



Impact of Oil Pipeline Transportation and Vandalization on Economic Development in Ikwerre Local Government Area, Rivers State, Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

This study is on the impact of pipeline transportation and vandalization on economic development in Ikwerre Local Government Area of Rivers State. Pipeline transportation is the preferred means of transportation of petroleum products in Nigeria. Significantly, this mode of transporting petroleum products has also become a major source of concern in that it appears to negatively affect the economic development of communities in the Niger Delta region. The study therefore, explores the impact of pipeline vandalization on economic development of Ikwerre Local Government Area. The methodology is qualitative. Data for the study is sourced from text books, newspapers, magazines, journals, periodicals, and documented materials. The findings highlight that the damage from pipeline operations has become chronic and cumulative and has compromised livelihoods and

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health of the impoverished communities leading to further economic under-development. The study recommends adoption of effective sustainable reforms to encourage responsible petroleum transportation activities in ways that will discourage vandalization and positively influence economic development of host communities in the near and long term.

Keywords: Pipeline; transportation; vandalization; economic development; Ikwerre LGA; Niger Delta.

1. INTRODUCTION

In Nigeria, pipeline transportation commenced with the discovery of oil in 1956 in Oloibiri community in present day Bayelsa State [1-3]. Few years after this discovery, the petroleum industry expanded and pipelines become established as a critical infrastructure for smooth transportation, distribution and marketing of large volumes of petroleum products in Nigeria. As such, petroleum and associated products began to be transported through an extensive network of pipelines that run across different locations throughout the country, from very remote to very populated areas. The increased demand for oil and natural gas, rise in offshore production and the demand for cheaper methods of transportation encouraged the Nigerian government to accelerate the process of increasing the network of pipelines for transportation of petroleum products.

However, although pipeline transportation remains pivotal to the running of the petroleum industry, and by extension, economic growth in Nigeria, concerns have been raised by residents of the Niger Delta, activists, scholars, etc., on the impact of pipeline transportation, and the associated ubiquitous incidences of pipeline vandalization, on economic development in communities in which they are found [4-6]. The outcomes of pipeline transportation activities tentatively appear to have undesired impacts on the lives and existence of the people within the communities in the Niger Delta region. The impact on the economy of communities, particularly with the advent of pipeline vandalization, have further aggravated the concern of many as noted by Ugochukwu and Ertel [7]; Emoyan [8]; Emmanuel and Gordon [4]; Eyring et al. [9]; Oshienemen et al. [6].

In particular, the impact on communities in Ikwerre LGA has continued to attract serious concern. This study therefore, explores the impact of pipeline transportation and vandalization on economic development in Ikwerre LGA in Rivers State. This study is motivated by the interest surrounding this mode

of transportation of petroleum products and how this means of transportation affects economic development of communities in the Niger Delta. Ikwerre Local Government Area of Rivers State has been selected as the area of concentration because several Multinational Oil Companies (MNCs) operate oil facilities and pipelines in the LGA. The LGA is also among the LGAs in the Niger Delta where incidences of pipeline vandalization have become seemingly endemic.

2. STATEMENT OF THE PROBLEM

In the first instance, the enormous oil and gas resources located in the Niger Delta have continued to draw national and international focus due to claims of challenges it continues to pose to economic development in communities in the region. These claims are not removed from the impacts of pipeline transportation and vandalization in these communities. When improperly managed, transportation of oil and gas through pipelines is believed to have the potential for adverse impact on economic development. As a matter of fact, some studies [10-13] have been carried out on pipeline transportation and vandalization, the findings of which highlight that both activities appear to exacerbate threatening conditions in the Niger Delta and diminish the likelihood of attaining substantial economic development goals for the indigenes of the impacted communities. Therefore, this study evaluates this claim and assesses the impact on the economic development of Ikwerre Local Government Area of Rivers State.

