

Impact of Shell and Exxonmobil's Operations on Agricultural Production and Food Security in the Niger Delta Region, Nigeria, 1958-2021

Tunde, Nicholas Eshioke^{1*}, Nduonofit, Okon Isana², David, Odo Okon³

Department of History and Diplomatic Studies, University of Abuja, Abuja, Nigeria

*Corresponding Author

DOI: <https://doi.org/10.47772/IJRISS.2026.100700483>

Received: 19 July 2026; Accepted: 24 July 2026; Published: 05 August 2026

ABSTRACT

The study examines the environmental and socio-economic consequences of the operations of Shell Petroleum Development Company (SPDC) and Mobil Producing Nigeria (MPN) and the impacts on the agricultural sector and food security in the Niger Delta region, Nigeria, from 1958 to 2021. With a specific objective of assessing agricultural production and local food supply in the pre-oil era and the extant time, the study utilized a multidisciplinary approach that integrates historical analysis, environmental science and political ecology by tracing the trajectory of the region from a self-sufficient agrarian economy to one defined by ecological degradation and food dependency. A mixed-design approach that combined qualitative and quantitative research techniques was employed to collect primary data from fieldwork and in-depth interviews, while existing scholarly resources, companies' disclosures and government reports formed the secondary data that were synthesized to obtain key findings. Findings reveal that oil spills, toxic emissions and deforestation caused largely by the operations of the two major International Oil Companies (IOCs) cause persistent contamination of land and water bodies, which results in a significant decline in crop yields and fish catch, leaving the residents of the resource-rich region to rely on imported expensive, processed foods. The study further assessed the Corporate Social Responsibility (CSR) initiatives of both IOCs, depicting them as "tokenistic" measures that fail to address the structural loss of livelihoods. The research concludes that the lack of stringent environmental safety enforcement and the ineffective industry's regulatory and governance framework have dispossessed local communities of their primary and natural productive capital assets.

Keywords: agricultural production, food security, Niger Delta, oil exploration and production.

INTRODUCTION

Background of Study

Shell Petroleum Development Company (Shell) and ExxonMobil (Mobil) are arguably the oldest and biggest International Oil Companies (IOCs) that have been operating in the upstream and downstream sectors, in either offshore and onshore locations of the petroleum industry in the Niger Delta region of Nigeria. Several studies have revealed that before the discovery of oil in 1956 and subsequent exportation in 1958, the people of the Niger Delta region were self-sufficient in local production of food crops and cash crops. The crops formed the main source of food needs and livelihood for the people, as well as foreign exchange for the government, as asserted by Udo (1970). This was further elaborated by Akanmidu (2015), when he held that as far back as 1558, cash crops were being exported from the region and by 1830, the Niger Delta, which now produces crude oil, had become the major source of palm oil and other major cash and food crops, which dominated Nigeria's export list for more than 50 years.

Unarguably, environmental and socio-economic impacts resulting from human interactions with the environment are commonplace in natural resource-dependent economies, but given the increasing awareness and the need to meet global agenda of the Sustainable Development Goals (SDGs), the place of agricultural production and food security has become a focus point (Sam et al, 2024). Increased agricultural production constitutes Goal number two (2) of the SDGs, which urges countries of the world to end hunger, achieve food security and improve nutrition, while promoting sustainable agricultural production. In the Niger Delta, Agriculture, which used to be the primary occupation, source of food and income for the people, has been left nearly comatose. The interactions with the environment by the oil companies have triggered operational oil spills, gas flaring and improper land use, which have resulted to significant damage to the environment and the region's agricultural ecosystem, with the erosion of soil fertility, effect on water quality and biodiversity, displacement of farmers, fishermen, hunters, loggers, tourists and other crafts (Uyigue *et al.*, 2025).

Research questions

Indeed, the decline in agricultural production and household food insecurity in the Niger Delta region has triggered a plethora of studies, some of which revolve around three different and distinct themes in environmental degradation, agricultural production and food security, yet, the challenges have remained, exposing traces of technological, evidential and practical gaps that necessitate further studies, upon which the study leverages to deliver adequate nuances that will address the following research questions:

- i. What was the level of agricultural production and food security before oil exploration activities of Shell and Mobil in the Niger Delta?
- ii. What are the operational impacts of Shell and Mobil on Agricultural production and food security in the Niger Delta and how best can the situation be addressed?
- iii. What is the effectiveness of the regulatory and governance frameworks in addressing the impacts?

Objective and significance of the study

The study intends to achieve its objectives by examining the activities of the Shell and Mobil and how they have caused a decline to agricultural production and food security in the Niger Delta region. By way of its significance, the study hypothesized themes by offering new and practical management strategies that will substantially impact on the manner the IOCs carry out the business of oil exploration and production in the region, in a way that will lessen and mitigate the damages on the environments and the livelihood of the host region, thereby enthroning a new regime of increased agricultural production, food security and sustainable livelihood. The study will further serve as an invaluable resource or pool of knowledge for further studies by scholars and researchers as well, particularly those in environmental diplomacy, agricultural sector, the oil industry, policy makers, as well as assist in the management of the environment by relevant state and non-state actors, towards a sustainable livelihood for the people of the Niger Delta region, even when the oil dries up.

METHOD

The method of the study was predicated on a mixed-design approach, combining qualitative and quantitative research techniques, with a narrative approach to outline how the activities of the IOCs have caused a decline in agricultural and food production in the region. This was intended to enable a comprehensive understanding of the complex interactions and impacts involved. A purposive selection was employed among some severely affected communities that include Ibeno, Obolo and Eket communities in Akwa Ibom state, Southern Ijaw and Ogbia in Bayelsa state, Uzere and Udu in Delta state and finally, Ogale and Kula communities in Ogoniland, Rivers State, being areas with over seventy percent of oil operations in the region.

