Environmental Degradation in Niger Delta Nigeria: Implications on the Well-Being of the Host Communities

Onweazu Olufemi Okoji[6], Jumoke Oladele[7] and Biodun Olawuni[8]

Abstract

Decades of oil exploitation, exploration, and production activities in the Niger Delta have led to severe environmental degradation that has created complex problems in the region. As such, environmental exploitation has been a major point of contention between the Nigerian government and multinational oil corporations. The study adopted an Ex-Post facto research design and a multi stage sampling technique which comprised of purposive, stratified and proportional sampling technique. Purposive sampling procedure was used to select six communities in Rivers State, Nigeria. One hypothesis was tested at 0.05 level of significance. Results showed that environmental degradation, education and occupation significantly impacts on the well being of host communities in Rivers State Nigeria. Thus, it recommended that, The Federal Government must streamline the activities of the multinational oil corporations which have so far operated without environmental regulations to guide their activities in the region, in an attempt to limit the long-term impact of environmental degradation.

***Keywords*:** Environmental degradation, host communities, oil spillage, oil exploration and pollutants

1.0 INTRODUCTION

Environment is the natural and social conditions surrounding all mankind including future generations. The environment as posited by Ekpo (2010) is made up of biophysical components and processes of natural environment of land, water and air. Decades of oil exploitation, exploration, and production activities in the Niger Delta have led to severe environmental degradation that has created complex problems in the region. One of the greatest challenges facing the Niger Delta region of Nigeria is that of environmental pollution. Environmental pollution takes place when the environment cannot process and neutralize harmful by-products of human activities in due course without any structural or functional damage to its system. Pollution occurs when the natural environment is unable to decompose the generated elements and on the other hand, when man fail to decompose these pollutants artificially (Adekola, Moira and Fischbacher, 2017).

[6] Department of Adult and Primary Education, University of Ilorin, Nigeria: E-mail: femiokoji20008@yahoo.com
[7] Department of Social Sciences Education, University of Ilorin, Nigeria: E-mail: oladele.ji@unilorin.edu.ng
[8] Department of Adult and Primary Education, University of Ilorin, Nigeria

Studies by Ogula, (2012) and Omojimite, (2012) revealed that the cost of externalities arising from the internal transactions of Multinational Oil Companies (MNOCs) which ought to be integrated into the direct cost and profit opportunity of production is neglected. The resulting impact on the host community's health, economic and occupational life is enormous, yet the amounts of wealth generated from these areas are not reinvested in order to lessen these environmental impacts. As such, environmental exploitation has been a major point of contention between the Nigerian government's Multinational Oil Companies (MOCs)—the Shell Petroleum Development Company (SPDC) in particular—and the communities affected by oil pollution. Considering the area of study and the peculiarities of its inhabitants, this study therefore used the indices of health and economic as a measure of well-being. Therefore, the study was aimed at examining the extent to which the environment of these oil-bearing Niger Delta communities has been devastated by oil production activities and consequently its impact on their well being. The objectives of the study were basically two; to examine environmental issues impacting the well being of the host communities in Rivers State Nigeria; and to examine the impact of environmental degradation on the well being of host communities in Niger State Nigeria. This study wanted to testify one hypothesis H_{01}: There is no significant impact of environmental degradation on the well being of host communities in Rivers State, Nigeria

2.0 LITRATURE REVIEW

The World Health Organization defined quality of life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment (World Health Organization, 1997). According to ElSarawy (2016), measuring human well-being involves identifying the key components of a good life and then selecting a set of indicators that provide information about the progress of society with respect to these outcomes. The index of well-being has been measured using a variety of methodologies such as Canadian Index of Well-being, the Australian Unity Well-being Index and Better Life Index which was adopted by the "Organization for Economic Cooperation and Development" (OECD), which groups 34 countries, mostly from developed countries among others (ElSarawy, 2016). Davis (2019) explained well-being as the experience of health, happiness, and prosperity. It includes having good mental health, high life satisfaction, and a sense of meaning or purpose.

