out of small and medium scale industrial and commercial ventures.

Conclusion

The oil companies have very little positive impacts in the schools and its environs. It was then discovered that more harm was done on the schools and its surrounding host communities. This is seen from the rust of corrugated iron to the cracks on the school buildings. Much noise is being produced creating some emotional dis-balance on teachers and students. Most female students leave school to go after the workers for money, eventually creating social disorder on the norms and values of the society. The presence of oil companies has also created some other social vices such as unwanted divorce, pregnancy abortion, smoking, drunkenness, cultism on the land.

Recommendations

The researchers after a critical review of this work, recommend as follows:

1. That the companies should help the farmers by providing fertilizers as the entire areas are made of farmers to enable possible school fees for children;
2. That they have a good control measure to always avert oil spills, especially into the river;
3. Members of the host communities should be given more employment opportunities to enable pay their children fees easily;
4. Sustainable infrastructures should be provided to the schools by the oil companies;
5. Scholarships should be awarded to the students at all levels;
6. Science laboratories should be built and equipped to encourage the science students;
7. Most of the teachers in the school of the host communities should always be given scholarship, allowed to attend seminars, conferences, workshops to enhance their capacity building;
8. Special awards should be given to teachers and students who may have had an outstanding performances;
9. Companies should use noiseless generating plants, especially if they are operating close to a school;
10. The school curriculum should enrich with science teachers and science and technology related subjects.

References

- Adesina S. et al, (2014). *Nigerian Education, Trends and issues*. UNIFE Press, Ile-Ife, Nigeria.
- Adeyemo, A.M. (2012). The Oil Industry Extra-ministerial Institutions and Sustainable Agricultural Development: A case study of Okrika L.G.A of Rivers state, in Nigeria. *Journal of Oil and Politics*, 2 (1).
- Amadi, Abbey and Nma (2010). Critical Issues in Oil spillage and its impact to the environment. An insight of impact assessment. Spectrum Books. Ibadan
- Bello, J.Y. (2009). *Basic principles of Teaching*. Spectrum Books. Ibadan.
- Briggs, K.T., Yoshida, S.H. & Gershwin, M.E. (2015). *The influence of petrochemicals and stress on the immune system of Seabirds regulatory toxicology and pharmacology*, 23:145-155.

- Colwell, R.R., & J.D. Walker (2008) "Ecological aspects of Microbial Degradation of Petroleum in the Marine environment." *CRC Critical Review in Microbiology*, 5(4), 423-445, 1977.
- Ellah, C.O. (1992). Obrikom by the year 2000: The Socio-cultural impact of oil operations in Obrikom. *Unpublished*
- Eweje, G., (2006). "Environmental Costs and Responsibilities Resulting from Oil Exploitation in Developing Countries: The case of the Niger Delta of Nigeria: *Journal of Business Ethics* 69(1) 27-56.
- FRN (2014). Federal Republic of Nigeria. *National Policy on Education*. Lagos: NERDC Press.
- Gbamanja, S.P.T. (2012). *Essentials of Curriculum and Instruction: Theory and Practice*. Computers and Systems. Planners, Aba, Nigeria.
- Ite, A.E., & Ibok, U.J. (2013). "Gas Flaring and Venting Associated with Petroleum Exploration and Production in the Nigeria's Niger Delta," *American Journal of Environmental Protection*, 1(4). 70 – 77.
- Kampa, M., and Castanas, E. (2008), "Human health effects of air pollution," *Environmental pollution*, 151(2). 362 – 367.
- Leeson, P. (2010). *School- Industry links and curriculum development*. The Building Societies Associations, London: London Press.
- Nigerian Impact assessment Agency (NIAA 2014). *Impact Assessment Bulletin*, 10 (5) 5-9.
- Nwilo, P.C., & Badejo, O.T. (2006) "Impacts and Management of Oil spill pollution along the Nigerian coastal areas," *Administering Marine Spaces: International Issues* 119.
- Obowu, E. O. (2009). *Federal Ministry of Environment Abuja*, WWF UK and CEESP-IUCN Commission on Environmental, Economic, and Social Policy, Niger Delta Resource Damage Assessment and Restoration Project.
- Twumasi, Y. and Merem, E. (2006), GIS and Remote Sensing Applications in the Assessment of change within a Coastal Environment in the Niger Delta Region of Nigeria. *International Journal of Environmental Research & Public Health*, 3(1):98- 106.