

A Study of Environmental Operation Activities Associated with Oil Production in Niger Delta, Nigeria

PETER OLABIYI OLAWUNI¹, OMOTAYO BEN OLUGBAMILA², BANKOLE JOHNSON
OLUMOLA³, IGNATIUS ADELAKUN AKERELE⁴, TOLULOPE JOY ALADETOHUN⁵

^{1, 2, 4}*Department of Urban and Regional Planning, Obafemi Awolowo University
Ile-Ife, Osun State, Nigeria*

³*Department of Urban and Regional Planning, Adekunle Ajasin University Akungba-Akoko Ondo State,
Nigeria*

⁵*Department of Geography and Planning Sciences, Adekunle Ajasin University Akungba-Akoko Ondo
State, Nigeria*

Abstract- The influence of human activities on environmental degradation are enormous. In respect to Niger Delta, oil production activities have contributed significantly to environmental degradation in the region. Crude oil production activities serve as higher order services capable of creating ample direct and indirect job opportunities and infrastructure development especially to the host communities. However, as these activities are characterised by positivity, it equally have negative consequences on the physical environment. This study adopted multistaged sampling technique where the study area (Niger Delta) was stratified into Rivers, Delta and Bayelsa States. While the selected states were further stratified into Local Government Areas where oil production activities were dominant. Consequently, Ebubu-Elеме and Ogbagi (Rivers State); Olomoro and Oghara 1 (Delta State); and Bisemi and Iminringi (Bayelsa State) were purposely selected. Thereafter, 1659, 1512 and 1332 buildings were respectively identified in Rivers, Delta and Bayelsa States LGAs. Through systematic sampling, one out of every 10th (K=10) buildings in the selected communities were selected for the study. Thus, 453 questionnaire were administered on the household heads or its equivalent in the study area. Moreover, frequency table, percentages and photographic evidences were adopted for data analysis. The study established that oil production activities were complex and highly impactful (increased risks of erosion, land degradation and potential geophysical hazards such as minor seismic events and land subsidence) on the environment. These activities have constituting significant threat to the communities of the area. The major operational activities include drilling, oil exploration and crude oil extraction. It was equally revealed that the residents considered oil production as pride of their region. Thus, the government (federal, state and local) through her agencies should intensify efforts

on oil companies' responsiveness to environmental sustainability development in the area.

Keywords: Environmental degradation, operational activities, oil production, Niger Delta

I. INTRODUCTION

The Niger Delta Region of Nigeria is known for its beautiful vegetations, table landed soils, fertile for agricultural produce, farming and fishery activities. It is also associated with underground natural resources, oil and gas deposit, abundance of human and material resources. Prior to crude oil deposit and its consequent exploration activities the area has being subjected to environmental degradations of various magnitudes, due to technological mining methods, ecological unfriendly exploration of oil, deforestation and state policies that subverts the indigenous peoples of the Niger Delta from their natural rights of ecological habitation. These activities had caused serious environmental problems to the Niger-Delta Region, polluting their water and lands. The region is a typology of diverse ecosystems of mangrove swamps, fresh water swamps and rain forest currently characterised by complete contamination of surface and underground waters, deforestation and destruction of biodiversity and oil pollution, among others.

Aniefiok et al. (2013) opined that the livelihood of the indigenous people whose dependence on the ecosystem services for survival is been chattered by these extreme operational activities. Chijioke et al.

(2018) estimated the quantity of oil spills in Niger Delta, within 50 years of exploration to about 9-13 million barrels. However, one of the major operational activities that has both developmental benefits and detrimental consequences is crude oil exploration and exploitation. Oil exploration and exploitation started at different times in different parts of the world (Bayode et al., 2019). Crude oil related operations are the most obvious industrial activities in Niger Delta area of Nigeria. The oil industry has achieved remarkable success through enormous contribution to foreign exchange earnings which has transformed into various developmental projects in the country. However, the impact of this wealth is not visible on the townscape of communities where these resources are explored. For instance, revenue from the oil sector has been the mainstay of the provision of amenities and services in various parts of the country, but have been adjudged to be inadequate in the host communities (Odularu, 2008; Nnaji, 2013). A cursory look at the physical condition of neighbourhoods of host communities reveals huge deprivation of facilities such as paved roads, potable water supply, schools, sanitation infrastructure and electricity, among others (Omoredede, 2014). Nonetheless the fact that extraction of crude oil has also afforded the communities some benefits such as student scholarships, bursaries, environmental assets associated with oil exploration and amnesty programs (Shapiro, 2010; Kadafa, 2012); which serve as impacts of oil production in the host communities. Based on the foregoing, it is evident that studies (Collins et al., 2008; UNEP, 2011; Oladipupo et al., 2016; Enyoghasim et al., 2019) had been well conducted on the major impacts of the oil industries in the study area. However, few empirical evidence were available on the those specific oil producing operational activities and the activities that actually influence the stay of the residents in the area. Atimes, the activities that keeps the communities residents in the environmentally degraded areas might be more than the actual oil exploration. Thus, this study examined the operational oil activities and those other activities that enables the residents committed to their communities even in the light of environmental degradation. These were with a view to providing information on major activities surrounding oil