Environmental exploitation has been a major point of contention between the Nigerian government's Multinational Oil Companies (MOCs)—the Shell Petroleum Development Company (SPDC) in particular—and the communities

affected by oil pollution. Since large scale operations in the oil industry began in 1958, the Niger Delta region had been steadily experiencing cases of environmental degradation (Nnaji, 2012). One of the first observable cases of environmental impact of the oil industry in the Niger Delta is related to oil spillage. Delt and Igben (2012) stated that increasing petroleum exploitation activities like seismic surveys, land acquisitions, drilling, transportation, storage, waste dumping and associated oil spillages have increased the degradation of the physical environment and resulted in the deprivation and destruction of economic livelihoods of the Niger Delta region, increased the degradation of the physical environment and resulted in the deprivation and destruction of economic livelihoods of the Niger Delta region.

Adati (2012) asserted that an estimated 1.5 million tons of oil has been spilled in to the Niger Delta ecosystem over the past 50 years; 50 times the estimated volume spilled in Exxon Valdez oil spill in Alaska 1989 (FME, NCF, WWF UK, CEESP-IUCN 2006). In July 1979 the Forcados tank 6 Terminal in Delta state incidence spilled 570,000 barrels of oil into the Forcados estuary polluting the aquatic environment and surrounding swamp forest (Ukoli, 2005; Tolulope, 2004). The Funiwa No.5 Well in Funiwa Field blew out an estimate 421,000 barrels of oil into the ocean from January 17th to January 30th 1980 when the oil flow ceased (Ukoli, 2005; Gabriel, 2004; Tolulope, 2004), 836 acres of mangrove forest within six miles off the shore was destroyed. The Oyakama oil spillage of 10th may 1980 with a spill of approximately 30,000bbl (Ukoli, 2005). In August 1983 Oshika village in River state witnessed a spill of 5,000 barrels of oil from Ebocha-Brass (Ogada-Brass 24) pipeline which flooded the lake and swamp forest, the area had previously experienced an oil spill of smaller quantity; 500 barrels in September 1979 with mortality in crabs, fish and shrimp. Eight months after the occurrence of the spill there was high mortality in embryonic shrimp and reduced reproduction due to oil in the lake sediments (Gabriel, 2004)**.**

When there is an oil spill on water, spreading immediately takes place. The gaseous and liquid components evaporate. Some get dissolved in water and even oxidize, and yet some undergo bacterial changes and eventually sink to the bottom by gravitational action. The soil is then contaminated with a gross effect upon the terrestrial life. As the evaporation of the volatile lower molecular weight components affect aerial life, so the dissolution of the less volatile components with the resulting emulsified water, affects aquatic life (Akpofure, Efere & Ayawei, 2000). The harmful effects of oil spill on the environment are many. Oil kills plants and animals in the estuarine zone. Oil settles on beaches and kills organisms that live there. It also settles on ocean floor and kills benthic (bottom-dwelling) organisms such as crabs. Oil poisons algae, disrupts major food chains and decreases the yield of edible crustaceans. These all impacts on the well being of host communities**.**

Yang (2017) indicated that well-being is multidimensional and subjective in nature and so the need for a consistent measure across individuals with the differences those individuals might place on the relative value of different dimensions may not be reconcilable. Similarly, Sharma (2017) presents wellbeing as a multidimensional concept that includes a person's physical and mental health, educational status, economic position, physical safety, access to freedoms, and ability to participate in civic life. It is, in a sense, the abundance or scarcity of opportunities available to an individual. This results into different views on the subject. Dodge, Daly, Huyton and Sanders (2012) describes well-being as the presence of the highest possible quality of life in its full breadth of expression, focusing on but not necessarily exclusive to: good living, standards, robust health, a sustainable environment, vital communities, an educated populace, balanced time use, high levels of democratic participation, and access to and participation in leisure and culture. The definition of wellbeing and the indicators selected to create a picture of wellbeing draw upon the body of work measuring quality of life and economic and social progress as well as the discipline of positive youth development, which is a framework that builds on young people's assets while still addressing their deficits (Sharma, 2017).

3.0 MATREALS AND METHODS

Ex-post facto research design was adopted for this study. Employing the use of this design, the researchers do not have direct control over independent variables of environmental degradation because their manifestations have already occurred. This type of design is useful when no manipulation of variable is considered necessary and when phenomena are being described as they are in a cause and effect relationship. With this, expo-facto design is considered appropriate for this study.

