ILLEGAL OIL BUNKERING AND ITS EFFECTS ON SOCIO-ECONOMIC DEVELOPMENT OF SELECTED COMMUNITIES IN DELTA STATE, NIGERIA

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A DISSERTATION WRITTEN IN THE DEPARTMENT OF POLITICAL SCIENCE AND PUBLIC ADMINISTRATION, FACULTY OF SOCIAL AND MANAGEMENT SCIENCES, AND SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (MSc) DEGREE IN PUBLIC ADMINISTRATION, BENSON IDAHOSA UNIVERSITY, BENIN CITY. EDO STATE, NIGERIA.

JUNE, 2026

DECLARATION

I, **IGARE, Paul** do hereby declare that this dissertation is entirely my own work and composition. The work embodied in this dissertation has to the best of my knowledge not been submitted in candidature for any degree and it not concurrently being submitted for any other degree. All references made to works of other persons have been duly acknowledged.

_____ _____

IGARE, Paul **DATE**

CERTIFICATION

We the undersigned, hereby certify that this dissertation written by IGARE, Paul with Matriculation Number PG/PUB/140378 and confirmed to be adequate in scope and quality for the partial fulfillment of the requirements for the award of Master of Science (M.Sc) Degree in Public Administration of Benson Idahosa University, Benin City, Edo State, Nigeria.

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DEDICATION

I dedicate this dissertation to the glory of God Almighty, He is great and His mercies endureth forever.

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ABSTRACT

The research focuses on illegal oil bunkering activities and their impact on the socio-economic growth of selected Communities in Delta State, Nigeria, particularly, Kokodiagbene and Azama communities. The study assessed how illegal oil bunkering affects socio-economic development, examined the effects of environmental harm from oil bunkering on traditional livelihoods like farming and fishing, examined the link between illegal oil bunkering and insecurity, and evaluated impact of illegal oil bunkering on the overall living standard of the population. The research made use of descriptive survey methodology. The population of study was 123,301 individuals from Kokodiagbene and Azama Communities in Delta State. With 300 filled structured questionnaire, data were collected and examined. The results indicated that illegal oil bunkering greatly hampers socio-economic progress due to environmental degradation, loss of livelihoods, decreased revenues, and social unrest. Agriculture and fishing operations have been significantly affected by oil spills and polluted water sources. Insecurity within the communities has risen due to armed criminal groups overseeing bunkering activities. Additionally, the overall health of residents suffers, facing health issues and limited access to crucial services. The research found that illegal oil bunkering continues to be a significant barrier to sustainable development in the impacted communities. It suggested that government officials enhance enforcement measures, increase governance and transparency in the oil industry, and establish community development initiatives to address the socio-economic and environmental effects of illegal bunkering

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The discovery of crude oil has been both a blessing and a curse for many nations. Oil can drive economic growth and development, the illegal activities associated with it, particularly oil bunkering pose significant challenges to national progress. Oil bunkering, which involves the unauthorized siphoning, theft, and sale of crude oil, has become a prevalent issue in oil-rich regions, undermining both economic growth and social stability (Oyebu, 2021)

At the international level, Nations like Saudi Arabia, the United States, Russia, and Norway have harnessed their oil resources to fuel their economies, creating wealth and elevating their positions on the global stage. Despite these benefits, the exploitation of crude oil comes with its own challenges, particularly illegal oil bunkering, which entails the unauthorized siphoning, theft, and sale of crude oil. This illegal activity is a global issue that is wide spread. For example, Mexico, through its oil company PEMEX, has experienced serious economic losses due to the illicit activities of pipeline vandalism and oil theft. Also, in Iraq, major oil theft has contributed to patronizing insurgent groups, instigating regional instability (International Energy Agency, 2019).

In Africa, the issue of illegal oil bunkering is a major concern in areas like Libya, Angola, and Gabon. These countries have faced major revenue losses and environmental degradation due to illegal oil activities. In Nigeria, Ghana, and Cameroon, poor maritime security and poor borders have made the region a center for oil-related crimes. Criminal bodies take advantage of these vulnerabilities by smuggling stolen oil through international markets, overlooking local economies, and endangering global energy security (United Nations Office on Drugs and Crime, 2021). West Africa, being a major reliant on natural resources has been on the receiving end of oil related criminal activities. In Ghana, for instance, illegal oil

bunkering disturbs the growth of its oil industry, while in Equatorial Guinea, it has led to environmental pollution and social unrest (Campbell, 2015).

Additionally, the post discovery of crude oil in Oloibiri in 1956, Nigeria has been highly dependent on oil for its economic relevance. Notwithstanding, illegal oil bunkering has surfaced as a profitable yet hazardous alternative industry for numerous individuals in oil-producing regions. This illegal activity, involving the unauthorized extraction and siphoning of crude oil and refined petroleum, affects national growth and contaminates the environment, (Okonkwo, 2023). The increase in illegal oil bunkering is originally based on years of perceived marginalization, economic hardship, and political neglect of oil-rich communities (Oyebu, 2021). Furthermore, the Nigerian government has faced significant revenue declines from oil theft, with estimates showing losses of $2.1 billion in 2019, $1.9 billion in 2020, $7.2 billion in 2021, and an astonishing $22.4 billion in 2022 (Nigeria Extractive Industries Transparency Initiative NEITI, 2023). These numbers indicates both the extent of economic sabotage and the weakened institutional ability to sustain accountability within the oil industry.

In Nigeria, particularly the Niger Delta region renowned for its vast oil reserves bears the brunt of the adverse effects of illegal oil bunkering. Furthermore, communities in Delta State are at the epicenter of these activities, experiencing economic stagnation, environmental degradation, and social instability. Frequent oil spills and pipeline explosions have destroyed arable lands, polluted water bodies, and rendered many communities uninhabitable. These environmental crises have decimated local livelihoods, forcing many residents into unemployment and poverty (Nwankwo, 2018).