Primary data were sourced in field observation and in-depth interviews of 40 respondents chosen from amongst a target population that include indigenous community leaders, farmers, researchers, agricultural and environmental experts, civil society groups, oil company representatives, relevant government authorities and other stakeholders in the selected areas. Out of the 40 participants, 10 Respondents were selected from each of

the affected communities of the four focal states that constitute the study locations (See table 3.1). The interviews were carried through one-on-one communication, while other responses were obtained via telephone conversations and other online communication channels. This was done to avoid a non-representative sample and minimize sampling bias, because using structured and unbiased sampling will ensure objectivity and validity of data accuracy that will yield reliable conclusions. Additionally, secondary data were sourced from existing academic literature, government records and reports and disclosures from agricultural agencies and oil companies. Also, the Coping Strategy Index tool was employed to assess and acquire data relating to the state of household food security of the population.

Theoretical and Contextual literature

Several research studies, including scholarly projects, with different theories and methods, have been carried out on the subject of the oil industry, the activities of the IOCs and the environmental concerns that impact on the traditional agricultural practices and food availability in the oil-rich region. However, the subject is still left with scopes that require further exploration and enrichments, hence this study is anchored on Political Ecology theory, which is premised on the ground that decline in agricultural production and food is not natural or accidental, but a deliberate case of resource accumulation and the unequal power play between human actions (such as the IOCs and the government in this case) and the oil-bearing communities. The theory aligns with and connects to operational degradation of the environment by the IOCs and lack of environmental justice, which has made the local communities vulnerable to agricultural decline and food insecurity as result of the interplay between the IOCs and the Nigerian state. While many studies have downplayed the politicization of this phenomenon, others have largely concentrated studies on the human security in the region, while food production and its security have been under studied.

The work of Babatunde (2017), reveals that studies on environmental degradation in the Niger Delta region are increasingly shifting attention to the human security challenges affecting the area, while agriculture, food production and security, significant components of human security, have received limited scholarly attention. Conversely, Loco (2015), whose work was also influential to this study, contends that the activities of the IOCs in the oil sector have actually had a significant impact on the provision of jobs for thousands of Nigerians and non-Nigerians for the past years. According to him, the jobs are direct and indirect in the oil sector; at the same time, the wealth generated from the oil sector, where the IOCs operate predominantly, is the main source of revenue generation in Nigeria and serves as a means of foreign exchange to the economy. The development of big Niger Deltan cities, such as Port Harcourt, Warri, Benin City, Uyo, Calabar, Yenagoa and almost all the advanced settlements in the country adorned with various developmental strides, are all largely products of money realized from oil. Failing to identify the negative implications of oil exploration on the environment, agricultural land and the people, Loco's position was focused solely on the positive impact of the activities of the IOCs, hence the need to build on it, in order to close the gap. This was why Iyanam, et al., argued that crude oil may have created a fortune for some privileged people and has helped to achieve impressive economic growth and development in the country, but little or no attention has been directed to the impact of its exploitation on the oil-producing communities, particularly as their agricultural lands and livelihoods are affected (Iyanam, 2021; Ubi, 2021 and Ero, 2021).

For Udo, the Niger Delta region had restricted productivity in agricultural practices due to the condition of the environment, or what McGregor Laird described as "a soil too poor to produce a ton of palm oil" (Ikime, 1980), a position that Okonta and Douglass disagreed with and countered that the ecosystem of the region, was hitherto (before oil exploration started) viable, self-regulatory and resilient (Okonta, 2001; Ike, 2001 and Douglas, 2001) but the land is now at the edge of the abyss due to the irresponsible explorative practices of the IOCs in the region, spearheaded by Shell, a company that has frequently tried to defend itself against the charge of being responsible for the largest oil spillage and pollution in the Niger Delta. According to Okonta et al (2001), Shell had, in its 2010 press release on environmental performance, made a highly dubious claim that "the most significant environmental damage from oil and gas operations in the region is through sabotage of facilities, resulting in oil spills". This was why Rexler (in Jonah, 2010), argued that playing this kind of blame game by such a company is untenable and unethical.

The argument for and against in the conversations on the impact of the operations of these oil majors in the Niger Delta has not only been highly thoughtful, but also stimulating, which has become a recurring issue with an avalanche of literature and the resentment it has generated all over the world. The literature and positions surrounding oil exploration and production in the region is extensive, yet the challenges have persisted. This is why in her work, “The Curse of Oil: Unpacking the Challenges to Food Security in Nigeria’s Niger Delta Region”, Babatunde (2017) held that “...it is important that studies equally examine the agricultural dimension of these challenges, including the cultural values attached to food which have been eroded by the impact of environmental...”. For Chijioke (2025), further research studies and actions are required to halt the exploitative and destructive practices of the foreign merchants, whose primary motive is hinged on how much they make from the exploitation and are indifferent to how much is destroyed in the oil exploration and production host locations.

The literatures and other resources in the conversation around the Niger Delta region and its dwindling agricultural occupation caused by the operations of the IOCs, although bogus and inspiring have largely left the issue of environmental degradation and the decline in locally produced food unaddressed and unanswered for over six decades of oil mining by Shell and Mobil, which gaps this study seeks to explore deeper through a rigorous, yet ethical engagement of well-informed population in the region and field observation to achieve the objective of the study.

Presentation and discussion of findings

In alignment with the method of the study, results of findings were obtained from the primary data of feedback of a Key Persons Interview (KPI) of 40 respondents and field observation reports to ensure first-hand information and unbiased situational data from the selected oil producing communities of key four states of the Niger Delta region that are hosts to oil fields and installations. The primary data were synthesized with relevant secondary data from existing literature, academic journal articles, textbooks, diaries, newspaper publications and websites, to formulate and substantiate adequate feedback to achieve the objective of the study, through a properly structured sequence of themes and subthemes. The data presentation is followed by discussions and impact analysis of the data.

Table 3.1: Summary structure of interview participants on the focused areas of impacts.