production and environmental degradation across the study area.

II. EMPIRICAL REVIEW OF THE OIL PRODUCTION OPERATIONAL ACTIVITIES

The activities involved in exploration of crude oil have significant impacts on the atmosphere, soils and sediments, surface and groundwater, marine environment, biological diversity and sustainability of terrestrial ecosystems (Apata, 2010; Akhionbare & Osuji 2013; Elum et al., 2016) This is because various gaseous pollutants, persistent organic pollutants, particulate matter and trace element and/or heavy metals are often introduced accidentally or through anthropogenic activities into the environment (Kampa & Canstans, 2008). Crude oil is a complex mixture made up predominantly of hydrocarbon compounds (Enyoghasim et al., 2019). It also contains significant amounts of nitrogen, sulphur, and oxygen together with smaller amounts of nickel, vanadium, and various elements. Compounds of crude oil can occur in solid form as asphalt, liquid form as crude oil and/or gaseous form as natural gas. Nevertheless, since the discovery of crude oil, associated environmental implication on quality of life has been a big problem which were largely associated with the operational activities in the area (Babatunde, 2010; Collins, 2018).

The exploration of crude oil involves surveying, clearing of seismic lines and massive dynamiting for geological excavation (Seismic testing) (Adati, 2012; Oladipupo et al., 2016). The explosion of dynamite in aquatic environment produces narcotic effect and mortality of fish and other faunal organisms. Also, the destabilisation effects of sedimentary materials associated with dynamite shooting increases turbidity, blockage of filter feeding apparatuses in benthic fauna, reduction of photosynthetic activity due to reduced light penetration. In furtherance of this, burying of oil and gas pipelines in the oil rich regions destroys the biodiversity ecosystems like rainforest, and mangroves. Apart from the reduction in habitat area, pipeline track delineates natural populations' socioeconomic and cultural setting. These results in changes to both the landscape and the socioeconomic, it equally influences its impacts

which stems from oil operational activities in the area.

The revenue from the crude oil has been the mainstay of the Nigerian economy over the years. Revenue emanating from the exploration of crude oil accounts for over 85 % of the Nigeria's gross domestic product (GDP), represents over 95 % of nation's foreign exchange revenues and contributes over 80 % of the government revenues (Aaron, 2005; Aniefiok et al., 2013). According to Wurthmann (2006) the cumulative sum of oil and gas production from the Niger Delta region by the government and multinational oil companies has generated an over \$600 billion since the 1960s.

Crude oil emergence has contributed immensely to the growth of the country. Nonetheless, communities where crude oil is mined have varying experiences ranging from devastating landscape, polluted environment in various forms (regular oil spillage, gas flaring down to other minute defects, such as deforestation, burning of fossil fuel, grazing, construction activities, industrialization, residential use of coal and wood for cooking among other uses) destruction of means of livelihood, inadequacy of social infrastructure etc. These have significant impact on environmental, human health and socioeconomic wellbeing and this in-turn influences the quality of life of residents in these areas. Many approaches have been developed for the management of environmental consequence of crude oil production activities. These have takes shape through formulation of several environmental laws and programs. However, the efforts had not yielded significant outcomes as the sight of the townscape of oil producing communities remain unappreciated.

