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OIL EXPLORATION, AGRICULTURAL PRODUCTION, FOOD SECURITY AND LIVELIHOODS IN RIVERS STATE, NIGERIA

Nathan Udoinyang*[1], Enebimoere Oyinpreye-Appah[2], Favour Chizoba Sunday[1]

[1]Department of Economics, Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Rivers State Nigeria.

[2]Bayelsa Medical University, Bayelsa State, Nigeria.
*Corresponding author: Email: nathannathanudoinyang@gmail.com
*Corresponding author ORCID NUMBER: https://orcid.org/0009-0008-2457-3045

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ABSTRACT

This research looked at oil exploration on agricultural production, food security, and livelihoods in Rivers State. The study employed a mixed-methods approach, combining both qualitative and quantitative data collection and analysis methods. Through the use of purposive sampling technique, two (2) local government areas were selected from each of the three (3) senatorial district that made up the state making it a total of six (6) LGA's purposively selected from the twenty-three (23) LGA's that made up the state. The population consist of the entire population of Rivers State which was estimated by Census 2006 as 5,198,716. With the use of Taro Yamane formula, the sample size was reduced to 400 and questionnaire was distributed out of which 312 returned, with a mean criterion of 3.0, the statistical tools of the Statistical Package for the Social Sciences (SPSS) were used to analyze the study's research. The study found out that agricultural production, food security and livelihoods in Rivers State have all experience contaminated soil that's unsuitable for crop yields, pollute water, loss of fertile land for farming and living, decline in crop yields, loss of biodiversity loss and destruction of ecosystem, negligence of agricultural sector that result to food insecurity, economic loss of revenue, livelihoods and displacement of communities and traditional ways of life been disrupted as a result of oil exploration in Rivers State. The study concluded and recommended that government and oil companies should take steps to mitigate the impact of oil exploration on agriculture and rural livelihoods.

Keywords: Agricultural Production, Food Security, Oil Exploration, Rivers State.

I.INTRODUCTION

Rivers State, located in the Niger Delta region of Nigeria, is endowed with natural resources, including crude oil and fertile agricultural land. For decades, the state has been a major centre for oil exploration and production, with multinational oil companies operating in the region. However, the dominance of the oil industry has had a significant impact on the state's agricultural sector, leading to a decline in agricultural production and food security. Since 1956 when oil was discovered in Oloibiri community of the former Rivers State, now Bayelsa State, Rivers State has explored thousands and millions of barrels of crude oil till date. The oil industry in Nigeria has brought tremendous changes to the Nigerian economy over the past five decades, as it has replaced agriculture as a source of revenue for the Nigerian government [1,2].Before the advent of crude oil exploration in Rivers State Nigeria, the people of the region had a thriving economy with about 90% of the population productively engaged in economic activities such as artisanal fishing, agriculture, mat weaving, local gin making, boat building, palm wine exploitation, among others [3,4]. People travelled far and wide to carry out commercial transactions within and outside the state, especially fish marketing. The discovery of oil in commercial quantities and its exploitation in Rivers State in 1958 affected the once thriving ecosystem and economy of the host communities. The consequence of this intervention in oil exploration brought a shock to the local economy that led to a decrease in economic activities, especially in the agricultural sector, thus causing a decrease in crop production and of fish catches, increasing poverty and loss of well-being [5]. The incidence of poverty in Nigeria has been increasing since the 1970s, during the years of oil exploration. It increased by 11.2% between 1985 and 2002. About 55% of poverty cases are in the crude oil producing areas of Nigeria [6]. Agriculture was the main source of unskilled, semi-skilled and skilled employment before the discovery of oil in Rivers State. The agricultural sector, which provides a significant amount of food on which the livelihood of Rivers State largely depends, has been denied its rightful place in the state's growth pattern and Nigeria's overall economic development. Feeding an ever-growing population has become a challenge for the state government and the people of the state as a whole. The days when Rivers State, Nigeria was known for feeding its people comfortably and exporting various crops and fish to earn foreign exchange and increase national income during colonial rule are gone, but the same has not happened for Nigeria. It is clear that the lack of agricultural development is not a result of limited natural resources or lack of manpower. The history of agricultural development has demonstrated the essential role of government in promoting conducive policies and an enabling environment for the practice of agriculture.