Moreover, the health risks posed by oil pollution in these communities are severe. Prolonged exposure to contaminated environments has led to respiratory illnesses, skin conditions, and cancer, severely impacting public health and productivity. The proceeds from illegal oil

bunkering often fund militant activities, further destabilizing the region and deterring investments critical for development. Weak governance structures, corruption, and inadequate law enforcement exacerbate the situation, fostering mistrust in governmental institutions and hindering efforts to promote socio-economic development (Aghalino, 2019).This study aims to investigate the multidimensional effects of illegal oil bunkering activities on the socio-economic development of communities in Delta State, Nigeria. By examining its global, national, and local impacts, the research seeks to provide actionable insights into mitigating these effects and fostering sustainable development in affected regions.

1.2 Statement of the Problem

Delta State is richly endowed with oil resources, and this natural wealth is expected to foster socio-economic development. Communities in the state would thrive with well-developed infrastructure, expansive healthcare and educational systems, and sustainable livelihoods supported by a healthy environment. Proper management of oil resources would ensure high government revenue, bolstering significant investments in key sectors while creating employment opportunities and boosting the overall quality of life for its residents (Eze, 2023).

However, the issue of illegal oil bunkering has turned the above to more or less a mirage. This unlawful practice has significantly reduced the socio-economic development of Delta State communities. Environmental degradation caused by oil spills, pipeline vandalism, and associated fires has devastated local ecosystems, rendering traditional livelihoods such as farming and fishing unviable for residents. The destruction of these natural resources has further entrenched poverty in the region, driving more individuals into illegal activities as a desperate means of survival (Ikelegbe, 2021).

Furthermore, the economic consequences of oil bunkering surpass local areas, influencing the national economy. Nigeria, loses billions of dollars each year as a result of oil theft and bunkering (Nigerian National Petroleum Corporation-NNPC, 2023). This revenue losses makes it difficult for government to carry out developmental projects such as healthcare, education and other infrastructural developments needed for improved living standards. This leads to high unemployment levels, ineffective social services and worsening socio-economic issues in the area, (Okoli & Orinya, 2021). Illegal oil bunkering also increases insecurity in Delta State, as Militant groups and criminal networks compete for control of the of the illegal trade, resulting to violence which discourages investments and depreciates growth in the region. (Amnesty International, 2023).

This study seeks to analyze illegal oil bunkering activities and its effect on socio-economic development of communities in Delta State, Nigeria. It assesses the environmental, economic, and social consequences of this practice, identifies its root causes, and evaluates existing measures to address it. The findings aim to provide attainable ways for policymakers and stakeholders to eradicate oil bunkering effectively, restore socio-economic stability, and promote sustainable development in Delta State.

1.3 Research Questions

Based on the above statement of the problem, the following research questions are generated to guide the study:

1. What is the impact of illegal oil bunkering activities on the socio-economic development of communities in Delta State?
2. How does environmental degradation caused by oil bunkering affect traditional livelihoods such as farming and fishing in Kokodiagbene and Azama communities in Delta State?

3. What is the relationship between illegal oil bunkering activities and insecurity in Kokodiagbene and Azama communities in Delta State?
4. To what extent does illegal oil bunkering activities affect the general well-being of the inhabitants of Kokodiagbene and Azama communities in Delta State?

1.4 Objectives of the Study

The main objective of this study is to investigate the illegal oil bunkering activities and its effect on socio-economic development of some communities in Delta state, Nigeria. The following are the specific objectives of the study:

1. To examine the impact of illegal oil bunkering activities on the socio-ecomomic development in Kokodiagbene and Azama communities in Delta State.
2. To analyze the effects of environmental degradation resulting from oil bunkering on farming and fishing activities in Kokodiagbene and Azama communities in Delta State.
3. To assess the relationship between illegal oil bunkering activities and insecurity in Kokodiagbene and Azama communities in Delta State
4. To evaluate the extent to which illegal oil bunkering activities has affected the general well-being of the inhabitants in Kokodiagbene and Azama communities in Delta State.

1.4 Research Hypotheses

H_0: There is no significant relationship between Illegal oil bunkering activities and the socio-economic development of Kokodiagbene and Azama communities in Delta State.

H_0: There is no significant relationship between environmental degradation resulting from oil bunkering and the traditional livelihoods such as farming and fishing in Kokodiagbene and Azama communities in Delta State.

H_0: There is no significant relationship between illegal oil bunkering activities and insecurity in Kokodiagbene and Azama communities in Delta State.

H_0: There is no significant relationship between illegal oil bunkering activities and the general well-being of inhabitants of Kokodiagbene and Azama communities in Delta State.

1.6 Significance of the Study

This study aims to deepen the understanding of illegal oil bunkering and its impact on socio-economic development in some oil-producing communities in Delta State. It examines the ways oil theft leads to issues like environmental damage, economic challenges, and social unrest, indicating the need for specific actions to tackle both the roots and effects of this issue. The study examines the connection among oil theft, poor governance and community vulnerability, and providing guidelines for policies, improve development ideas and community involvement. It acts as a resource for policymakers and development workers by pinpointing solutions that extend beyond criminalization, emphasizing the need to tackle unemployment, poverty, and inadequate infrastructure. In addition to its local emphasis, the research contributes to wider scholarly and policy discussions on resource management and rural advancement, providing data that can aid in reforms and enhance results in other resource-abundant areas

1.7 Scope of the Study

This study focuses on examining the effects of illegal oil bunkering activities on the socio-economic development of some communities in Delta State, Nigeria. It specifically focuses on the Kokodiagbene and Azama communities in Warri South-West local government area of the state due to the fact that these communities are significantly affected by oil bunkering activities. It examines both the environmental and socio-economic dimensions. The periodic scope of the study is between 2015 to 2024.

1.8 Limitations of the Study

The major limitation of the study was the unwillingness of some respondents to quickly respond to the questionnaire during the field work, however, with the help of some resident's in the communities the researcher was able to distribute and retrieved the questionnaire.

1.9 Operational Clarifications

To ensure clarity and focus in exploring the effects of oil bunkering activities, the following key terms and concepts are defined as they pertain to this study:

Illegal: Illegal connotes that which is not authorized by law, contrary to or forbidden by law. It also refers to anything that is not legal.