3. OBJECTIVES OF STUDY

The primary objective of this study is to determine the impact of pipeline transportation and vandalization on the Niger Delta area of Nigeria. Based on the above aim, the specific objectives of this study are stated below as follows:

1. To examine the impact of pipeline transportation on economic development

of communities in Ikwerre Local Government Area.

2. To assess the impact of pipeline vandalization on economic development of communities in Ikwerre Local Government Area.

4. SIGNIFICANCE OF THE STUDY

This study has the following theoretical and practical significances: Theoretically, an understanding of the prevailing quality of life of 'pipeline communities' will serve as a compass for the government and oil companies to develop and implement appropriate strategies for securing economic development for impacted communities. This will help reverse the ongoing ineffectual effort to address issues emanating from pipeline transport networks which has made it difficult to adopt and administer more integrated solutions veritably designed to optimize the quality of life of people in pipeline communities. Practically, it will emphasize that unless more integrated solutions, designed to optimize the economic development of people in pipeline communities in the Niger Delta, is given top priority, the government and oil companies will find it difficult to gain and sustain any commitment of community people towards protection of pipelines from vandalism.

5. METHODOLOGY

The methodology adopted in this study is the qualitative method. Its data was sourced from text books, newspapers, magazines, journals, periodicals, internet and other documented materials that extensively treated the subject matter of this study. Adequate review and evaluation of the literature relevant to, and consistent with, the topic and objective of this study was carried out. This aims at providing insight to the understanding of the operational terms, concepts and keywords of this study, making out what has been done and highlighting other areas of attention.

5.1 Scope of the Study

This study is restricted to investigating the impact of pipeline transportation and vandalization on economic development in the Niger Delta. It focuses primarily on communities in Ikwerre LGA of Rivers State. Ikwerre LGA of Rivers State was purposively selected because its territories are crisscrossed with a network of pipelines

transporting oil and gas to and from different locations.

5.2 Ikwerre Local Government Area

Ikwerre Local Government Area is located in the Niger Delta region of Nigeria. It is one of the twenty three (23) local government areas in Rivers State, South-South geopolitical zone of Nigeria. There are several autonomous communities in the LGA with a projected population of 298,149 in 2019 according to National Population Commission [14]. The LGA has a viable agricultural sector with a variety of crops such as yam, cassava, plantain, and banana grown in the area. There is also an abundance of grains such as maize, lowland rice and beans. Other crops grown for food include vegetables, melon, pineapples and plantain. The major cash crops are oil palm products, rubber, coconut, raffia palm and jute. Other important economic activities in Ikwerre LGA include fishing, hunting and woodwork. Ikwerre LGA is also rich in mineral deposits which include crude oil and natural gas.

The indigenous people are traditionally farmers, fishermen and hunters. The LGA is blessed with large farm lands, mangroves, forests and rivers. It is located in both marine ecosystem and alluvial land. Faming is the most spectacular of their economic activities. They are noted for the production of garri, a stable food, and vegetables. The people also undertake hunting expeditions, palm wine tapping, palm fruit gathering, craft making, trade, palm harvesting, brewing of local gin from raffia palm, production of palm oil, production of palm kernel oil from palm tree fruits, etc. Having acquired western education, some of the people are in public service alongside other economic activities. The oil and gas production and transportation activities placed the LGA among the most active economic hubs of Rivers State and Niger Delta. Hence, the LGA houses several MNCs, oil servicing companies and other oil and gas related industrial concerns.

5.3 Pipeline Transportation and Vandalization in the Niger Delta

In Nigeria, pipeline transportation has contributed immensely to the movement of crude oil and refined products across the country and for export. Arosanyin [15:5] states that "in 1958, the oil tanker 'Hemifusus' lifted crude oil from Nigeria

for export, which made Nigeria not only an oil producer but also an exporter of oil. The discovery of oil and subsequent exploration in commercial quantities, therefore, signaled the arrival of pipeline transportation in Nigeria's freight history". Pipeline transportation became crucial for the distribution and retailing of petroleum products for consumption as noted by Adenigbo, Balogun, Olisa and Arigbede, [16]. This, according to Oni (2002), "is especially attributed to the fact that pipelines had become comparatively more economically viable in terms of accessibility to remote locations, distance coverage, speed and the efficiency with which fluids are transported".