First, the government promotes the growth and development of agriculture through massive budgetary and policy investments. Secondly, the government is working towards the development of agriculture by protecting farmers from foreign producers and providing incentives such as loans, fertilizers, etc[7]. But the problem is the contamination of crude oil in host communities which deprives the communities of profitable livelihood activities, especially agricultural activities [8,9]. In various parts of Nigeria, where mining activities are taking place, such as tin mining in Jos, Plateau State, gold mining in Ipinrindo, Osun State, and crude oil exploitation in the Niger Delta areas, there is evidence of pollution from these mineral resource exploration activities destroying the livelihoods (agriculture) of host communities [10,11]. These activities have led to the destruction of agricultural lands, unemployment, increased poverty, destitution, and conflicts between host communities and mineral exploration companies; an example is the case of the Niger Delta region of Nigeria, of which Rivers State is also a part [1,12]. This poverty assessment result gave a clear and distinct relationship between the loss and decline of agricultural livelihoods and crude oil exploration. Due to low agricultural incomes in the areas contaminated by crude oil, farmers have left their profession for another just to make ends meet, while others have stayed in the hope that the government will intervene and return their agricultural land to them. Although petroleum exploration in Rivers State has contributed positively to the economic growth and development of the state, it has also had a more negative impact on the agricultural sector of the state. The question now is to what extent has oil exploration affected agricultural activities in Rivers State? This study examines the relationship between oil exploration and agriculture in Rivers State with emphasis on the impact of oil exploration on agricultural production, food security and livelihoods in Rivers State. The study also explores the potential for diversification of the state's economy with an emphasis on agricultural development. Based on this, the researchers tend to study the impact of oil exploration on agriculture in Rivers State, Nigeria.

Theoretical Framework :

This research work is rooted in the big push theory, the environmental Kuznets curve theory and the pollution paradise hypothesis.

The Big Push Theory:

The research study is rooted in the "Big Push Theory". It is associated with Professor Paul Rosenstein-Rodan in his thesis notes on the Great Push Theory of Latin American Economic Development in 1961. The theory states that a large-scale global program is needed in the form of a significant amount of high minimum investment to overcome development obstacles in an underdeveloped economy and start the path of progress.

The theory also states that a piecemeal development program has failed to launch the economy on the path of development, but instead provides minimal support for a balanced growth theory for many sectors of the Nigerian economy, especially the agricultural sector which has been the worst hit. . . Due to the role of the oil industry in Nigeria's economic processes [3]), the theory further requires the inseparability of demand, production function and saving supply, which implies a high income elasticity of saving in countries around the world. The third is defined in the Rosenstein Roldan Postulate. A high minimum investment in the agricultural sector requires a high volume of savings from the national and public sectors of the economy ([14]. However, this level is difficult to achieve in an underdeveloped economy like Nigeria. This research work is rooted in the big push theory, the environmental Kuznets curve theory and the pollution paradise hypothesis.

Environmental Kuznets Curve (EKC) Theory:

The EKC theory as posits by Simon Kuznets [15] review that there is an inverted U-shaped relationship between economic growth (in this case, oil exploration) and environmental degradation (in this case, impact on agriculture). The theory suggests that as oil exploration increases, environmental degradation also increases but at a certain point further economic growth leads to a decrease in environmental degradation.

Pollution Haven Hypothesis (PHH):

The PHH theory as propounded by Walter Siebert suggests that multinational corporations (MNCs) tend to locate their polluting activities in countries or regions with weaker environmental regulations. In the context of oil exploration and agriculture in Rivers State, the PHH theory implies that oil companies may prioritize profits over environmental concerns, leading to environmental degradation and negative impacts on agriculture.

II.THEORETICAL LITERATURE

Udoinyang [16] examines oil: an impediment to economic diversification in Nigeria. The paper aims to demonstrate the relationship between oil and the Nigerian economy. The findings of the article show that oil contributes positively to the Nigerian economy in terms of increasing national income, as a major source of foreign exchange, creating job opportunities, raising living standards, providing infrastructure and economic growth. Furthermore, the study shows the negative effect of oil on the Nigerian economy which is: monomaniacal economy, changes the sense of values and reasoning of the people, causes political instability, laziness and obstacles to the economic diversification of the country in terms of neglecting the agricultural sector. , uneven development of other sectors of the economy, rural-urban pull, increase in corruption and illegal activities. The article therefore concludes that the Nigerian government must stop all

the negative effects of oil on the Nigerian economy to make it a great nation and also provides possible recommendations to diversify the Nigerian economy.

Eze et al [17] looked at the impact of oil spill on water quality and aquatic life in Rivers State, Nigeria. Using field observation and laboratory analysis, the study found out that oil spill significantly affected water quality and aquatic life. The study recommended that Government and oil companies should take measures to prevent oil spill and restore affected water bodies and concluded that oil spill has negative impact on aquatic life in Rivers State.