III. MATERIAL AND METHODS

Study Area

The Niger Delta region is situated at the apex of the Gulf of Guinea on the west coast of Africa and on the Nigeria's South-South Geopolitical Zone (Haack et al., 2000; INEC, 2019). The Niger Delta, which is home to some 31 million people, occupies a total area of about 75,000 km² and makes up 7.5% of Nigeria's land mass (Young, 2012) . The Niger Delta region consists of 9 oil-producing states (Abia, Akwa Ibom,

Bayelsa, Cross River, Delta, Edo, Ondo, Imo and Rivers) and 185 local government areas. This region spans across over several oil producing communities with an extensive coverage of about 900 oil producing wells and several crude oil production related facilities (Osuji & Onojake, 2004). The ecological zones in the Niger Delta can be classified into tropical rainforest in the northern part of the Delta and mangrove forest in the warm coastlines. Mangrove forests and swamps, which are characterised by regular salt water inundation, lie at the centre of a complex and sensitive ecosystem which is vital to the local economy and accommodates important flora and fauna (Ugochukwu & Ertel, 2008). In addition, Figure 1.1 showed the location of the major states where large oil production operational activities were concentrated in the country. These states were Bayelsa, Rivers and Delta State.



Figure 1.1: Selected Niger Delta States in the Context of Nigeria.

Source: National Space Research and Development Agency (2026)

IV. METHODOLOGY

The study adopted multistaged sampling procedure in administration of questionnaire and observation of the physical condition of the oil production activities in the area. First stage involved the stratification of Niger Delta Region into three major oil producing states. These are Rivers, Delta and Bayelsa States. Second stage involved stratification of the selected states into oil producing LGAs where oil operational activities were dominant such as Eleme, Ogba/Egbema/Ndoni (Rivers State); Isoko South and Ethiope East (Delta State); and Yenagoa and Ogbia (Bayelsa State). The third stage involved purposeful

selection of notable oil producing communities directly experiencing severe activities of oil operations in the selected LGAs. The communities selected were Ebubu-Elеме and Ogbagi (Rivers State); Olomoro and Oghara 1 (Delta State); and Bisemi and Iminringi (Bayelsa State). Thereafter, 1659, 1512 and 1332 buildings were respectively identified in Rivers, Delta and Bayelsa States LGAs. The fourth stage was systematic sampling of 1 out of 10th (K=10) buildings in the selected communities of the study area. Across the communities selected total number of 4,503 buildings were identified. The details of the communities buildings were presented in Table 1.1. Across the communities 453 buildings were selected for the study. The selected 453 (sample size) buildings represented 10% of the total number of building identified in the study area. Thus, 453 questionnaire were administered on the household heads or its equivalent in the study area. Moreover, frequency table, percentages and photographic evidences were used to analyse the specific and dominant oil producing operational activities at play in the study area.

Table 1.1: Total and Selected Number of Buildings in the Oil Producing Communities

State/LGAs	Selected Communities	Total number of residential buildings	Number of selected residential buildings
Rivers Eleme	Ebubu - Eleme	889	89
Ogba/Egbema/Ndoni	Ogbagi	770	78
Delta Isoko South	Olomoro	797	80
Ethiope East	Oghara I	715	72
Bayelsa Yenagoa	Bisemi	653	66
Ogbia	Imiringi	679	68
Total		4,503	453

V. DISCUSSION OF FINDINGS

Operational Activities Associated with Oil Production in the Niger Delta

The processes of oil extraction and production are higher order activities that involves expertise, technological deployment and advancement, large expanse of land for machinery and physical syructure, funding and other direct and indirect services targeted towards successful job delivery. To this effect, several issues were discovered on the field, the following were however the documented operational activities that dominated the study area. These were drilling, oil exploration, chain processing, crude oil extraction, crude oil exploration, maintenance and repair and underwater construction. These operational activities in the region have occasioned several environmental degradation in the oil producing communities (Ejirefe, 2017). They have generated mixed feelings as to issue of pains and gains both at the national and the producing communities levels. Consequently, Table 1.2 documents the results of the identified operational activities of the oil companies in Niger Delta Region. In Rivers State communities, it was observed that many oil production activities are being carried out in the area. For instance, the major activities are, drilling, oil explorations and crude oil extraction (Plate 1a & 1b). The respective percentage ratio of these activities in the area are: 23.8%, 22.6% and 16.7% of the sampled respondents. In addition, 11.9% and 10.1% of the sampled respondents were of the opinion that maintenance/repair and processing were also among the oil production activities in the area. While the remaining respondents listed other oil producing activities to include, crude oil exploration (8.9%) and underwater construction (6.0%). In Delta State communities, it was noted that oil exploration (26.1%) and crude oil extraction (18.0%) dominated the area; followed by 16.2% and 15.3% of oil processing and drilling activities respectively. The remaining proportion of the respondents were of the view that maintenance/repair (9.9%), crude oil exploration (9.0%) and underwater construction (5.4%) in the area. It was observed in Bayelsa State communities that, 24.1%, 21.7% and 18.1% of the respondents respectively indicated oil exploration, drilling and crude oil extraction as mainstay of the oil a activities in the region. While 13.3%, 10.2%, 7.8%