Oil Bunkering: For this study, oil bunkering refers to the illegal siphoning, theft, and unauthorized sale of crude oil. This includes acts such as tampering with oil pipelines, smuggling of stolen oil, and setting up unauthorized refineries. Bunkering in this context is considered illegal and involves activities that bypass official channels for oil production and distribution in Nigeria.

Development: This is a specified state of growth or advancement. It is the process in which someone or something grows or changes and becomes more advanced.

Security Challenges: Security challenges pertain to the issues of increased violence, militancy armed conflict and organized crime associated with oil bunkering in Delta State. This study consider how these securely challenges contribute to instability within the region and hinder national development efforts.

Governance and Policy Issues: Governance and policy issues include the effectiveness of government structures, regulatory policies, and enforcement in addressing oil bunkering.

The study consider factors such as corruption, institutional weakness and lack of enforcement that may enable or exacerbate the prevalence of bunkering activities.

1.10 Organization of the Work

This study is structured into five chapters: The first chapter is the introductory chapter which include the background to the study, statement of the research problem, research questions, objectives of the study, research hypotheses, significance of the study, scope of the study, operational clarifications and organization of the work. Chapter two entails the conceptual frame, review of relevant literature, empirical review, theoretical framework and organizational context of the study. Chapter three deals with the methodology of the study. Chapter four is data presentation and analysis. The summary, conclusion Recommendation and knowledge contribution are covered in Chapter five.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Conceptual Framework

2.1.1 Illegal Oil Bunkering

Illegal oil bunkering refers to the covert and unlawful processes of extracting, refining, and distributing petroleum products in violation of established legal frameworks (United Nations Office on Drugs and Crime, 2021). This form of illicit activity poses a significant threat to global energy security, environmental sustainability, and socio-economic stability, especially in oil-producing regions. It undermines legitimate operations in the oil sector, fosters corruption, and results in substantial losses of national revenue and resources. It has become a widespread issue in countries like Nigeria that is majorly dependent on oil for its revenue, (Katsouris & Sayne, 2013). It includes syphoning crude oil by tapping into oil pipelines, operating illegal refineries and smuggling the illegally refined products across borders. These activities are mostly carried out by local communities, criminal syndicates, and sometimes corrupt officials, making it a deeply rooted problem.

Luwole (2020) describes illegal oil bunkering as the unlawful extraction and marketing of petroleum products without authorization from legitimate owners, typically involving criminal networks that illegally connect to and siphon from oil pipelines. This illicit activity undermines the legal oil industry, causing significant financial losses to the government and destabilizing local communities. It also fuels environmental degradation and heightens insecurity in oil-producing regions. According to Smith (2020), illegal oil bunkering is characterized by the clandestine extraction and trade of petroleum products in violation of state laws, often involving complex networks that span local, national, and international

borders. Smith highlights that the globalization of illicit oil markets has complicated enforcement efforts and increased the scale of environmental degradation.

Jones and Martinez (2021) describe illegal oil bunkering as an unlawful economic practice that involves the theft, refining, and distribution of crude oil and petroleum products without official authorization. They further argue that beyond causing substantial financial losses, the activity also intensifies environmental degradation and contributes to armed conflicts in oil-producing areas, thereby undermining governance and development initiatives.

Similarly, Nwankwo (2022) explains illegal oil bunkering as the covert theft of crude oil from pipelines or storage facilities, its processing through illegal refineries, and its distribution through informal and unregulated channels. He stresses that the practice is a criminal violation of national laws, disrupts lawful economic activities, and is often sustained by complex networks that operate across both local and international boundaries. In the view of Igbokwe (2023), illegal oil bunkering involves the unauthorized extraction and production of oil without state approval, which significantly reduces government revenue and weakens national economic stability. Okeke (2019) conceptualizes illegal oil bunkering as the clandestine theft of crude oil and refined petroleum products from storage and distribution points, carried out in ways designed to evade detection by regulatory authorities. He notes that the practice is prevalent in regions characterized by poverty and weak institutional control, thereby aggravating socio-economic challenges and causing severe environmental damage.

2.1.2 Socio-economic development

Socio-economic development refers to the process by which a society improves the economic conditions of life of its people. This encompasses higher income levels, expanded job opportunities, improved access to essential services, and enhanced social welfare (Todaro &

Smith, 2020). It is not limited to economic growth alone but also involves improvements in education, healthcare, housing, security, and environmental conditions. In this sense, socio-economic development focuses on reducing poverty and inequality while helping people achieve stable and sustainable livelihoods.

Sen (2018) states that socio-economic development involves more than just rising income; it also encompasses enhancing individuals' capabilities and liberties. He states that development ought to be assessed by the extent to which individuals can lead healthy, educated, and fulfilling lives. Therefore, availability of education, healthcare, clean water, jobs, and involvement in social and political activities are crucial indicators of socio-economic progress, particularly in developing nations. Rodrik (2018) sees socio-economic development as a transformation during which nations move from weak economic systems to strong ones capable of fostering sustained growth. He stressed that, in many developing countries, socio-economic development is closely connected to how natural resources are managed. Sachs and Warner (2001) relate that poor management of natural resources leads to economic problems, environmental damage and social conflict. This situation is known as the "resource curse," and can prevent development by encouraging corruption and weakening government institutions. In this case, communities in resource-rich areas may remain poor despite having valuable natural resources.

In Nigeria, socio-economic development is strongly linked to the oil sector, which provides most of the country's revenue and foreign exchange. Akinwale (2019) notes that development in oil-producing areas should be reflected in better infrastructure, job creation, environmental protection, and improved living conditions for host communities. However, issues such as environmental pollution, insecurity, and weak governance have limited the positive impact of oil wealth on many Niger Delta communities. Overall, socio-economic

development involves improving both economic conditions and social well-being. It requires effective planning, good governance, social investment, and environmental protection. In oil-producing communities in Delta State, socio-economic development provides a useful framework for understanding how illegal oil bunkering affects income, employment, environmental quality, security, and the general well-being of residents.