Adeyemi et al [18] examine assessment of the impact of oil exploration on agricultural land use in Rivers State, Nigeria with the use of survey and GIS analysis, the study found out that oil exploration significantly affected agricultural land use and went further to recommend that Government should provide support to farmers affected by oil exploration. Many research work has been done about oil exploration and agriculture but this study examines the nexus between oil exploration and agriculture in Rivers State with a focus on the impact of oil exploration on agricultural production, food security, and livelihoods in Rivers State.

III.METHODOLOGY

The study employed a mixed-methods approach, combining both qualitative and quantitative data collection and analysis methods. The study area was Rivers State, with a focus on the rural communities in the state. Through the use of purposive sampling technique, two (2) local government areas were selected from each of the three (3) senatorial district that made up the state making it a total of six (6) LGA's purposively selected from the twenty-three (23) LGA's that made up the state because of the specific characteristic found in these LGA's which is in line with the objective of this study and the population consist of the entire population of Rivers State which was estimated by Census 2006 as 5,198,716. With the use of Taro Yamane formula, the sample size was reduced to 400 and questionnaire was distributed out of which 312 returned. The study employed descriptive analysis with the use of questionnaire and content analysis with the use of interview and field observation. The questionnaire was administered to farmers and rural households to gather data on agricultural production, food security, and livelihoods. Percentage, mean criterion of 3.0, standard deviation and Cronbach alpha correlation was employed in analyzing the returned questionnaires.

Data Presentation and Analysis

Table 1. Sectorial Distributions of the Questionnaires

Senatorial District	Names of L.G.A	No. of L.G.A Selected	Names of Selected L.G.A	No. of Questionnaires Distributed and No. Returned
Central Senatorial District	Emohua Ikwerre Etche Omuma Port Harcourt Obio/Akpor Ogu/Bolo Okirika	2	Etche Ikwerre	66/50 66/61
West Senatorial District	Bonny Degema Asari-Toru Akuku Toro Ogba/Egbema/Ndoni Ahoada East Ahoada West Abua/Odual	2	Ahoada East Ogba/Egbema/Ndoni	66/46 66/51
South East Senatorial District	Andoni Opobo/Nkoro Gokana Khana Eleme Oyigbo Tai	2	Eleme Khana	70/57 66/47 **400/312**

Source: Authors Survey Compilation (2025)

IV.PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

Presentation of data

The data analysis is based on research objectives. Primary and secondary data were reviewed. In the main analyses, participants were identified according to demographic characteristics. Age, gender, marital status and all other demographic variables are calculated as percentages. In secondary analysis we use standard deviations and mean for descriptive statistics.

Table 2. Sociodemographic characteristics of Respondents

Sociodemographic Characteristics	Frequency	Percent
Gender		
Male	146	46.8
Female	166	53.2
Total	312	100
Marital Status		
Bachelor	124	39.7
Married	188	60.3
Total	312	100
Age Group		
25-35 years	60	19.2
36-45 years	83	26.6
46-55 years	70	22.4
Above 56 years	99	31.7
Total	312	100
Highest Level of Education Qualification		
FSLC/WAEC	163	52.2
NCE/ND	85	27.2
HND/BSC	42	13.5
MSC/PHD	22	7.1
Total	312	100
Total	312	100

Source: Authors Survey Compilation 2025.

Table 2 showed the details of the population. Among the 312 respondents, the majority of married which constitute of 60.3% of the total. The gender distribution is 166 females (53.2% of the total) and 146 males (46.8% of the total). The age distribution shows that most respondents are over 56 years of age; Similarly, when asked about their educational status among the 312 respondents, the highest respondents have FSLC/WAEC 163 (52.2%) and the lowest respondents have MSC/PhD.

Data Analysis

In order to determine the appropriateness of the research questions, the data of this study are presented and analyzed below using standard deviation, SPSS software and Cronbach Alpha correlation coefficient.

Research Question

What are the impact of oil exploration on agricultural production, food security, and livelihoods in Rivers State?

Table 3. Participants' views on the impact of oil exploration on agricultural production, food security, and livelihoods in Rivers State.

S/N	Factors	Mean	Standard Deviation	Decision
1	Oil spills and leaks from exploration activities contaminate soil making it unsuitable for farming thereby affecting crop yields.	**4.41**	**4.11**	**Very Good**
2	Oil spills also pollute water sources, affecting irrigation and drinking water for humans and animals in Rivers State.	**4.37**	**3.92**	**Very Good**
3	Oil exploration and production activities lead to the acquisition of large tracts of land, resulting in the loss of fertile land for farming and living.	**4.41**	**3.97**	**Very Good**
4	Oil exploration and production activities lead to the displacement of farmers, as their land is acquired for oil operations in Rivers State.	**4.11**	**3.81**	**Very Good**
5	Oil pollution lead to a decline in crop yields as contaminated soil and water affect plant growth in Rivers State.	**4.16**	**3.73**	**Very Good**
6	Oil exploration and production activities lead to changes in land use patterns, with agricultural land being converted to oil infrastructure and site.	**4.13**	**3.67**	**Very Good**
7	Oil pollution increase the cost of farming as farmers need to invest in new equipment and technologies to mitigate the effects of pollution in the state.	**4.07**	**4.17**	**Very Good**