With further discovery and production of large quantities of oil and gas, getting them to the market or refineries required new transportation and storage technologies. This is especially because oil and gas are often produced in remote locations away from where they will be consumed. Therefore, more transportation networks had to be built to transport these products from the oil fields to export bays or refineries from where they will be shipped to external markets or processed for local consumption. It is therefore the distance between the locations of oil fields, point of sales, refineries and consumers that necessitated the introduction of pipeline transportation in the oil and gas industry in Nigeria. This is evident in the fact that the Nigerian National Petroleum Corporation's (NNPC) pipelines network is an integral national asset designed several years back to distribute crude oil and its products nationwide.

Currently, there is an extensive pipeline network for the efficient transportation of oil and gas products to various depots in the country especially in the Niger Delta. The use of pipelines is construed as having the added advantage of reducing transportation risks when compared to transportation via rail, barges or trucks given that the pipelines are buried deep into the soil. Where they appear on the surface, effort is made to site them in remote areas away from local communities to allay environmental concerns. In other situations, they pass through heavily populated areas, farm lands and other land areas in which people live and from which these people eke out their living.

Onuoha [1] posits that vandalization of oil pipelines began and became commonplace in the terminal stages of military rule in the 1990s.

This vandalization of oil pipelines, which began in trickles at the twilight of the 20th century, gradually grew, blossomed and has literally become a flood of occurrences in the first quarter of the 21st century. It has come to be considered one of the major problems in Niger Delta Region [17,18,12:2]. "Vandalization of oil pipelines is either to obtain petroleum products for self-aggrandizement or as a form of protest irrespective of the consequences on the residents and their environment" as highlighted by Okogwu and Ba [13:7]. The outcome has further impacted economic development in the communities.

5.4 Impact of Pipeline Transportation and Vandalization in Ikwerre LGA

Several authors have argued that pipeline transportation and vandalization has had huge economic impact in pipeline communities which has led to environmental degradation, loss of jobs, loss of revenue and also affected the health of those affected [19,10,11,13]. Emphasizing this, Fatubarin [20] posits that "oil spillage in the Niger Delta region had been and is still a regular phenomenon and the consequential effect such as the degradation of the environment had actually triggered serious tension between the host communities and the multinational oil and gas companies leading to fracas and militancy occasioned by the total neglect of the region. Therefore, as an act of sabotage, vandalization leads to oil spillage and gas leaks. Oil spillage and gas leaks affect the environment and stunts economic development of the communities".

As has been noted by Semenitari [21], "since the discovery of oil and gas in the Niger Delta Region in 1956, the socio-economic and political well-being of the people of the region has deteriorated. This is due mainly to environmental degradation caused by unregulated and abusive exploration and production activities coupled with persistent political corruption which have contributed to endemic poverty and unmet development objectives. In the absence of jobs and sustainable development, violent criminal activities in the Niger Delta have steadily increased. In this climate, the spate of pipeline vandalism in the Niger Delta continues to increase. In Ikwerre LGA, this has resulted in increased pollution of the communities thereby affecting their major sources of livelihood and diminished their economic development".

In some instances, economic activities in the communities in Ikwerre LGA have been brought to a halt and life has become increasingly intolerable owing to the raging effects of vandalization. Many of the communities have continued to lament under the destructive impacts of the spills brought about by vandalization which has caused monumental destruction to the farmlands and streams in the communities, subjecting the inhabitants of the affected local communities to deprivation and dejection. Adekola and Igwe's [22] conclusion that "the impact of the pollution has directly or indirectly led to the death of several people owing to the enormous toxic effects and hazards inherent in its dispersal to the marine ecosystem is also true of communities in Ikwerre LGA". It has had a huge devastating impact on the marine environment by causing severe damage to vegetation and reducing their growth [23], all of which further impact economic development in Ikwerre LGA in the negative.