2.2 Literature Review

2.2.1 Impact of Illegal Oil Bunkering Activities on the Socio-Economic Development of Communities in Delta State

Bello (2024) defines illegal oil bunkering as a criminal activity, which includes the illegal tapping of oil pipelines, as well as illegal running of oil refineries. Bello emphasizes that this operation weakens the official oil industry and leaves the chains of violence and instabilities in the communities where such actions are organized. Where exploration of oil has caused damages to the environment and displacement of people without proper compensation or development, people in such areas may resort to bunkering as a survival mechanism. Moreover, the black market of crude oil and refined products has high profitability which lures organized crime gangs to the trade (Okonkwo, 2018)

One of the most significant consequences of illegal oil bunkering is environmental degradation (Nwankwoala & George, 2015). The illegal refining process is typically crude and hazardous, leading to extensive pollution of land, air, and water. Oil spills resulting from pipeline vandalism have devastating effects on communities whose livelihoods depend on farming and fishing. Illegal oil bunkering has caused massive revenue loss in the oil producing regions in an economical sense. According to the Nigerian National Petroleum Corporation (NNPC), billions of dollars every year of revenue were lost because of crude oil theft and pipeline vandalism (NNPC, 2020). Such losses decrease national budgets and

finances to be used in infrastructure and social services and scares away foreign investments in the oil and gas sector.

Moreover, mitigating illegal oil bunkering requires a multi-pronged approach involving governance reforms, community engagement, and technological innovation (United Nations Development Programme, 2019). Strengthening legal and regulatory frameworks is essential to address corruption and ensure accountability in the oil sector. Equally important is the need to create economic opportunities for communities affected by oil exploration to reduce their reliance on illicit activities. Technological solutions such as pipeline surveillance systems, drones, and satellite monitoring can enhance the detection and prevention of illegal oil bunkering activities (Iwejingi, 2013). These measures, combined with capacity building for security agencies and judiciary reforms, can enhance the effectiveness of enforcement mechanisms. Community involvement is a cornerstone of any sustainable solution to illegal oil bunkering (Asuni, 2009). Empowering local communities through education, vocational training, and development projects can address the root causes of bunkering. Additionally, involving communities in pipeline surveillance and maintenance can foster a sense of ownership and responsibility.

Ebeku (2022) asserts that persistent poverty and marginalization in oil-producing regions like the Niger Delta drive local populations toward illicit activities such as bunkering as a survival strategy. The environmental degradation caused by oil exploration such as polluted waterways and destroyed farmlands compounds this vulnerability, leaving communities alienated and economically disadvantaged.

According to Obot (2021), government has failed to provide equitable development policies, which has resulted in the establishment of a criminal network environment that has no interference issues. Agbonifo and Egharevba (2023) substantiated this assertion by citing how

corruption and poor systems of governance are some of the factors that allow illegal bunkering to persist. They emphasize that the cooperation between corrupt officials and security personnel on the one hand and organized crime gangs on the other hand undermines efforts to enforce the law.

Nwachukwu and Okeke (2022) noted that the crude and unsafe techniques employed in illegal refineries often lead to recurrent oil spills, soil pollution, and air contamination, thereby endangering biodiversity as well as the health of nearby communities. Adegboye (2023) further add that these environmental hazards increase the incidence of respiratory diseases and waterborne illnesses, exacerbating the socio-economic vulnerabilities of affected populations. Economically, illegal oil bunkering results in significant national revenue losses. The Nigerian National Petroleum Corporation (NNPC, 2024) estimates that billions of dollars are lost annually to crude oil theft, money that could otherwise fund infrastructural development, healthcare, and education. Ugochukwu and Okafor (2023) argue that these revenue leakages also deter foreign investment in the oil sector, thereby hampering overall economic growth and development.

Olajide (2021) argues that community empowerment through vocational training, education, and local infrastructure development is critical in providing alternatives to illegal bunkering. This approach can encourage local ownership of oil infrastructure and fosters cooperation with law enforcement. Additionally, technological innovations such as drone surveillance and pipeline sensors are increasingly recognized as effective tools in detecting and preventing illegal oil theft (Eze & Ibekwe, 2022).

Adediran and Bello (2023) stress the need for greater transparency in oil revenue management and stronger anti-corruption measures to rebuild trust between the government and local communities. They argue that inclusive policy-making and equitable resource

distribution are key to achieving sustainable peace and development in oil-producing regions. Furthermore, illegal oil bunkering in Nigeria is driven by a combination of socio-economic deprivation, governance failures, and environmental neglect. Addressing it requires a comprehensive strategy involving community development, technological innovation, and institutional reform. This holistic approach can help to reduce illegal bunkering activities and promote sustainable development in affected areas.

2.2.2 Causes of Illegal Oil Bunkering in Delta State

Illegal oil bunkering in Delta State is a complex, multidimensional problem rooted in the region's economic, social, political, and environmental conditions. A major contributing factor is the high level of poverty and unemployment prevalent in many Niger Delta communities. This neglect compels some individuals to engage in illegal oil bunkering as a means of survival. Hager and Humphreys (2022) argue that in resource-rich areas where host communities are excluded from the benefits of resource wealth and continue to experience deprivation, illegal resource extraction often emerges as a coping strategy. Consequently, widespread economic hardship among the Niger Delta population significantly drives the persistence of illegal oil bunkering activities.

The issue of corruption also stands as a significant element that sustains illegal oil bunkering in Delta State. A connection often exists among corrupt public officials, security agencies and organizations engaged in oil theft, thereby limiting the efforts to combat the illicit activities which in the long run allows this act of oil theft to thrive. Corruption aids the smuggling and trade of illegal crude oil by giving free hands for unlawful citizens to function with maximum freedom. Transparency International (2023) highlighted that corruption in the oil sector is not unique to Nigeria but represents a widespread global challenge, especially in developing countries where governance systems tend to be fragile.