8	In Rivers State, oil exploration and production activities lead to the loss of biodiversity as habitats are destroyed and ecosystems are disrupted in the state.	**4.31**	**3.89**	**Very Good**
9	Oil pollution also impact fish farming as contaminated water affects fish growth and survival in Rivers State.	**4.21**	**3.88**	**Very Good**
10	The impact of oil exploration on agriculture lead to negligence of agricultural sector that has result to food insecurity, as crop yields decline and farmers are displaced in Rivers State.	**4.34**	**3.88**	**Very Good**
11	The impact of oil exploration on agriculture also result to economic losses as farmers lose revenue, income and livelihoods on a daily basis.	**3.48**	**3.32**	**Very Good**
12	Communities are displaced and traditional ways of life are disrupted as a result of oil exploration in Rivers State.	**4.03**	**3.72**	**Very Good**
	Overall Average	**4.17**	**3.84**	**Very Good**

Source: Author's survey, 2025.

In Table 3 (1-12), the table aims to discuss the impact of oil exploration on agricultural production, food security, and livelihoods in Rivers State. As shown in the table above, the aggregate mean is above the mean criterion of 3.0. Additionally, based on all responses, the standard deviation is 3.84 and the total mean is 4.17. According to the findings, the respondents anonymous agreed that oil exploration have a negative significant impact on agricultural production, food security, and livelihoods in Rivers State, Nigeria.

V.DISCUSSION OF FINDINGS Responses to the research questions revealed the impact of oil exploration on agricultural production, food security, and livelihoods in Rivers State. Agricultural production, food security and livelihoods in Rivers State have all experience contaminated soil that's unsuitable for crop yields, pollute water, loss of fertile land for farming and living, displacement of farmers, decline in crop yields, conversion of farmlands to oil infrastructure and site, increase in the cost of farming, loss of biodiversity loss and destruction of ecosystem, decrease in fish farming, negligence of agricultural sector that result to food insecurity, economic loss of revenue, income, livelihoods and displacement of communities and traditional ways of life been disrupted as a result of oil exploration in Rivers State as seen in table 3. The result of this study is in line with the findings of Udoinyang [16], Eze et al [17] and Adeyemi et al [18] that oil exploration affects soil fertility and crop yield, lead to negligence of agricultural sector, decreases agricultural productivity, reduce water quality and also affect the use of land etc. Consequently, through the findings of the research question and the associated empirical literatures evidence, this study has been able to reviewed the impact of oil exploration on agricultural production, food security, and livelihoods in Rivers State which is the objective of the study.

VI.**CONCLUSION AND RECOMMENDATIONS**

Conclusion

This study has examined the nexus between oil exploration and agriculture in Rivers State, with a focus on the impact of oil exploration on agricultural production, food security, and rural livelihoods. The study has found that oil exploration has had a negative significant impact on agricultural production and food security, with a decline in agricultural production, loss of fertile land, water pollution, and a negative impact on rural livelihoods.

Recommendations

The study recommends that the government and oil companies should take steps to mitigate the impact of oil exploration on agriculture and rural livelihoods, including:

1. The government should develop policies and programs to support agricultural development in Rivers State, including the provision of credit facilities, extension services, and market access.
2. Oil companies operating in Rivers State should take steps to mitigate the impact of their operations on agriculture and rural livelihoods, including the implementation of environmental regulations and the provision of support to farmers and rural households.
3. The government should diversify the state's economy, with a focus on agricultural development, to reduce the state's dependence on oil revenue.
4. Oil companies need to perform detailed environmental impact assessments before starting exploration to identify and mitigate risks.
5. The government and oil companies should promote sustainable agricultural practices that can coexist with oil exploration and production, such as organic farming and agroforestry, to reduce the impact of oil exploration on agriculture.
6. The government and oil companies should provide adequate compensation and support to farmers affected by oil exploration, including provision of alternative land, seeds, and fertilizers.

7. The government and oil companies should establish a system for monitoring environmental pollution caused by oil exploration and take prompt action to address any environmental damage.
8. Oil companies should engage with local communities and involve them in decision-making processes related to oil exploration to ensure that their concerns are addressed.
9. The government should develop a policy framework and also implement environmental regulations to prevent water pollution and other environmental hazards so as to regulate oil exploration and ensure that it is conducted in a sustainable and environmentally-friendly manner.

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