State	Selected Communities	Respondents	Focused areas of impact
Akwa Ibom	Ibeno, Obolo, Eket	10	i. Environmental degradation ii. Agricultural impact iii. Food security iv. Administrative and Regulatory limitations v. Socio-economic and livelihood implications
Bayelsa	Southern Ijaw, Ogbia	10	
Delta	Uzere, Udu	10	
Rivers	Ogoniland	10	
Total	General Area	40	

Source: Collated by researcher in the course of study, 2025.

The distribution of participants in the interview is as shown in Table 3.1, with 10 respondents, each from Akwa Ibom and Bayelsa, Delta and Rivers State. Well informed ten respondents from different backgrounds were selected using purposive technique across the country, all returning the feedback that constitute a significant part of the primary data used in the study.

Dimensionality of impacts

Relevant data obtained from both primary and secondary sources gave insight into how the Niger Delta region is impacted, which are multidimensional and borders on direct and indirect impacts, invisible and visible with

both positive and negative consequences. Finding aligns with existing literature and policy analysts that just as the operations of two major IOCs in the oil industry have brought some economic and socio-political development in the region, they have also constituted serious environmental and socio-economic nuances that have notably directly or indirectly impacted on agriculture and food sufficiency in the region. This informed the view of Rilwan Lukeman, former Minister of Petroleum in Nigeria, that petroleum has indeed brought good and evil things to the people of the Niger Delta region (Akanmidu, 2015)

Positive dimension of impacts

The study indicates that the people of the Niger Delta have benefited from the value-coated activities of the IOCs, with a more influential role coming from Shell and Mobil, based on the available socio-economic and infrastructural development of the country, which are borne out mainly from oil revenue. The positive impact touches directly on employment for a population of the region, capital infrastructural development, including the execution of tangible projects such as roads, schools and healthcare facilities, as well as technological transfer and empowerment of youths and women across the Niger Delta. This aligns with the argument of Ogagifo, that the huge foreign exchange oil yielded for Nigeria as well as the resultant surge in the employment it generated particularly among the natives of the host communities were reasons the sector should not be entirely denigrated (Oguntoye, 2019). Also, Apata observed that petroleum exploration and production in the Niger Delta, spanning over five decades, has risen to an unassailable height of the Nigerian economy, contributing the lion's share to gross domestic product, with the bulk of the country's revenue accrued from the foreign exchange earnings since the late sixties.

However, feedback from respondents, in agreement with existing literature, have declared that these developmental initiatives and infrastructure across the region cannot compensate for the erosion of agriculture, diminishing food supply and declining livelihood in the region. Adedipe (in Oguntoye, 2019) argued that in term of job creation, the capital-labour ratio in the oil industry simply reflects the operations of the oil companies and not in the relative expansion of employment, most of which are normally on a short-term contract tenure with terms and conditions that cannot guarantee a prosperous living, compared to what is accruable to the foreign personnel in the industry. He further argued that compared to other sectors, particularly Agriculture, the total employment created by Shell and Mobil and other all the IOCs (including employment by ancillary firms) represents only 1.3 per cent of total employment in the country, compared to Agriculture that employs over fifty percent of cumulative labour. A Report by the National Bureau of Statistics on Unemployment Rate for states of Nigeria in 2020, indicated that the states of the oil-producing Niger Delta region recorded some of the highest unemployment rates across the nation (Adedipe, 2004). The reason is obviously because agriculture that used to employ a large portion of the indigens is no longer attractive due to the devastation and infiltration of the farmlands.

Enthralling as the positive dimension of impact may seem, Gbadebo (in Ejiba, 2016) is of the view that the rapid development of the oil industry was accompanied by an equal economic growth and rapid environmental degradation, with far-reaching consequences for both the environment and agricultural practices, as well as the people's livelihoods. Azazi, a public affairs analyst is of the view that oil and gas exploration has indeed empowered some classes of people who are privileged dependents on the accruals from the operations of the oil companies, giving them privileged class and economic empowerment that has elevated their social status, while Agriculture as an occupation is repugnant to them. The cause of this phenomenon is not farfetched – the environment is no longer green, while the waters have turned black (Azazi, 2025).

Negative dimension of impacts

Both primary and secondary data obtained in this study indicated the primacy of agricultural production not only in the region, but across Nigeria, which was based on the fertile and productive lands, forests and rich water bodies, through which cash crops like palm oil and products, cocoa, rubber, timber and food crop such as grains, cassava, bananas, pineapples, yam, fruits and vegetables were produced in large quantities, while many people engaged also engaged in fishery(Igoni, 2018). Data revealed that forest and cash crops were exported for foreign

exchange earnings, while food crops served as a source of food and livelihood for the people. This traditional occupation made the region self-sufficient in food production and its availability. At the same time, Nigeria became a major exporter of cash crops, such as palm oil and its derivatives, cocoa and timber that were largely grown in the region.

A feedback of interview from Elder Otezi(2024), 82 years old from Uzere in Delta state and one of the Respondents, reminiscently captured the situation in the Niger Delta before oil exploration started, when he asserted that the environment was highly productive and greenish with wild economic trees dotting the landscape of his community and other parts of the region till the early 80s when the agricultural ecosystem, including farmlands and forests started to give signs of obvious deterioration as a result of the impact of spilled oil and toxic carbons that were emitted into the soil and the atmosphere. Aibakuro Warder(Obi, 2023), a 51-year-old mother of five and local farmer, resident in Ikarama community in Bayelsa state, explained tearfully that before the Shell oil spills that spoiled their farm lands, the yam harvest was bountiful, with some tubers growing up to three feet long, but most of the farmers now struggle to even feed or even pay the cost of their children's education with the meagre income generated from their low yields.

Mr. Effiong Ika, a fisher man and boat owner from Mkpanak, an Ibeno community hosting Mobil's oil facilities in Akwa Ibom state decried what he said has become like a norm to the community and said that the waters where they rely on for their fishery occupation has been polluted, resulting to the dearth of fish for a community where more than half of the people rely on fishing to survive. He further stated that the seas are not just affected, the water waves also wash the oil back to the land, as a result of which farmlands are damaged. Mr. Ika cried that such spills and damages to the sea and farmlands have become an annual thing, yet nobody does any to address this concern, whether for remediation, clean up or even compensation, nobody does, not even Mobil or the government (Umo, 2024).'