Broadly speaking, despite the fact that the Ikwerre LGA is among the hub of the country's oil and gas industry, it has been observed that over the years its communities have suffered declining economic development. According to Etekpe et al. (2004), there were high expectations by the communities from the Multinational Corporations (MNCs) when crude oil was discovered in 1956. These communities expected, among other beneficial amenities, regular electricity supply, good road networks, health care system, sustainable community development, and gainful employment, etc. These expectations fall in line with the Multi-National Corporation's (MNCs) Corporate Social Responsibility (CSR) as is obtainable in European host communities, and same was expected in the Niger Delta. This did not happen, and has not happened, despite the people's protests. It may be safe to say that pipeline transportation and vandalization is rather fuelling criminality and conflict in the communities rather than economic development. This in turn has created population displacement and encouraged social disintegration within and between these communities [13,24] which continues to have significant effect on the economic development of the people in communities in Ikwerre LGA.

6. FINDINGS

This study found that in the communities in Ikwerre Local Government Area, pipeline transportation has rather had huge negative

relevance to economic development. This is because vandalization of pipelines carrying oil and gas products and their negative impacts on the farmlands has diminished the economic livelihood of the affected communities. This has been escalated by poor enforcement of existing legal frameworks which continues to encourage more people to get involved in vandalization leading to spillage and perpetual poverty for people in the communities in the LGA. Arguably, pipeline transportation in the LGA has become synonymous with pipeline vandalization and vice-versa. This contributes to the significant quantities of oil spillage that has led to environmental degradation, loss of jobs, loss of revenue, etc. in Ikwerre LGA. It has also affected the health of those living in the communities of the local government. The report of Independent IUCN-Niger Delta Panel aligns with this assertion and observes that:

In Nigeria, specifically the Niger Delta area, oil exploitation, production and transportation activities by their characteristics are observed to have wide-ranging environmental effects on the productive ecosystems of the region. The region had been under consistent and perpetual life-threatening stress for several decades largely due to some man-made challenges such as environmental, socio-political, socio-cultural, and economic activities occasioned by severe spillage of oil to the environment that had triggered a lot of complicated issues like worsening crisis of poverty, unemployment and public health challenges in the area for a very long time.

In Ikwerre LGA, contamination and environmental degradation associated with pipeline transportation of oil have clearly impacted the natural environment, undermined human health and safety, and eroded physical and economic environments that constituted the primary source of income for the people. The unsustainable operational practices by the Multinational Oil Companies and an ineffective government's petroleum development policy has led to more economic problems and complex environmental degradation in the communities in Ikwerre LGA. Most of the land in the local government is now partially poisoned by chemical wastes from vandalization of pipelines. This pollution has exposed the people to new risks from diseases. In addition, many species of plants and animals have become endangered or are on the verge of extinction and it is becoming increasingly difficult

to limit or reverse the threat of total environmental pollution [25-28].

The impact of the pollution had directly or indirectly led to the death of several people of the LGA owing to the enormous toxic effect and hazards inherent in the dispersal of petroleum products into the marine ecosystem. This has affected the livelihood of the people of the area who depend significantly on the ecosystem resources for survival. Also, many of the oil facilities and pipelines are located within sensitive habitats including areas vital to farming and forestry activities, thereby contributing to increased biodiversity loss and poverty. As such, the negative impact from pipeline operations has become chronic and cumulative, and continues to compromise the livelihoods and health of the impoverished communities leading to further economic underdevelopment in Ikwerre LGA.