and 5.4% of sampled population respectively accounted for oil processing, maintenance/repair, underwater construction and crude oil exploration in the area.

Across the Niger Delta Region, similar observation was experienced; oil exploration, drilling activities and crude oil extraction dominated the oil production activities in the study area. This implies that surface excavations and underground perforated holes would be evident in the study area. This condition is capable of inflicting further environmental casualties like tremor and landslide in the region. Equally, 12.8% and 10.8% of the total sampled population indicated the prevalence of oil processing and maintenance/repair activities in the study area. While the remaining respondents' population indicated crude oil exploration (7.6%) and underwater construction (6.5%) in Niger Delta Region. The above computed results revealed that many oil production activities were ongoing in Niger Delta oil producing communities. Majority of these activities are dangerous to community livability and also the marine habitats. Uchenna et al (2022) has recently established the devastating effect of oil exploration activities in the Niger Delta Region which have occasioned pains and benefits in the guise of industrialisation and its benefits; relative poverty proliferation; income inequality and insurgency, among others.

The outcome of the study equally revealed the preponderance of oil extraction activities across the study area. Recent studies corroborate this, emphasising that over six decades, oil operations have fundamentally altered the region's landscape. According to Sam et al. (2017), the physical disturbance of the terrain for seismic surveys, drilling and infrastructure development has directly contributed to increased erosion and landscape instability. In addition, minor, seismic events can be triggered by subsurface activities such as fluid injection and extraction, a process documented in various petroleum provinces, including the Niger Delta (Okoli, 2020). Anejionu et al. (2015) note that the combination of soil disruption, altered drainage patterns from road and canal construction and increased heavy precipitation linked to regional environmental change. In the aspect of oil processing

and equipment maintenance; the presence of processing and maintenance activities is intrinsically linked to the risk of spills and chronic pollution. Kadafa (2012) and recent study conducted by Peggy et al. (2022) highlighted a significant portion of oil spills in the region results not just from wellhead blowouts but also from the failure of aged and poorly maintained infrastructure, including flow lines, manifolds and processing facilities. These maintenance/repair activities are often responses to such failures or attempts to prevent them, yet the very infrastructure they service is a constant source of environmental threat.



Plate 1a: Oil Well in Oloibiri Community, Ogbia LGA, Bayelsa State



Plate 1b: Oil Well Activities and Facilities in Oloibiri Community, Ogbia LGA, Bayelsa State

Table 1.2: Operational Activities in the Study Area

Operational Niger		Study Area	
Activities		Rivers	(%)
Delta (%)	Bayelsa (%)	Delta (%)	
Drilling		40 (23.8)	17 (15.3)
	36 (21.7)	93 (20.9)	
Crude oil extraction		28 (16.7)	20 (18.0)
	30 (18.1)	78 (17.5)	
Oil exploration		38 (22.6)	29 (26.1)
	40 (24.1)	107 (24.0)	
Processing		17 (10.1)	
	18 (16.2)	22 (13.3)	57 (12.8)
Underwater construction		10 (6.0)	6 (5.4)
	13 (7.8)	29 (6.5)	
Maintenance and repair		20 (11.9)	11 (9.9)
	17 (10.0)	48 (10.9)	
Crude oil exploration		15 (8.9)	10 (9.1)
	9 (5.4)	34 (7.6)	
Total		168 (100)	
	111 (100)	166 (100)	445 (100)

Activities that Attract Residents to the Study Area

According to Uchenna et al. (2022), several factors that are responsible for inflow of people to oil producing areas of Niger Delta Region. These factors have necessitated population increase in the area through economic and several benefits accrued to oil production. These benefits in the region are summed up in the guise of various developmental activities that attract people to the area. As considered in this paper; these activities include, presence of crude oil, ancestral place, improved economy, presence of oil firms and family ties, among others. Thus, Figure 1.2 showed the results of the investigation into the various activities that attract people to oil producing communities of Niger Delta Region.