Operational degradation of the environment and farmlands

The actions and inaction of these giant oil companies, Shell and Mobil, who have been at the vanguard of oil exploration and production activities in the region and the role of the government, altered the environment, with adverse effects of oil spillages, gas flaring and air pollution, water pollution, poor industrial waste management, forceful land acquisition and misuse, leading to challenges such as depletion of soil, deforestation, loss of natural habitat and biodiversity, displacement of original inhabitants, including farmers, fishermen, hunters and tourists; conflicts and social vices, induced natural disasters and climate change effect, drought and decline in rainfall and temperature increase in most parts of the region. Data collection involves feedback of interviews from key informants, field work and existing resources and these largely aligned with the position of Lugard and Mr. Ika. The result identified the followings operational issues as major causes leading to the destruction of the environment, farmlands and pollution of waterbodies and the atmosphere. These were identified by respondents and blamed on the following:

Operational spills and blown-out leaks

Findings revealed that the major oil spill from Shell's oil facilities that impacted the environment occurred in 1970, around Ogoniland, in Bayelsa state, the eastern coastal part of the region. Studies by Obi (2024) found that spills of oil amounting to thousands of gallons dripped into farmlands and rivers, which Shell hinged on an error, a mistake for which it would only pay thirty years later, when it was faced with an eighty million-pound fine by Nigerian courts. Ajala *et al* (2025), asserted that the Niger Delta region has experienced over 7,000 oil spillages between 1970 till 2021, amounting to about 240,000 barrels of spilled oil per day, higher than anywhere in the world, with Shell and Mobil most culpable in this. This indicates that human-induced challenges are more common in this oil-rich region than in most other oil-producing areas of the world, according to Obida *et al* (2018).

Mr. Sunday Bipi (2024), a community leader and farmer revealed in an interview, that the major cause of the destruction of their farmlands and waterbodies is the effect of blowouts from old and corroded pipelines and the

human error or equipment failure on the part of the oil companies. This varying position has established that the major causes of environmental pollution and degradation are as a result of oil spillages and blowouts due to companies' equipment failures, operational accidents, substandard operational technologies, of which the oil companies, according to findings by Shay(2011), are complicit, while some rare cases, natural disasters. Maria Ootobo (2025), a widow and farmer in Bodo decried the inability of Shell to clean up and remediate their lands which fertility and productivity have been destroyed by oil spills from Shell's oil operations. According to Mrs. Ootobo, her husband was a successful farmer before his farmlands were destroyed by oil spills, which affected his ability to fend for the family, including payment of children's school fees and he eventually developed high blood pressure and lost his life due to family pressure and other related externalities.

Table 3.2: Agricultural Productivity Trends in Oil-Affected Niger Delta Communities (1990–2021).

Crop description	1990-2000 (t/ha)	2000-2010 (t/ha)	2010-2020 (t/ha)	2020- 2021(t/ha)	Total change	%	Trend
Yam	12.1	9.4	6.7	4.8	-60.3%		Declining
Plantain/Banana	14.7	11.8	8.4	6.1	-58.5%		Declining
Cassava	18.4	15.2	10.7	8.3	-54.9%		Declining
Oil Palm (fresh fruit bunch yield)	9.8	7.3	5.1	3.9	-60.2%		Declining
Leafy Vegetables (Varieties)	8.6	5.9	3.4	2.1	-75.6%		Declining
Fish Catch (kg/fisher/day)	12.3	8.7	5.4	3.1	-74.8%		Declining

Source: Primary data from feedback of interviews, Rivers State ADP production records and NOSDRA spill impact assessments reports, collated by Researcher, 2025.

Table 3.2 represents the trend of decline of selected cash and food crops spanning over a period of over four decades in the study locations of the Niger Delta. The result indicates that there has been a steady decline in yields per hectare of the selected crops. This shows the extent of damage to agricultural infrastructure (environments, forests, farmlands, waterbodies and farmers, etc) over the years of oil exploration by Shell, Mobil and other oil companies in the region.

Gas flaring and air pollution

Findings further revealed that the age-long disregard for the health of the environment in the region has made Nigeria notorious for being the biggest gas flaring nation in the world, as it accounts for twenty-five percent of all the gas flared in the world, where the global average flaring stands at 4% of total crude oil production; Nigeria's daily flaring in the Niger Delta averagely stands at 97% between 1970 to 1979 and slight decline to 51% from the years 2000 to 2004(Emued, 2021). This corroborates the World Bank report(1995) that Nigerian oil companies contribute more to global warming than the rest of the world put together.

Engr. Donald (2025), an Agricultural Scientist and Environmentalist, based in Eket, Akwa Ibom State, declared that the challenge of gas flaring to the environments and agricultural ecosystem in the Niger Delta region have some ominous and noticeable scars associated with the depletion of the natural resource base that the lives of the people depend on. The increasing oil explorations and productions by Mobil in the area with the attendant gas flaring, spanning over six decades, continue to put severe strain on the region's environment, forests, vegetation, crops and other natural resources.

Despite the position of Shell that it has achieved the industry minimum level of gas flaring reduction, Rosemary Odiboh, an educationist and small holder farmer in Ozoro, Isoko land, Delta state, reported that gas flaring from Shell's oil facility located around Jones Creek has continued to emit massive heat in with a temperature, which

studies have declared ranges between a minimum of 400^oc to as high as 1600^oC at average distance of 50 meters (Evans, 2025). This, according to her does not only affect their crops, the health of the locals is severely affected with a declining life expectancy and high child mortality rate (Odiboh, 2024). The problem of environmental pollution does not just affect the land and water, but also the emissions of poisonous substances such as CO₂, NO_x, H₂S and particulates into the atmosphere, which are hazardous to environmental safety and human health. Onyema, reporting the findings of the Canadian Public Health Association, revealed that gas contains more than 250 toxins, including mercury, benzene and arsenic, which are highly dangerous to human life (Onyema, 2018). This is because varied studies have revealed emissions do not only impact the environment, but the radiations from flares results to depletion of soil nutrients, leading to stunted growth and low yields of crops, as well as decline of microorganisms and destruction of vegetation.