Le Billon (2021) argues that corruption and inadequate institutional monitoring are significant facilitators of natural resource crimes worldwide. In Nigeria, political actors promote this issue by protecting illegal operators, disrupting the prosecution of bunkering networks and promoting a culture that encourages additional illegal activities. These patronage networks simply lead to biased enforcement and conspiracy, which enable bunkering activities to thrive without the fear of legal action.

Internal weaknesses in governance and institutional design also contribute to the issues of illegal oil bunkering. Large oil infrastructure which comprises pipelines and flow stations in remote conditions such as swamps and creeks is a significant challenge to effective monitoring and supervision in Delta State. The security agencies that protect oil resources are also in most cases financially constrained. They do not have the right tools or the experienced training that can influence their efforts towards the fight of the illegal activities. These institutional vulnerabilities create loopholes, which criminal groups exploit in a short time. Nwosu (2021) believed the war on illegal oil bunkering can never be won without huge institutional power and political will.

Environmental degradation in the Niger Delta is another key factor driving local communities toward illegal oil bunkering. Years of oil exploration have caused widespread oil spills, gas flaring, and pollution, severely damaging farmlands and fishing waters that sustain many residents. As these traditional livelihoods are undermined, some individuals are forced to engage in illegal oil-related activities as a means of coping with their economic hardship.

Oladipo and Igbokwe (2020) stress the direct link between environmental destruction and the rise of illicit resource extraction in the Niger Delta. This dynamic is echoed by Watson and Smith (2023), who note similar trends in other oil-producing regions worldwide, such as parts of Latin America, where environmental harm drives local populations to engage in informal

or illegal extraction as a survival mechanism. This environmental factor thus deepens the socio-economic vulnerability of communities, fueling the persistence of illegal bunkering and further undermining efforts to establish sustainable development.

In addition, the profitability of illegal oil bunkering cannot be overlooked. The high global demand for crude oil and refined petroleum products creates a lucrative black market for stolen petroleum resources. This economic motivator draws both local and organized criminal networks which operate unlimitedly. These alliances enable oil smuggling and selling without the consent of the Nigerian government, which makes the offense very advanced and difficult to counter. Akinsanya and Bassey (2023) argue that the presence of international criminal networks complicates efforts to curb illegal oil bunkering, as these groups use advanced logistics and corrupt transnational actors to avoid detection. The substantial profits involved provide strong motivation for continued participation in the activity, despite enforcement risks. This has contributed to the emergence of a complex criminal economy that links local livelihoods with global oil markets. They further note that the causes of illegal oil bunkering in Delta State are interconnected and cannot be attributed to a single factor.

The constant poverty and unemployment, corruption, poor institutional and governments systems, environmental degradation, and the fact that the oil black market can prove to be a lucrative trade situation are a conducive environment that the illegal bunkering can flourish. These issues need to be handled in a wholesome way which involves reduction of poverty, institutionalization of the same, environmental rehabilitation, enhancement of law enforcers with political will and international collaboration to derail international criminal networks.

2.2.3 Effects of Environmental Degradation Caused by Illegal Oil Bunkering on Socio-Economic Development

Oil bunkering in Delta State strongly limits the socio-economic development of the region through a complex cycle of environmental, economic, and social consequences.

Environmentally, the continuous oil spills and pipeline vandalism linked with illegal bunkering contaminate farmlands and waterways, which are crucial for farming and fishing the main sources of livelihood for many local communities. This pollution results to loss of crops and reduction of fish populations, leading to food insecurity and reduced income for many families, (Ebeku, 2020).

Illegal oil bunkering has led to severe health implications for communities in Delta State, negatively affecting their welfare and socio-economic development. The unregulated methods used in illegal refining release hazardous substances into the air, water, and soil, resulting in widespread environmental contamination. Local populace is vulnerable to toxic vapors that include volatile organic compounds and other dangerous substances, resulting to respiratory illnesses like asthma, chronic bronchitis, and other lung disorders (Bello, 2024).

Skin conditions, much like respiratory illnesses, are commonly reported among people living close to illegal refining sites. Exposure to contaminated water and polluted soil often leads to skin rashes and other chronic dermatological problems (Okoro & Ibe, 2022), resulting in significant physical discomfort. In addition, water pollution from oil spills and poor waste disposal practices heightens health risks, as contaminated drinking water contributes to outbreaks of waterborne diseases such as cholera, dysentery, and typhoid fever (Nwafor, 2023).

These health challenges place considerable strain on local healthcare services, reduce workforce productivity, and increase household medical expenditures, thereby worsening poverty levels in affected communities. Importantly, such health impacts are not unique to Nigeria. Similar tendencies are observed in other oil producing regions in the world where illegal or unlicensed extraction is practiced. In some parts of the Amazon basin, the

neighboring communities to the unlicensed oil projects experience increased respiratory issues and skin conditions related to environmental contamination (Garcia & Santos, 2023).

From an economic perspective, illegal oil bunkering represents a significant loss of government revenue, as crude oil is diverted from official channels to the black market, thereby reducing funds available for public expenditure. This revenue leakage constrains the ability of both federal and state governments to finance essential socio-economic services such as education, healthcare, and infrastructure development, all of which are crucial for improving living standards in the Niger Delta (Okonjo-Iweala, 2021). As a result, the region remains trapped in a cycle of underdevelopment, where persistent financial losses hinder investment and reinforce poverty.

Socially, illegal oil bunkering contributes to heightened violence and insecurity in Delta State. Rival criminal groups often clash over control of bunkering sites, leading to armed confrontations and instability within affected communities. This insecurity disrupts normal economic activities, discourages external investment, and exacerbates youth unemployment and militancy (Adekoya, 2022). Consequently, social cohesion is weakened, and sustained development becomes increasingly difficult due to persistent conflict and mistrust.