Population, sample and sampling technique: The populations of this study were oil producing communities in Rivers State, Nigeria. The study adopted multi-stage sampling technique which comprised of purposive and proportional sampling technique. Purposive sampling procedure was used to select six communities where the multinational co-operations are domiciled and operates from. The communities are Egita (1200), Obite (1520), Obiyebe (1321), Ibewa (1620), Akabta (1417) and Okarioma (1361); a total population of 8439 (National Population Census, 2006). The proportionate sampling technique was adopted to select participants from each of these communities for the study which comprised community leaders, youth, men and women in each of the communities. A total of four hundred participants were sampled for the study.

Instrumentation and validation: a researcher designed questionnaire which was used for collecting data for the study. The questionnaire was subdivided into four sections. Section A was designed to provide demographic information of the respondents while Section B constituted items for ex-raying the

environmental issues prevalent in the study area. Section C consisted of items regarding environmental degradation while Section D consisted of items on well-being. The instrument was subjected to face validity by test and measurement experts while the reliability of the instrument was determined by Cronbach's method of internal consistency reliability. A Cronbach's alpha of 0.78 was obtained.

Procedure for Data Collection: The validated questionnaire used was administered through the support of two research assistants in Rivers State. The research assistants were trained by the researchers on how to administer questionnaire to the respondents in various communities covered. The field activities of these researcher assistants were also supervised personally by the researchers.

Data Analysis Techniques: data collected on demographic information of respondents and research question were analyzed using frequency and percentages while the hypotheses were tested using inferential statistics of chi-square.

4.0 RESULTS AND DISCUSSION

While the sample consisted of four hundred respondents, three hundred and eighty-two questionnaires were correctly filled and retrieved; a return rate of ninety six percent (96%). This section presents the demographic information of respondents as well as answer to the research question and results of the tests of the hypothesis generated for the study.

4.1 Demographic Statistics of Respondents

Table 1 shows sex, occupation and education of respondents as follows.

Table 1: Distribution of Respondents Sex, Occupation and Education

Sex	**Frequency**	**Percent**
Male	100	26.2
Female	282	73.8
Total	382	100.0
Occupation	**Frequency**	**Percent**
Self employed/Business	61	16.0
Salary paid/private	70	18.3
Salary paid/government	31	8.1
Casual daily worker	47	12.3
Student	35	9.2
Housewife	51	13.4
Unemployed	34	8.9
Retired	53	13.9
Total	382	100.0

Source: Survey, 2018

The study administered interviews to different respondents on the various environmental pollutants impacting host communities in Rivers State Nigeria. The results are shown in Table 2.

Table 2: The Environmental *Pollutants* Impacting the Well Being of the Host Communities in Rivers State Nigeria

S/N	Pollutants	YES Freq. (%)	NO F req. (%)
1	Sewage spills	302 (79.1)	80 (20.9)
2	Climate change	321(84.0)	61(16.0)
3	Noise	303(79.3)	79(20.7)
4	The hole in the ozone layer	182 (47.6)	200(52.4)
5	Poor waste management (e.g. overuse of landfills)	209(54.7)	173(45.3)
6	Traffic/ congestion	366(95.8)	16(4.2)
7	Industrial heat emission	362(94.8)	20(5.2)
8	Chemicals wastes	361(94.5)	21(3.1)
9	Industrial fumes	370(96.9)	21(5.5)
10	Overpopulation (of the earth by humans)	368(96.9)	14(3.7)
11	Radioactive waste	362(94.8)	20(5.2)
12	Extinction of species	267(69.9)	115(30.1)
13	Using up the earth's resources	282(73.8)	100(26.2)
14	Air pollution	319(83.5)	63(16.5)
15	Pollution of rivers and seas	304(79.6)	78(20.4)
16	Flooding	360(94.2)	22(5.8)
17	Industrial dust	213(55.8)	169(44.2)

Source: Survey, 2018

As shown on Table 2, sewage spills, noise, poor waste management (e.g. overuse of landfills), traffic/ congestion, industrial heat emission, chemicals wastes, industrial fumes, overpopulation (of the earth by humans), radioactive waste, extinction of species, using up the earth's resources, air pollution, pollution of rivers and seas, flooding, industrial dust are environmental pollutants.

4.1.1 Hypothesis Testing

H_{01}: There is no significant impact of environmental degradation on the well being of the host communities in Rivers State Nigeria.