Records of study from the Microbiology Department of Abia State University also revealed that the Niger Delta has over 200 gas flaring sites, some of which have been on fire for over thirty years non-stop. The World Wildlife Fund reported a dreadful gas flaring site belonging to one of the IOCs, located at its Ebocha Oil centre in Ogba/Egbema/Ndoni Local Government Area of Rivers state, where gas flaring has been ongoing, unabated since 1975(Onyema, 2018). Findings by Azaiki confirmed that the Niger Delta is one of the five most polluted areas in the world and this has seriously degraded the region's environment (Azaiki, 2003). Unregulated, indiscriminate, improper and illegal exploration and exploitation of petroleum resources have left most areas forest loss, biodiversity depletion, damage to marine flora and unhealthy and choking atmospheric conditions, leaving the region's agricultural ecosystem not only barren and unproductive, but with disastrous effects on the economy and health of the people (Onyema, 2018).

Table 3.3: The estimated distribution of gas flaring sites in the Niger Delta States

States	Onshore flares	Offshore flares	Total gas flares	% of flares
Akwa Ibom	1	24	25	41.25
Bayelsa	19	7	26	42.9
Delta	24	10	34	56.1
Rivers	43	10	53	87.45
Edo	7	-	7	11.55
Imo	9	-	9	14.85
Ondo	3	7	10	16.5
Abia	1	-	1	1.65
Total	107	58	165	

Source: Anejionu et al (2013)

Table 3.3 shows the magnitude of gas flaring arising from the different oil locations across the region. This indicates that Rivers, which host the highest flare sites is the most impacted with a proportional highest frequency of flares, followed by Delta and Bayelsa, the three states where Shell's operations dominate, while Akwa Ibom is rated the 4th with concentration of flare sites located mostly in the offshore oil facilities dominated by Mobil.

Inappropriate technologies and constructions

Babatunde's findings revealed that technologies that normally pose serious threats to the people and the environment, as well as biodiversity, are largely introduced and institutionalized in the region's vast ecosystem. For instance, canals constructed to float in heavy drilling equipment affect the hydrology of the seasonally flooded freshwater swamps and the brackish water of the mangrove forest, killing crops, destroying fishing grounds and damaging drinking water supply(Babatunde, 2014). Besides acquiring and taking over ancestral lands from the original local owners, the Niger Delta landscape is crisscrossed with a highly complex and haphazardly connected network of oil pipelines, including below and above water bodies, mangrove swamps, forests and around residential neighbourhoods. This has made the people, who are mostly farmers to live at the

mercy of the right-of-way regulatory framework, which the Nigerian government has deliberately enacted to facilitate operations for the IOCs.

Oil industry driven-population growth competing for land and food

The continuous increase in population in the Niger Delta is also a significant factor that contributes to environmental-related issues in the region, which comes with far reaching economic and socio-spatial and health implications. According to Isife (2012), the high rate of urbanization in the Niger Delta is put at 5.3%, which is among the highest in the world and this has the tendency to degrade the environments. Developments like this, have also contributed to the poor living conditions and the low livability index in most urban centers in Nigeria (Isife, 2012). According to Mabogunje (1988), the more the numbers, the more people are worried about what to get out of the environment to meet their needs, hence farmers begin to explore and exploit virgin forests not affected by oil spillages for crop production, hunters as well begin to hunt for wildlife and other natural resources, some of which have become extinct due to environmental impacts.

The Climate change effects due to emissions

Global warming due to emissions of Greenhouse Gases (GHGs) into the atmosphere and the pollution of the atmosphere due to release of harmful gases by the oil companies causes the depletion of the ozone layers and this result in environmental degradation. Accordingly, global warming leads to the rise in seawater level and soil erosion, flooding and drought while increase in ultra-violet radiation affects water bodies, endangers aquatic life, which support the food chain and causes death to fishes that are very vital to human (Etuonovbe, 2009). The gases emitted into the atmosphere include Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Carbon Hexafluoride (CF₆) and all the gases were clearly articulated in the Kyoto Protocol (Tunde, 2021).

Implications for agriculture and food production

Primary data obtained from respondents revealed that the operations of Shell and Mobil, two of the major IOCs, have caused a decline in agriculture and food sufficiency in the region. The responses indicated that before the commencement oil operations in the Niger Delta, there was high yields of food production in the region, which has seen a sharp decline from the present level of crop yields household food security. Agriculture returned high yields of a varieties of food crops, economic crops and fisheries. The region produced significant metric tons of oil palm, timber, coconut, rubber, grains such as rice, yam, cassava, fruits such as mangoes, pineapples, green vegetables and a lot more. Over 70 percent of the people, particularly the poor and vulnerable people, live in rural areas and depend mainly on agriculture for food and livelihoods, with some reports indicating that staple crop production in the region could feed the whole of West Africa then. However, over the years, the reverse has become the case due to factors which the primary and secondary sources of this study have attributed to activities around oil exploitation, exploration and production carried out by these companies, whose operational standards remain questionable, compared to operations in other oil-producing countries of the world. Feedback from interviews, field observation and secondary sources from the severely affected communities in Akwa Ibom, Delta, Bayelsa and Rivers states, which collectively account for over 85% of oil production in Nigeria and also bear over 70% percent of the environmental challenges (Eghosa, 2025), show decline in agriculture and livelihood.

Responses revealed that the challenges confronting the Niger Delta's environments and agricultural infrastructure are rooted in the age-long operations of the IOCs, started by the uncontrolled onshore and offshore oil exploration of Shell D'Arcy (Shell) and Mobil's largely offshore operations, which impact have diminished the safety of the environment and a decline agricultural output, a sector that was the source of household food and livelihood for the people. The responses as indicated in Table 4.1 shows that crop yields have been on steady decline over the years as fallout of the depletion of soil nutrient, water and air contamination and effects on plants. This position is in agreement with Table 4.1 where records of NOSDRA and some state development programs indicated that there has been steady decline in crop production and yields per hectare.