Furthermore, the profitability of illegal oil bunkering distorts local labour markets and economic decision-making. The attraction of quick financial gain draws many young people away from formal education and legitimate employment into illicit operations. This trend reduces incentives for skills acquisition and human capital development, both of which are essential for long-term economic growth. In addition, the normalization of illegal activities fosters a culture of impunity and undermines the rule of law, thereby limiting the expansion of lawful economic opportunities (Idowu & Ojo, 2021).

The economic costs extend beyond lost revenue to include the expenses associated with environmental cleanup and compensation for affected communities. Governments and oil companies often bear significant financial burdens in efforts to rehabilitate polluted lands and waterways. These remediation costs divert resources from other critical development projects, further limiting the capacity for sustainable development in the Niger Delta (Eghosa & Akintola, 2022). The long-term environmental degradation also diminishes the region's attractiveness for tourism and other sustainable economic activities, trapping communities in a cycle of poverty and environmental harm. Furthermore, illegal oil bunkering in Delta State creates profound challenges for socio-economic development by causing environmental destruction, depriving governments of critical revenues, fueling social conflict, and distorting the local economy. Addressing these issues demands a multi-faceted approach that includes stronger governance, effective environmental management, community development programs, and enhanced security measures supported by both national and international cooperation (Watts, 2021).

2.2.4. Relationship Between Illegal Oil Bunkering Activities and Insecurity

The relation between the illegitimacy of oil bunkering and the insecurity in the Niger Delta, particularly in the communities of Kokodiagbene and Azama is a long time issue in scholarly discourse due to its far reaching social-economic and political impacts. Illegal oil bunkering is no longer just an economic crime but a major source of insecurity, violence as well as unrest in the oil producing regions. According to Okorie (2022), the illicit oil trade is a source of financial resources of criminal gangs and militant groups in the Niger Delta. The substantial profits generated from oil theft are frequently channelled into the procurement of weapons and the recruitment of young individuals into armed groups. Consequently, local economies have increasingly taken on the characteristics of conflict-driven systems, where violence and criminal activity become normalized as means of survival. The practice of

illegal bunkering of oil in the Kokodiagbene and Azama communities has resulted in continuous wars between the different bunkering groups, the security officers, and the local vigilante groups. As Ikelegbe (2021) notes, the dissemination of small arms and light weapons through the use of oil stolen profit has empowered armed groupings and weakened the security organ of the state. In these societies there have been frequent acts of pipeline vandalism, kidnappings and violent conflicts between the security agencies and local rebels. Security has been the major challenge that has slowed down the fishing, farming and trading activities further contributing to poverty and social dislocation among the residents. This further relates to poor governance and systemic corruption which deprives these communities of the peace that they have been fighting. Onuoha (2020) argues that state institutions responsible for enforcing anti-bunkering regulations are often undermined through bribery and collaboration with oil thieves. The illegal oil trade is said to involve some government officials, security agents, and political elites, which promotes a culture of impunity and weakens regulatory enforcement mechanisms. This cooperation obliterates the line between lawful power and criminal business, and it leaves the communities exposed to the exploitation of the state and the non-state players. Cases of these conditions in Kokodiagbene and Azama have led to a vacuum of power which means that militant groups are informal regulators of oil related operations and in other cases they are a guardian of local interests against what they perceive as state neglect.

Moreover, the socio-economic dimension of insecurity is significant. Adebayo and Nwokedi (2023) note that youths are often drawn into illegal bunkering networks due to high unemployment, widespread poverty, and exclusion from the distribution of oil wealth. For many young people in the Niger Delta, oil theft is not only an economic activity but also a perceived response to long-standing marginalization. However, this involvement comes at a

cost, as struggles over control of oil routes and illegal refining sites frequently escalate into violent conflicts, resulting in displacement and loss of lives.

Etemike (2019) notes that power of traditional leaders and elders has been diminished by the dominance of armed actors who previously mediated conflicts and ensured peace in the community. The development of militant subcultures has altered the social positions, since the people who have access to weapons and oil money enjoy more power than the authority in the community. It is the loss of social cohesion that complicates conflict resolution since the level of trust between residents, leaders, and representatives of the government is still declining.

Researchers have suggested a number of ways of dealing with the security crisis associated with the illegal oil bunkering. The authors, Akpan and Alabi (2021), propose the inclusion of community-based security systems, where residents of the community are engaged in the security of oil infrastructure. An increase in hostility towards security agencies and cooperation can be achieved by empowering communities to be involved in surveillance, intelligence collection and conflict prevention programs. Similarly, according to Oghenekaro (2023), the development of alternative livelihoods by equipping the youth with skills and developing their entrepreneurship can greatly reduce the number of individuals joining the bunkering networks. Such efforts will turn the local economy into one that is not based on the illegal economy but on sustainable and legitimate means of income. Adamu and Ibrahim (2022) recommend the use of drone surveillance, satellite monitoring, and digital tracking systems to detect and prevent pipeline vandalism and illegal refining activities. These technologies minimize human interference and reduce opportunities for corruption among enforcement officers. However, technology alone cannot solve the problem without

institutional reforms that ensure accountability and transparency. Therefore, effective governance and political will are essential to complement technological solutions.

2.2.5 Strategies for Mitigating Illegal Oil Bunkering

To reduce the problem of illegal oil bunkering, the problem should be mitigated through a response that is well coordinated and well-integrated to consider both the causes and dynamics of the criminal activity. The most important thing is the strengthening of law enforcement. It involves the supply of security agencies with superior technology such as remote sensing, drones, and pipeline monitoring mechanisms to improve the detection and tracking of criminal activities (Okeke & Akinola, 2023). However, improving technological capacity alone is insufficient without addressing the deep-rooted corruption that weakens enforcement mechanisms (Mensah, 2022). It is therefore essential to promote transparency and accountability within security agencies and government institutions to prevent collaboration with illegal bunkering networks.

In addition, community participation is crucial in curbing illegal oil bunkering. Empowering local communities through education and the provision of alternative livelihood opportunities can reduce dependence on illicit oil-related activities. Eze and Udo (2023) observe that initiatives such as skills acquisition programmes, microfinance support, and agricultural development have, in some areas of the Niger Delta, successfully reduced youth involvement in bunkering activities. Moreover, by involving the community leaders in monitoring and reporting mechanisms, it instills confidence and improves local resistance to bunkering syndicates (Amadi, 2021).