Table 3: Impact of Environmental Degradation on the Well-being of the Host Communities

Environmental Degradation	WELLBEING		Total	Chi Square Value	P Value	Decision
	HEALTH	ECONOMIC				
Excessive emission of carbon monoxide from industries	70(18.3)	34(8.9)	104(27.2)			
Inappropriate industrial byproducts disposal	32(8.4)	27(7.1)	59(15.4)	**93.000**	**0.00**	**Reject**
Excessive emission of heat from industries	17(4.5)	75(19.6)	92(24.1)			
Water pollution as a result of oil spillage	104(27.2)	23(6.0)	127(33.2)			
Total	223(58.4)	159(41.6)	382(100.0)			

Source: Survey, 2018

As shown on Table 3, with the p-value: 0.00 less than 0.05, H_{01} was rejected. This connotes that environmental degradation significantly impacts on the well-being of host communities in Rivers State Nigeria. Also, with the highest frequency of 127 and percentage of 33.2, most the respondents indicated that water pollution as a result of oil spillage impacted most on the well- being of host communities in Rivers State Nigeria.

4.2 Discussion

The findings of this study revealed that sewage spills, noise, poor waste management (e.g. overuse of landfills), traffic/congestion, industrial heat emission, chemicals wastes, industrial fumes, overpopulation (of the earth by humans), radioactive waste, extinction of species, using up the earth's resources, air pollution, pollution of rivers and seas, flooding, industrial dust were environmental pollutants. These pollutants resulted in environmental degradation which impacts the well being of host communities. As an oil producing region, oil spillage was one of the most outstanding causes of water and land or soil pollution while air pollution was mostly caused by gas flaring and industrial effluents (Emmanuel & Alakinde, 2006). The resulting ecological devastation as a result of oil exploration and related activities were enormous. Some of these were ecological degradation and pollution as well as associated human rights abuses and high inflation. Oil film in water prevented natural aeration killing fish and other aquatic lives, farm lands are lost. This results in loss of sources of livelihood while drinking water and air were made unsafe for human consumption. This finding show that oil spills caused major damage on farming which was the major occupation of the host communities; it tallies with the view expressed by (Ordinioha and Brisibe, 2013) that oil spills reduced the ascorbic acid content of vegetables by as much as 36% and the crude protein content of cassava by 40%, which results in a 24% increase in the prevalence of childhood malnutrition in the region. It further corroborates findings which revealed that drinking water in Ogoniland was found to contain a known carcinogen at levels 900 times above World Health Organization guidelines (United Nations Environment Programme 2011). Another study carried out by Adekola and Fischbacher-Smith (2017) pointed out that humans that come in contact with crude oil could be hemotoxic (destroying red blood cells) and hepatotoxic (destroying the liver), and could suffer infertility and cancer. According to Sajini (2011), one of the drivers of environmental degradation is the rise in the use of energy and human health and well-being is appreciably affected by resulting effects. The findings of the study showed that various diseases prevalent in the region could be traced to the effect of oil spills on the health of the host communities and this correlates with the view of Asthana and Asthana (2006) who asserted that malnutrition and diseases caused by contaminated environment, human wastes, airborne diseases form the core of the diseases in the region which directly impact the well-being of host communities. The study also revealed that oil pollution caused damage to agricultural land and

fish ponds. It could also result in long-standing ecological malfunctioning and poor environmental well being; it correlated with (Olujimi, Adewumi and Odunwole, 2011) who asserted that pollutions of rivers through oil spillage could resulted in massive extermination of fishes and thereby threaten the social and economic life of the communities whose livelihood depended on the contaminated water.

5.0 CONCLUSIONS AND RECOMMENDATIONS

It was observed through the study that decades of oil exploitation, exploration, and production activities in the Niger Delta have led to severe environmental degradation that has created complex problems in the region. The direct impact of oil exploration in the region has been seen in wellbeing of host communities. Some of these issues include ecological degradation, environmental pollution, associated human rights abuses, high inflation and loss of livelihood. Thus, this requires prompt intervention from the Multinational oil corporations operating in the region to find solutions to these environmental degradations. The following recommendations were proffered in the study.

i) The Federal Government should streamline the activities of the multinational oil corporations who have so far operated without environmental regulations to guide their activities in the region, in an attempt to limit the long-term impact of environmental degradation and ensuring that the statutory stipulations for mandatory Environmental Impact Assessment in accordance with the 1992 act, are strictly adhered to

ii) Multinational oil corporations operating in the region should cease all harmful and wasteful practices and engage in immediate clean-up of affected areas. They should compensate communities for the resources lost as a result of oil exploration and production activities, as well as for any other social and economic damages

REFERENCES

Adati, A.K (2012). Oil Exploration and Spillage in the Niger Delta of Nigeria. *Civil and Environmental Research* Vol. 2 (3): 38 – 51.