Implications for food security and livelihood

Low food production and output

The Oil spills mostly in the oil-producing areas of Nigeria continue to erode the fertility of arable lands and aquatic life. Oil spill impacts on the environment and ecosystem services have increased the poverty rate and displacement of people physically, mentally and job-wise. This is in alignment with the view of Kafada (2012), that oil spill impacts on the environment and ecosystem services have increased the poverty rate and displacement of people physically, mentally and job-wise. Findings from the Intergovernmental Panel on Climate Change (IPCC) showed that crop yields have reduced from 10 to 25% and this reduction will worsen by 2050 from climate change effects (Ouiminga, 2018). Also, a diminished purchasing power and economic decline generate grievances against the oil companies and state authorities, which often lead to unrest, escalating into conflicts such as social revolts, bunkering, kidnapping and communal crises (Chijioke, 2025).

Table 4.1: Agricultural Productivity Trends in Oil-Affected Niger Delta Communities (1990–2021).

Crop description	1990-2000 (t/ha)	2000-2010 (t/ha)	2010-2020 (t/ha)	2020- 2021(t/ha)	Total change	%	Trend
Yam	12.1	9.4	6.7	4.8	-60.3%		Declining
Plantain/Banana	14.7	11.8	8.4	6.1	-58.5%		Declining
Cassava	18.4	15.2	10.7	8.3	-54.9%		Declining
Oil Palm (fresh fruit bunch yield)	9.8	7.3	5.1	3.9	-60.2%		Declining
Leafy Vegetables (Varieties)	8.6	5.9	3.4	2.1	-75.6%		Declining
Fish Catch (kg/fisher/day)	12.3	8.7	5.4	3.1	-74.8%		Declining

Source: Data of collated by researcher from household crops yield interview data, Rivers State ADP production records and NOSDRA spill impact assessments reports, 2025.

Table 4.1 represents the trend of decline of selected cash and food crops spanning over a period of over four decades in the study locations of the Niger Delta. The result indicates that from 1990, there have a been a steady decline in yields per hectare of the selected crops. This shows the extent of damage to agricultural infrastructure (environments, forests, farmlands, waterbodies and farmers, etc) over the years of oil exploration by Shell, Mobil and other oil companies in the region.

Food insecurity and loss of livelihood

Food availability and sufficiency are now like a scarce commodity due to low output from agriculture. For the people to access a nutritious and adequate food supply, it would have to be from other climes or imported from overseas and even when imported, it may not get down to the people in the rural communities. Result of studies by Akanmidu (2015) revealed the plight of Chief Arigbabu Solomon, who lamented that agriculture has fizzled out of the land, making the region to rely on imported commodities from the international market. This position is in agreement with Saturday Otabor (personal communication, 2025), Port-Harcourt based businessman, who declared that they now import and sell more in the Niger Delta, commodities that used to be massively produced in the region, due lack of local production. He went further that most the imported goods are purchased mainly

by those who can afford such, while the rural farmers rely on the little and poor yields, they harvest from their degraded farm lands.

Most of these traditional practice and culture have been altered by oil politics and governance. Fentiman et al (2015), decried the impact of oil on the culture of Bodo community of Ogoniland in Rivers State, when she declared that environmental degradation has not only altered the landscape, but it has also potentially altered the ethnographic and cultural landscape of the people.

Table 4.2: Respondents' feedback of the food security in the affected selected communities in the Niger Delta region.

The affected study locations in state	Respondents Sample Size	Food secured %	Moderately food secured %	Severe food insecurity %
Akwa Ibom	10	20	20	60
Bayelsa	10	10	20	70
Delta	10	20	30	50
Rivers	10	20	20	60
Total	40	17.5	22.5	60

Source: Data collated from interviews by researcher in the course of the study, 2025

Table 4.2. shows the perception and experiences of household food availability in the study locations, using the Coping Strategies Index instrument, with 7 respondents (17.5 percent) of Respondents feel that there are no worries over food supply, while 9 persons (22.5percent) expressed a moderate lack of food supply. 24 Respondents (60 percent experiences severe food shortage. This shows that only 17.5% of those interviewed enjoy food security, 82.5% of the selected population experience one form of decline in meeting their household food needs in the selected host communities.

SUMMARY OF KEY FINDINGS AND CONCLUSION

From all indications, field observation and results from respondents that participated in the interviews, synthesized with extracts of data from secondary sources, indicate that the impacts of the activities of the IOCs on agricultural production and food security in the Niger Delta region are multidimensional. Firstly, the dimension of impact on the environment, caused by the recurring oil spills and gas flaring that have degraded ancestral farmlands and vegetation, water bodies, the atmosphere, as well as the health effect and displacement of the local communities.

Secondly, the effect of the degradation of the environment has led to the depletion of soil fertility, arable vegetation, aquatic life, resulting in decline in crop production and fish harvest, with a multiplier effect evident in the livelihoods of the people due to reduced income for the families, inadequate supply of nutritious and sufficient food, unemployment, social conflicts, psychological effect, forced rural-urban migration and on the third dimension, inappropriate governance, poor administrative efforts and initiatives have been marred by political interferences, slow judicial system, corruption, that would render the restoration or recovery of agricultural infrastructure and achieving food sufficiency a long walk, which require appropriate measures to mitigate.

Recommendations for policy makers

From the results of the study, the following recommendation are suggested for adoption for future actions:

The IOCs and all the players in the oil industry be strictly guided to observe and adhere to the provisions of the Polluter Pays Principle, as enshrined under Principle 16 of the Rio Declaration of 1992, which urges that those responsible for pollution should, in principle, bear the costs of measures determined by the authorities to address the consequences. The government of Nigeria should, in this case, come up with measures in line with international best practices, strengthen the existing laws and initiate practical measures to encourage and mandate proper management of the environment and remediation of the degraded agricultural infrastructure in the region, introduce and support modern agricultural practices, and enhance sustainable storage mechanisms for food and agricultural products.