In Rivers State communities, ancestral home (98.40%); friendly and open people (98.30%); fishing and related jobs (97.0%); and presence of oil companies (97.0%) constituted the highest percentage values of the activities prevalent in the area. Equally, majority of the respondents were of the opinion that, presence of crude oil trade (96.9%), presence of crude oil (95.40%), work proximity (88.4%) and safe neighbourhood (83.1%) also dominated the area. On the other hand, 78.0%, 77.01% and less than half (40.0%) of the

respondents' population respectively accounted for presence of creeks and woods; improved economy and family tie in the area. This implied that few respondents were being attracted to the area based on family relationship. The major community magnet in the area were attributed to oil production activities and the status of the economic development in the area.

In Delta State communities, the respondents documented their opinions as regards the major activities that attract the people into the area. It was observed that, 98.1%, 96.4%, 94.5% and 93.2% and 93.20% of the respondents in the area, respectively indicated the prevalence of friendly and open people; ancestral home; presence of crude oil; fishing and related jobs; and presence of oil companies' activities in the area. While crude oil trade (89.70%); improved economy (69.90%); work proximity (69.10%); closeness to creeks and woods (68.0%); and family ties (56.0%) activities were equally accounted for by the respondents in the area. Similar pattern was observed in Delta communities, and the least of the activities that attracted people to the area was family ties. The others include the crude oil activities and the economic of the area.

The Bayelsa State communities were also probed on the issues responsible for population inflow into the area. It was documented by the respondents that majority of the sampled population were attracted to the area through ancestral home (98.4%); fishing and related jobs (96.5%); crude oil trade (93.2%); and improved economy (87.2%). While some respondents in the sampled population believed that, safe neighbourhood (85.4%); work proximity (79.3%); presence of oil companies (75.0%); and presence of crude oil (74.2%) in the area often attract population into the area. The remaining proportion of the respondents accounted for activities like: friendly and open people (72.40%); family ties (72.0%); and closeness to creeks and woods (60.0%).

Aggregately, the opinion of the respondents revealed that majority were of the views that ancestral home (97.7%); fishing and related jobs (95.6%); and crude oil trade (93.4%) dominated the activities that attract people to the study area. In the same vein, many of the respondents indicated varying proportions of,

friendly and open people (89.6%); presence of oil company (88.4%); presence of crude oil (88.0%); and work proximity (78.9%) in the sampled population of the respondents. Further statistical analysis also indicated the presence of safe neighbourhood (78.3%); improved economy (78.0%); closeness to creeks and woods (68.7%); and family tie (56.0%) activities in the study area. The outcomes of the dataset revealed that the major activities that attracts people to the Niger Delta Region include, their ancestral home; fishing and related jobs; crude trade; and presence of crude oil companies in the study area. The study conducted by Okumagba (2011) was in line with the present study that an aspect of the major activities that attract people was presence of oil companies and its allied benefits in the Niger Delta Region.

The finding showed that 97.7% of respondents identified their ancestral home as a primary attractor strongly aligns with sociological survey on identity and belonging in the Niger Delta. Scholars have extensively documented that connection to ancestral land in this region transcends sentiment, serving as a cornerstone of ethnic identity and patrimonial rights (Bassey, 2012; Essien, 2015). This concept is often tied to the son of the soil phenomenon prevalent in Nigerian migration studies, where urban dwellers maintain strong rural ties for reasons of inheritance and cultural fulfillment (Okoko, 2020). However, the comparatively lower score for family ties (56.0%) introduces a nuanced perspective consistent with migration literature, suggesting that while the abstract concept of the ancestral homeland remains sacred, the practical realities of family dynamics may be strained by economic migration and resource competition (Albert, 2019).

From the perspective of fishing and other related jobs (95.6%), it was revealed that persistence of fishing has been a major pull factor in the region. Despite decades of oil exploration, fishing and other water activities have boosted blue economy which remains fundamental to nations development. Though, the waters bodies in the area are often degraded by industrial effluents distorting community source of livelihood and settlement patterns (World Bank, 2020). It also reinforces the fact that environmental resources continue to dictate population distribution,

even in resource-rich regions such as Niger Delta (UNDP, 2022).