Adekola, J.L Moira Fischbacher-Smith and Denis Fischbacher-Smith (2017) Health risks from environmental degradation in the Niger Delta, Nigeria. *Environment and Planning Politics and Space*. Vol. 35 (2): 334 – 354.

Akpofure, E.A., M.L. Efere & P. Ayawei, (2000): The Adverse Effects of Crude Oil Spills in the Niger Delta. Urhobo Historical Society.

Asthana, D.K & Asthana, M. (2006): A text Book of Environmental Studies, S. Chand and Company, New Delhi

Delt, W. & Igben, J. L. 2012. Environmental Degradation. *Sacha Journal of Environmental Studies* Vol. 2: 70-80

Dodge, R., Daly, A.P., Huyton, J. & Sanders, L.D. (2012). The challenge of defining wellbeing. *Journal of Wellbeing*, *2*(3), 222-235.

Ekpo, S (2010). Environmental impacts of petroleum exploration and exploitation in Nigeria. In *International Journal of Environmental Issues* vol. 7 (1): 162 – 175, Ikot Ekpene, Development Universal consortia.

ElSarawy, M.M. (2016). Use of New Technique to Measure Wellbeing Index for North Africa Countries in Year 2012 (A Comparison Study). (Central Agency for Public Mobilization and Statistics, CAPMAS, Egypt).

Emmanuel A. A & Alakinde M. K (2006) Nature of Environmental Science. Monograph of department of Urban and Regional Planning.

Federal Ministry of Environment Abuja, Nigerian Conservation Foundation Lagos, WWF UK and CEESP-IUCN Commission on Environmental, Economic, and Social Policy, May 31, (2006). Niger Delta Resource Damage Assessment and Restoration Project

Gabriel, A.O (2004). Women in the Niger Delta: Environmental Issues and Challenges in the Third Millennium. www.jsd_africa.com

Nnaji, G. O (2012) Press Coverage of Environmental Pollution in The Niger Delta. A Content Analysis of the Guardian, Vanguard, Daily Sun and This day Newspapers. A Research Project Submitted to the Department of Mass Communication, University of Nigeria, Nsukka in Partial Fulfillment for the award of Master of Arts Degree in Mass Communication.

Ogula, D. (2012). Corporate Social Responsibility: Case Study of Community Expectations and the Administrative Systems, Niger Delta. *The Qualitative Report*, 17, 1-27.

Omojimite, B. U. (2012). Sustainable Development, Peace and Security in the Niger Delta Region. *European Journal of Social Sciences*, Vol. 28: 549-558.

Ordinioha, B & Brisibe, S (2013) The human health implications of crude oil spills in the Niger Delta, Nigeria: An interpretation of published studies. Nigerian Medical Journal: *Journal of the Nigeria Medical Association* Vol. 54 (2): 10 -21

Sajini, F.I. (2011): Population growth, Environmental degradation and human health in Nigeria, *Pakistan Journal of Social Sciences*, 8 (4):187-191.

Sharma, R. (2017). Global Youth Well-being Index. International Youth Foundation www.youthindex.org

Tolulope, A.O (2004). Oil Exploration and Environmental Degradation: the Nigerian Experience. International Information Archives, International Society for Environmental Information Science. EIA04-039, 2: 387-393.

Ukoli, M.K (2005). Environmental Factors in the Management of the Oil and Gas Industry in Nigeria. www.cenbank.org

United Nations Environment Programme. (2011) Environmental Assessment of Ogoniland. Nairobi. Kenya: United Nations Environment Programme

World Bank (1991). "Environmental Assessment sourcebook" Washington D. C World Bank Technical Paper.

World Health Organization. (1997). *WHOQOL Measuring Quality of Life.* Geneva: World Health Organisation.

Yang, L. (2017). Measuring individual well-being: a multidimensional index integrating subjective well-being and preferences. Centre for Analysis of Social Exclusion June 2017 London School of Economics, CASE/202.