- i. The IOCs be compelled as a matter of policy to restore all abandoned oil wells and fields, clean up and recover sizable portions of degraded lands for mechanized farming within a strict timeline.
- ii. The IOCs, in collaboration with the local communities, be compelled to engage in mechanized agricultural settlements for the production of food crops and modernized storage mechanism for the produces.
- iii. The Federal government of Nigeria should decentralize regulation and governance of the oil industry in the Niger Delta and empower the state and host communities to have a say on selections of companies and operational standards in the region.
- iv. Empower the local farmers with adequate funds and provide them with improved seedlings and technology that can withstand the effect of oil contaminations on crops and fishes.
- v. As a matter of actionable policy, Shell and ExxonMobil should be compelled to apply globally sanctioned preventive environmental standards in their operations.
- vi. Establish specialized oil operations-related Environmental Tribunal specifically to adjudicate on issues arising from oil operations between the host communities and oil companies, to ensure speedy dispensation of justice.

Compliance with ethical standards

ACKNOWLEDGEMENTS

All the people, including peer reviewers, authors and respondents, who in one way or the other contributed to the work are highly acknowledged.

Disclosure of conflict of interest

There is no conflict of interest with any person or authority.

REFERENCES

1. Adedipe, B. (2004, June 16). The Impact of Oil on Nigerian Economic Policies' Formulation. Paper presented at the Abuja conference on Nigeria: Maximizing Pro-poor Growth: Regenerating the Socio-economic Database, organized by Overseas Development Institute in collaboration with the Nigerian Economic Summit Group, Abuja, Nigeria.
2. Ajala, S. A., Tullis, P, M, Rossi M. & Sofiullahi A. (2025, August 4). Shell Exit exposes Niger Delta health crises, Gasoutlook. Available at <https://gasoutlook.com/long-read/shell-exit-exposes-niger-delta-health-crisis>
3. Akanmidu, P.I. (2015). A historical perspective of petroleum on Nigeria's economic crisis since independence. Global Journal of Human Social Science: E-Economics, Vol. 15(2), 17-24
4. Anejionu C.D.O., Blackburn, G.A. and Whyatt, J.D. (2013). Surveying and mapping of gas flares in the Niger Delta region, Nigeria with Landsat imagery tool. In: Lavers, C.R (Ed.), Recent Developments in Remote Sensing for Human Disaster Management and Mitigation- Natural and Man-made 2013 - Spotlight on Africa, 1(1), pp 83-99.
5. Azaiki, S. (2003). Inequities in Nigerian Politics: Niger Delta, resource control, underdevelopment and restiveness. Treasure Communications Resources Limited, Nigeria.

6. Babatunde, A.O. (2020). Local perspectives on food security in Nigeria's Niger Delta. *The Extractive Industries and Society*, 7(3), 931-939. <https://www.sciencedirect.com/science/article>
7. Babatunde, A.O. (2017). Challenges to Food Security in Nigeria's Oil-Rich Niger Delta Region. Accessed January 14, 2025. Available online at kujenga-amani.ssrc.org/2017/02/03/challenges-to-food-security-in-nigerias-oil-rich-niger-delta-region.
8. Babatunde, A.O. (2017). Life as an APN Alumnus: An Interview with Dr. Abosede Babatunde. African Peace Building Network, Social Science Research Council. Available online at: <https://kujenga-amani.ssrc.org/2017/12/13/life-as-an-apn-alumnus-an-interview-with-dr-abosede-babatunde/>
9. Babatunde, A.O. (2014). Oil, environmental conflict and the challenges of sustainable development in the Niger Delta. *Journal of Peacebuilding & Development*, JSTOR, 9(2), 77-82. <https://www.jstor.org/stable/48603491>. Accessed 25 Nov. 2025.
10. Chijioke, N. M., Ozobialu, B. C., Peretomode, E., Nwosu, J. C., & Nwokoro, E. C. (2025). Causes and Effects of Environmental Degradation in the Niger Delta and the Mitigation Measures that can be Implemented. *Saudi Journal of Humanities and Social Sciences*. 10(2).45-55. Available online at: <https://doi.org/10.36348/sjhss>.
11. Donald Ejuga, Agricultural Scientist and Engineer, 2025.
12. Eghosa, F. (2025, October 14). Nigeria's oil production by state - 85% from 4 states: The top oil-producing states in Nigeria, Interpoint. <https://intelpoint.co/blogs/nigeria-oil-production-by-state/>
13. Ejiba, I.V., Onya, S.C. & Adams, O.K. (2016). Impact of Oil Pollution on Livelihood: Evidence from the Niger Delta Region of Nigeria. *Journal of Scientific Research & Reports*, 12(5), 1-12.
14. Emued, C. & Emuedo, O. (2021). Asphyxiated by abundance: Oil activities and food insecurity in Nigeria's Niger Delta", *IAR Journal of Humanities and Social Science*, 2(1), 01-11.
15. Etuonovbe, A.K. (2009, May 3-8). The Devastating Effects of Environmental Degradation- A case Study of the Niger Delta Region of Nigeria. A paper presented at FIG Working Week 2009: Surveyors' Key Roles in Accelerated Development, Eilat, Israel.
16. Fentiman, A. & Zabbey, N. (2015). Environmental degradation and cultural erosion in Ogoniland: A case study of the oil Spills in Bodo. *The Extractive Industries and Society*, 2(4), 615-624.
17. Haladu A.(2025, May). The effects of IOCs performance in the Nigerian petroleum industry on environmental Disclosure, 5.
18. Igoni, A.H. (2018). Understanding the Niger Delta Environment for Sustainable Agricultural Mechanization, An Annual Public Lecture Presented by Engr. Dr. Asinyetogha Hilkihah Igoni at the 13th Annual Lecture and Awards Ceremony of the Nigerian Society of Engineers, Port Harcourt Branch, Port Harcourt, Rivers State, Nigeria.
19. https://www.researchgate.net/publication/327951694_Understanding_the_Niger_Delta_Environment_for_Sustainable_Agricultural_Mechanization?
20. Isife, T.C. (2012). Environmental Problems in Nigeria: A Review. *Sustainable Humna Development Review*, 4(1-2) 21-38. Available from: <https://researchgate.net/public>.
21. Iyanam, F.O., Ubi, O.U. & Ero, R. (2021). Impact of Multinational Oil Companies in Oil-Producing Communities in Niger Delta, Nigeria. *International Journal of Innovative Research and Development*, 10(2), 123-125. Accessed online at: www.ijird.com
22. Kadafa, A.A. (2012). Environmental impacts of oil exploration and exploitation in the Niger Delta of Nigeria. *Global Journal of Science Frontier Research Environment & Earth Sciences*, 12(3), 19-28.
23. Loco, S. (2015). Boosting the oil sector for economy. Unpublished Article.
24. Lugard, S.B. (2013). Environmental Rights (?) and development in the Niger Delta: Incongruent life partners or Reconcilable Adversaries? *Petroleum Technology Development Journal*, 3(2), 108-117. https://www.researchgate.net/publication/262487282_Environmental_Rights_and_Development_in_The_Niger_Delta_Incongruent_Life_Partners_Or_Reconcilable_Adversaries
25. Mabogunje, A. L. (1988). The debt to posterity: Reflections on a national policy on environmental management. In P. O. Sada & F. O. Odemerho (Eds.), *Environmental issues and management in Nigerian development* (17-26). Evans Brothers (Nigeria Publishers) Ltd.