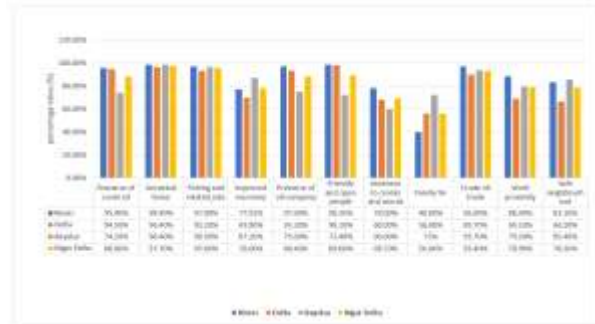


Figure 1.2: Activities that Attracted Residents to the Study Area

Oil Production Activities and Residents' Sense of Pride

The earth is endowed with natural resources, its sustainable use improves inclusive community development. It represents a formidable urban magnet for various aspects of spatial development (Venables, 2016). This is often being manifested in the guise of developmental operational activities. These activities (crude oil) serves as sense of pride to the host communities. The major crude oil company activities identified in the study area, include: presence of oil firm, opportunity to oil firms, oil infrastructure, national oil well, good urban design and population increase. The latter are sense of pride to the Niger Delta Region, they hinged on the presence of the oil companies in the study area. In this study, the residents were investigated on the extent of their agreement with sense of pride' variables identified on account of oil deposits in the Niger Delta Region. For clarity, only the agreement value of the respondents were discussed. Thus, presented in Table 1.3 is the outcomes of the sense of pride attached with presence of oil companies in the study area.

In Rivers State communities, it was observed that equal percentage (89.3%) of the presence of oil firm and population increase by respondents were accounted for in the communities. In addition to the latter are the oil infrastructure (88.1%) and opportunities to oil firms (82.1%) in the area. While the remaining proportions of the sampled population indicated national oil well (81.5%) and good urban

design (77.4%) sense of pride in the communities. Moreover, majority of the respondents in Delta oil producing communities were of the views that opportunities to oil firms (63.1%) and presence of oil firms (60.4%) sense of pride dominated the communities. In essence, half of the respondents, 53.2%, 53.1% and 52.4% respectively indicated oil infrastructure, population increase and national oil well sense of pride in the area; while less than half (45.2%) of the sampled population indicated good urban design in the area. Similarly, majority of the respondents showed that oil infrastructure and presence of oil firms were the most frequent sources of pride in the area. Equally, 78.3%, 73.4% and 70.5% of the respondents respectively accounted for opportunities to oil firms, national oil wells and population in the area. While 68.1% of the respondents showed that good urban design was also accounted in the area.

Across the Niger Delta communities, it was discovered that 93.7% and 90.6% of the total respondents indicated that oil infrastructure and presence of oil firms dominated the study area (Plate 2). In the same vein, 87.2%, 86.7% and 84.7% of the sampled respondents were of the views that opportunities to oil firms, good urban design and notional oil well were among the prevalent pride of Niger Delta communities. While 80.0% of the respondents equally accounted for population increase in the study area. The above computed figures indicated that the residents in the study area takes pride in majority of the identified oil operational activities in the study area. The finding that a vast majority of respondents (93.7% and 90.6%) acknowledge the dominance of oil infrastructure and firms in the Niger Delta landscape is consistent with extensive documentation of the region's physical and economic transformation. This visual and physical prevalence is a direct consequence of decades of resource extraction. Okpara (2020) similarly noted that the landscape of the Niger Delta is characterised by a dense network of flow stations, pipelines and wellheads, fundamentally altering the traditional land use and livelihoods of host communities. The presence of these infrastructures is not merely a physical reality but a constant reminder of the region's role in the national economy.

The sense of pride associated with opportunities from oil firms (87.2%), good urban design (86.7%) and notional oil wells (84.7%) presents a more complex narrative. This pride can be linked to the concept of petro-citizenship or the expectations of modernity and development that oil wealth promises. Agbonifo (2021) argues that despite widespread grievances, many community members initially view oil companies as agents of development and modernity. The presence of oil wells and related infrastructure can be a source of local prestige and is often associated with expectations of employment, community development projects and infrastructural improvements that are perceived as markers of good urban design and progress (Idemudia, 2020). This finding suggests that community identity is intertwined with the oil industry's presence, a phenomenon also observed by Obenade and Owei (2022), who found that local perceptions of oil wealth are often tied to visible, albeit sometimes inadequate and physical development phenomenon. However, this pride exists in a delicate and often contradictory balance with the lived realities of environmental degradation.