7. CONCLUSION

Understandably, some of the advantages of transporting oil through pipelines include safety, stability, lower cost, and higher efficiency. Pipeline transportation is the life-blood of Nigeria's economy. Crude oil and finished products flow in vast quantities through complex pipeline systems to satisfy the demands of the ultimate customers. Observably, where this mode of transportation is constantly disrupted, it is bound to cause major setbacks to the surrounding communities in terms of economic development. In other words, although vital to ensure economic prosperity of Nigeria, pipeline transportation also poses a large burden on economic development in communities where they are found. In general, the assessment of other researchers on this issue acknowledges that the oil industry has undoubtedly brought economic benefit to the Nigerian state but has left environmental pollution problems with visible physical destruction which continuously translate to depletion of economic opportunities for communities in Ikwerre LGA.

This paper concludes therefore that pipeline transportation and vandalization in Ikwerre LGA have continued to pollute and degrade the environment so much that it has disarticulated the local economy of the people. Unmet expectations, coupled with the environment degradation, have created frustration which has led the people in the LGA to embark on sophisticated pipeline vandalization. In some instances, there have been witnessed explosions

and fires eventually resulting in loss of lives and properties while immense economic losses and environmental degradation have been experienced. Ikwerre LGA is suffering the consequences of oil development in terms of the negative influence it has had on the people and their environment. The meteoric rise in the growth of the country's oil industry has led to over population in the LGA without a corresponding provision of basic infrastructure to cater for this ongoing population explosion. Hospitals remain few, poorly staffed and equipped, schools are dilapidated, rural roads are barely navigable, diseases and illnesses are rampant and access to portable water remains a challenge. The weak application of strict and enforceable regulations by the Federal Government with regards to pipeline transportation continues to propel massive destruction of the environment in Ikwerre LGA.

Considering the critical role that oil pipelines play in Nigeria's oil dependent economy, and in the oil and gas industry, the government appears incapable of enacting a separate law that deals solely with the all-important issue of pipeline security in the country. In the long absence of such a law, there have not been witnessed a focused and committed effort towards ensuring that issues relating to pipeline security are squarely and elaborately dealt with. Independent collaboration by various stakeholders to introduce adjustments to pipeline vandalism prevention and response preparedness have not yielded the desired impact. Indeed, pipeline transportation has played a major role in the development dynamics of the Nigerian State. However, it has brought more ruin and poverty than economic development of host communities.

8. RECOMMENDATIONS

OIL companies operating in Ikwerre LGA should carry out thorough soul-search in this regard. All the aggrieved persons and bodies that agitate for a mutually beneficial relationship between the oil companies and the communities could not have been wrong at different times and in the long history of environmental degradation in the oil producing communities in the Niger Delta. The long chain of destruction of farmlands and other economic livelihoods, the decimation of aquatic and marine life, air pollution caused by gas flaring, should be the basis of such a soul search. Rather than be seen to be mortal enemies of the people of the Niger Delta, oil

companies should focus on becoming partners-in-progress for the economic development of the Niger-Delta region and sustainable environment worthy of living for all.

Memorandum of Understandings (MoUs), as partnership strategies adopted by oil companies as a means of contributing to community development, building mutually beneficial relationship with local communities and reinventing themselves as a force for good in their host communities, must be re-strategized to have far reaching and verifiable impacts on the economic development of impacted communities. In addition to this, the participation of indigenous oil companies in the operation and management of oil pipelines would encourage effective participation of communities, especially the local residents along the pipeline routes, in developing community surveillance initiatives to protect oil pipelines. This will give them a greater sense of belonging, and motivate them to protect their investments from destruction.

Adoption of effective sustainable reforms by the Federal Government of Nigeria will encourage responsible petroleum exploration, production and transportation activities in ways that will positively influence economic development of host communities and protect human and environmental health in the near and long term. One of this is to provide employment for unemployed youths. The Multinational Oil Companies (MOCs) in particular, should channel more effort towards the establishment of more job opportunities for youths from impacted communities. They need to have continuous engagement to let the communities feel them and in return, let them feel the communities. Solutions will come from such engagements to solve the problems of pipeline transportation, vandalism and economic backwardness in the communities in Ikwerre LGA and beyond.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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