26. Obi, O. (2023, May 19). Oil Among the Mangrove Trees: A Portrait of destruction in the Niger Delta, then and now”, Harvard International Review. Available at <https://hir.harvard.edu/oil-among-the-mangrove-trees-a-portrait-of-destruction-in-the-niger-delta-then-and-now/>
27. Obida, C.B., Blackburn, G.A., Whyatt, J.C. and Semple K.T. (2018, February). Quantifying the exposure of humans and the environment to oil pollution in the Niger Delta using advanced geostatistical techniques. *Environmental International*, 3, 32-42. Available at: <https://doi.org/10.1016/j.envint.2017.11.009>
28. Oguntoye, M.A. (2019). An Appraisal of the Impact of the Oil Sector on the Nigerian Economy, (A Masters Thesis University of Lagos, Akoka, Lagos).
29. Okonta, I., & Oronto, D. (2001). *Where Vultures Feast: Shell, Human Rights, and oil in the Niger Delta*, San Francisco: Sierra Club Books.
30. Onyema, A.F. (2018). Environmental Degradation and the Niger Delta Crises. *International Journal of Education and Social Science Research*, 1(6.), 200-208. Available at <http://ijessr.com>
31. Oronto, D. & Okonta, I. (2018, March 10). *The Niger Delta: A People and their environment: Europe's plunder of the Niger Delta dates back to 1444*, Verso Books. Available at: <https://www.versobooks.com/en-gb/blogs/news/3678-the-niger-delta-a-people-and-their-environment?srsId=AfmBOop83>.
32. Ouiminga, I. (2018). Profitability in a Sustainable agricultural production System: An Approach by the soil and water conservation. In A. Shimeles, N. Kassie, & A. Diao (Eds.), *Building a resilient and sustainable agriculture in sub-Saharan Africa* (pp. xx–xx). Springer. <https://doi.org/xxxxx>
33. Sam, K., Coulon F., & Prpich, G. (2015). Environmental and societal management of contaminated land in Nigeria: The need for policy and guidance changes. In: 4th International Contaminated Site Remediation Conference: Program and Proceedings. Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE), Melbourne, Australia (427–428). <https://doi.org/10.1007/s11356-024-32805-0>
34. Sam K., Zabbey, N., Vincent-Akpu, I.F., Komi, G., Onyagbodur, P.O. & Babatunde. (2024, March 14) Socio-economic baseline for oil-impacted communities in Ogoniland: towards a restoration framework in Niger Delta, Nigeria. *Environmental Science Pollution Research Int*, 31(17), 25671-25687
35. Shay, K. (2011, August 4). Shell Accepts Liability for Catastrophic Oil Spills in the Niger Delta. *Earth's Right International*. Available at: <https://earthrights.org/blog/shell-accepts-liability-for-catastrophic-oil-spills-in-the-niger-delta/>
36. Tunde, N.E. (2021, June). *The Green Diplomatic Summits and their Impacts on Nigerian Environment, 1972-2021* (Masters dissertation presented to the University of Abuja), 89.
37. Udo, R.K. (1980). *Environments and Peoples of Nigeria: A geographical introduction to the history of Nigeria*. In O. Ikime (Ed.), *Ground Work of Nigerian History*, 8. Historical Society of Nigeria, HEBN Publishers, Ibadan, Nigeria.
38. Umo, I. (2024, October 9). Oil spill: Akwa Ibom communities cry out over loss of farm lands and livelihoods, *Daily Trust*. <https://dailytrust.com/oil-spill-a-ibom-communities-cr-out-over-loss-of-farm-lands-livelihoods/>
39. Uyigue, E. & Agho, M, “Environmental Degradation in the Niger Delta: Resource conflict or development crises?” *Global Majority E-Journal*, 18(1), 58-72. In N.M. Chijioke, “Causes and Effects of Environmental Degradation in the Niger Delta and the Mitigation Measures that can be Implemented”, *Saudi Journal of Humanities and Social Sciences*, 2025. Available online at: <https://saudijournals.com>
40. Will, E. (2026, June 4). Companies are burning off more gas from oil fields, polluting the air and heating the planet. <https://www.theexamination.org/articles/gas-flaring-world-bank-2025>
41. World Bank (1995). *Industry and Energy Operations, West Africa Central Division: Defining an Environmental Strategy for the Niger Delta*, 1(2), 18.