The 80.0% of respondents noting population increase is a critical factor that often exacerbates this tension. In-migration in search of oil-related employment and economic opportunities is a well-documented driver of population growth in resource-rich enclaves (Watts, 2018). This influx strains existing social amenities and infrastructure, potentially undermining the very good urban design the residents take pride in and leading to increased competition for the limited opportunities provided by oil firms. The pride in the industry's presence, therefore, coexists with grievances over resource control, environmental pollution, and underdevelopment, a paradox central to the region's persistent conflicts (Ibaba & Ikelegbe, 2019).



Plate 2: Presence of Oil Infrastructure in Ogbagi Community, Eleme LGA, Rivers State

Table 1.3 Residents' Sense of Pride in the Study Area
 Study Area: Operational
 Sense of Pride

Area (%)	Disagreed (%)	Activities Total (%)	Agreed
POF	150 (89.3)	18 (10.7)	
	168 (100)		
Rivers State	20 (11.9)	168 (100)	148
	31 (18.5)	168 (100)	137
(77.4)	38 (22.6)	168 (100)	130
	18 (10.7)	168 (100)	150
Delta State	41 (36.9)	111 (100)	70 (63.1)
	52 (46.5)	111 (100)	59 (53.2)
(81.5)	23 (47.6)	111 (100)	88 (52.4)
	35 (54.8)	111 (100)	76 (45.2)
(89.3)	22 (46.9)	111 (100)	89 (53.1)
(81.9)	30 (18.1)	166 (100)	136

(78.3)	36 (21.7)	166 (100)	130
Bayelsa State	26 (15.7)	166 (100)	140 (84.3)
	44 (26.6)	166 (100)	122
(68.1)	53 (31.9)	166 (100)	113
	49 (29.5)	166 (100)	117
(90.6)	42 (9.4)	445 (100)	403
	57 (12.8)	445 (100)	388
Niger Delta	28 (6.3)	445 (100)	417
	68 (15.3)	445 (100)	377
(86.7)	86 (13.3)	445 (100)	359
	89 (20.0)	445 (100)	356

Note:

- Presence of oil firm = POF
- Opportunity to oil firms = OOF
- Oil infrastructure = OI
- National oil well = NOW
- Good urban design = GUD
- Population increase = PI

VI. CONCLUSION

This paper examined the environmental degradation and operational activities associated with oil production in Niger Delta, Nigeria. It was established that oil extraction and production activities in the Niger Delta Region are extensive, complex and highly impactful on both the physical environment and socioeconomic conditions of host communities. The major operational activities include drilling, oil exploration and crude oil extraction. The dominance of these activities showed the widespread surface and subsurface disturbances (land excavation, infrastructure development and subsurface fluid manipulation). These operational activities possessed a significant impact on environmental stability as they are associated with increased risks of erosion, land degradation and potential geophysical hazards such as minor seismic events and land subsidence.

However, oil production remains a critical driver of economic development. The intensity and nature of oil production operational activities in the Niger Delta needs more stringent environmental management, improved infrastructure maintenance and stronger regulatory oversight. Without deliberate and sustained intervention, the long-term environmental and socioeconomic costs may continue to outweigh the perceived benefits of oil exploitation in the region.

However, the variation in responses across Niger Delta communities highlights that infrastructure facilities are not entirely uniform, pointing to differences in the distribution of benefits and developmental outcomes. While a majority express pride in oil-related activities, this sentiment coexists with underlying complexities, including uneven development and implicit concerns about sustainability. Although oil exploration activities foster a considerable sense of pride and identity among host communities, such perceptions are embedded within a multifaceted reality. This reality reflects both the tangible benefits of resource-driven development and the need for more inclusive, balanced, and environmentally sustainable approaches to ensure long-term community well-being in the Niger-Delta region. Thus, the government at federal, state and local levels should form a synergy on how oil production companies would be further accountable to the environmental problems caused by the oil operational activities in the region. In addition, the State Governments should intensify effort on prudent utilisation of the public fund aimed towards community infrastructure development. Equally, the major operational oil production activities capable of causing large environmental degradation should reviewed in conjunction with ministry of environment and the companies involved in these activities.

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