It is equally important to reform institutions by strengthening transparency, accountability, and collaboration among government agencies, security institutions, and host communities. In this regard, lessons can be drawn from the Norwegian model of petroleum governance,

which emphasizes strong regulatory oversight, transparent management of oil resources, strict enforcement of environmental standards, and the equitable distribution of petroleum revenues for national development. Adapting elements of this model to the Nigerian context through improved institutional coordination, anti-corruption measures, independent monitoring systems, and community-inclusive resource management could significantly reduce illegal oil bunkering while promoting sustainable development and public trust in the management of the country's petroleum resources. The establishment of powerful legal frameworks where oil theft and environmental degradation are severe punishable actions is the creation of a deterrent effect (Nwachukwu, 2022). Besides, the use of digital monitoring of oil production and transportation enhances transparency and minimizes the possibilities of the diversion of crude oil (World Bank, 2023). Strengthening collaboration among regulatory agencies, law enforcement bodies, and the judiciary is essential for ensuring a coordinated response to criminal activities. Additionally, addressing the socio-economic factors driving illegal oil bunkering can be achieved through environmental restoration initiatives. The remediation of oil-contaminated farmlands and waterways helps restore livelihoods and reduces the economic hardship that often fuels illicit activities (Obi & Otuaro, 2021). Furthermore, the enforcement of stringent environmental regulations and the imposition of severe penalties on offenders serve as deterrents to illegal refining, which is a major contributor to environmental pollution.

2.3 Empirical Review

Adishi and Oluwagbenga (2016) carried out a study on the issue oil theft, illegal bunkering, and pipeline vandalism in the Niger Delta, by utilizing data from the Nigerian National Petroleum Corporation (NNPC) and individuals in the security field. Applied descriptive statistics was used to examine details of oil theft incidents and its detriment to the economy. The result of the study showed that oil bunkering and pipeline vandalism to a large extent

affected economic activities, caused environmental degradation and discouraged foreign investments. In conclusion, the study showed that the primary enablers of this illicit activity were poor governance, weak enforcement activities and youth unemployment, which produces negative consequences on local socio-economic development.

Wilson (2014) investigated the relationship between the Nigerian state and oil theft in the Niger Delta using a qualitative research method that involved document analysis and key informant interviews. The study found that political elites often colluded with criminal networks to perpetuate illegal oil bunkering. Wilson concluded that the state's complicity and failure to ensure equitable oil revenue distribution fostered insecurity, environmental destruction, and stunted development in host communities. The study emphasized that without genuine political will and economic inclusion, illegal oil activities would persist, further crippling community development.

Boris in (2015) examined the high-rate oil theft and illegal bunkering in the Niger Delta by conducting a field survey across some States in the region. He made use of structured questionnaires and interviews with community leaders, security agents, and former militants. With the use of content analysis, he studied the causes and effects. The results showed that individuals were driven by issues like youth unemployment, no infrastructural development and continuous poverty. From the aforementioned, the conclusion was that illicit trade led to widespread pollution, health dangers and disturbance of agricultural livelihoods in the affected communities.

In another study, Efenakpo, Onuchukwu, Davies and Kejeh (2022) studied the implications of illegal oil refining on the Niger Delta ecosystem. They made use of satellite imagery, environmental sampling and community surveys across Delta State. From the study it was discovered that high levels of hydrocarbon pollution in rivers and farmlands leads to poor agricultural yields and high cases of respiratory and skin diseases. The conclusion was that

these environmental outcomes impacts on the socio-economic wellbeing of residents, notably local farmers and fishermen who are reliant on natural resources for survival.

Anyio (2018) in his investigation on the impact of oil bunkering and theft on Nigeria's economy, made use of time-series economic data and stakeholder interviews from Delta state. The study employed regression analysis to assess the relationship between illegal bunkering and economic losses. Findings indicated that the country loses billions of naira annually, with devastating ripple effects on public infrastructure, healthcare, and education services in the oil-producing areas. The study concluded that corruption and weak law enforcement were major challenges preventing effective policy implementation.

Eduviere (2023) conducted a qualitative research on artisan refineries and resource conflict in the Niger Delta, focusing on Delta and Rivers States. The study used focus group discussions with ex-militants and local youth involved in artisanal refining. Findings indicated that many youths viewed illegal refining as a survival strategy due to government neglect and lack of employment opportunities. However, the practice contributed to air and water pollution, community conflicts, and increased insecurity. The study concluded that alternative livelihood programs and equitable resource control were essential for peace and development.

Richard & Briggs (2017) examined the socio-economic effects of oil bunkering in Delta State using a mixed-methods approach. Data were collected via questionnaires distributed to 300 residents across Ughelli, Warri, and Sapele. Statistical analysis revealed that oil bunkering led to frequent oil spills, poor agricultural productivity, and migration of youth to criminal networks. The study concluded that illegal oil activities directly contributed to the underdevelopment of local communities by increasing poverty and reducing life expectancy due to health risks.

Bokolo (2020) carried out a field study on illegal oil activities and community underdevelopment in Delta State. He adopted a participatory rural appraisal method involving

interviews with local chiefs, environmental activists, and government officials. The results indicated that illegal bunkering operations destroyed community roads, water sources, and arable lands, with little to no government intervention in repairing the damage. The study concluded that the perceived neglect by the government further fueled hostility and support for bunkering among locals.

Moreso, Omorogbe and Enwere (2019) conducted a research on the environmental and health impacts of illegal oil refining in Okpai and Otu-Jeremi communities in Delta State. The study employed environmental toxicology testing and administered structured health surveys. Results showed high concentrations of soot, lead, and other pollutants in the air and water. Community residents reported increased cases of cancer, respiratory ailments, and miscarriages. The study concluded that these health and environmental crises had led to declining productivity and increased healthcare costs, crippling the local economy.

Oghene and Umeh (2021) analyzed the role of youth unemployment and political marginalization in sustaining oil bunkering in Delta State. Using structural equation modeling and survey data from 250 unemployed youths in Burutu and Bomadi LGAs, the study found a strong positive correlation between lack of job opportunities and involvement in illegal bunkering. The conclusion was that illegal oil activities will continue to affect socio-economic development and stability in the region until government puts an end, by introducing policies that prioritize youth development and community empowerment.

Adishi and Oluwagbenga (2016) conducted a study on oil theft, illegal bunkering, and pipeline vandalism in the Niger Delta. The researchers used data from the Nigerian National Petroleum Corporation (NNPC) and conducted interviews with security personnel. Descriptive statistics were used to analyze the frequency and economic impact of these incidents. The study found that oil bunkering activities hindered economic growth, discouraged foreign investment, and escalated environmental degradation. They

recommended strengthening governance structures, creating employment opportunities for youths, and enhancing enforcement mechanisms to combat oil theft.

2.3.1 Gap in Literature

From the foregoing review of empirical studies on oil theft, illegal bunkering, and their socio-economic and environmental implications in the Niger Delta, it is evident that extensive studies have been carried out on the issues and challenges surrounding these activities. Majority of the reviewed studies, like Wilson, 2014; Boris, 2015; Richard and Briggs, 2017, Eduviere, 2023 e.t.c have to a great extent emphasized the relationship between poverty, weak governance, youth unemployment and environmental degradation as key players and results of illegal oil operations. These studies have continuously showed that the continuous existence of oil theft is deeply related to poor state accountability, poor law enforcement mechanisms and lack of economic inclusion.

However, despite the breadth of research, several gaps remain unaddressed. First, most of the existing studies are descriptive or qualitative in nature, focusing on narrative explanations of causes and consequences rather than providing comprehensive quantitative models that measure the magnitude of socio-economic and environmental impacts over time. Second, few studies have integrated spatial and temporal analyses to assess how the intensity of oil bunkering activities varies across different Niger Delta communities and how this correlates with patterns of local underdevelopment. Third, the majority of the reviewed works concentrate primarily on the environmental and economic dimensions, with limited attention to the institutional and governance frameworks that could effectively mitigate oil theft and promote sustainable livelihoods in the region.

Furthermore, the existing literature on oil-related activities in the Niger Delta region of Nigeria highlights widespread socio-economic and environmental challenges, yet there

remains a limited focus on the intricate relationship between illegal oil bunkering, insecurity, and unemployment at the community level particularly in Kokodiagbene and Azama communities. These communities, situated in Delta State, have been significantly affected by the operations of illegal oil bunkering, which have triggered a series of socio-political and economic consequences. Previous studies have extensively discussed the environmental degradation caused by illegal oil bunkering and its effects on marine ecosystems, farmlands, and health. However, little scholarly work has been dedicated to analyzing how such activities simultaneously contribute to rising insecurity and persistently high unemployment rates in Kokodiagbene and Azama. Most empirical investigations have treated illegal oil bunkering either as a criminal enterprise or as an economic survival strategy without sufficiently exploring how it interacts with broader patterns of youth joblessness and violent conflict in these specific localities.

Therefore, this study seeks to fill these gaps by adopting a more integrated, empirical, and multidimensional approach to examine the socio-economic, environmental, and security implications of oil theft and illegal bunkering in the Niger Delta. Specifically, it will focus on Kokodiagbene and Azama communities in Delta State, analyzing the interconnections between unemployment, insecurity, and illicit oil activities. The study aims to provide a deeper understanding of how these intertwined issues shape local development outcomes and to propose context-specific strategies for sustainable peace and economic stability in the region.

2.4 Theoretical Framework

2.4.1 Resource Curse Theory

According to the theory of Resource Curse propounded by Richard Auty, there is a paradox that that is countries are usually less economically developed, have weaker governments and more poverty than the countries that are not blessed. The theory attributes this phenomenon

to issues such as corruption, environmental destruction and issues over management of resources that do not support sustainable development and equitable distribution of wealth (Auty, 1993). As applied to the case of unlawful oil bunkering business and its effects on socio-economic development in Delta State, Nigeria, the Resource Curse Theory provides a ground on which one can examine the negative socio-economic consequences of poor management of the natural resources. Delta State with its rich supply of crude oil has turned into an oil bunkering hub and this has encompassed unauthorized access to the oil pipelines as well as illegal trade in crude oil. Even though the activity brings massive revenues to those involved, it has far-reaching negative impacts on the socio-economic organization of the state (Ross, 2012).

According to the Resource Curse Theory, fair socio-economic development has not been achieved in Delta State due to the presence of bountiful oil deposits. Quite to the contrary, illegal oil bunkering has increased economic vagaries, weakened government, and damaged the environment. The parallel economy created due to unlawful oil bunkering interferes with the normal economic endeavors, particularly farming and fishing which form the major sources of livelihood to many rural societies. In turn, the cycle of economic marginalization is established, such as poverty and unemployment, thereby, leading to the ecological destruction caused by the exploitation of resources (Watts, 2008). Moreover, the ecological destruction is also emphasized in the theory as the outcome of the exploitation of resources. Unauthorized siphoning of oil in Delta State leads to frequent oil spills and pipeline breakages, which contaminate farmlands and waterways in a serious manner. The failure of governance is also a factor that contributes to this environmental crisis which disrupts agricultural production and access to clean water enhancing food insecurity and health complications among affected societies (Auty, 1993). The Resource Curse Theory also emphasizes the role of governance failures in causing this environmental crisis. The illegal oil

bunkering thrives on corruption, ineffective regulatory systems, and enforcement. Communities are deprived of the resources to enable sustainable socio-economic development due to revenue that is diverted to fund infrastructural, educational and medical research and development instead of investing it in these sectors (Ross, 2012).

2.4.2 Elite Theory

The theory of Elites, initially formulated in the early 20th century by Vilfredo Pareto and Gaetano Mosca, and subsequently elucidated by C. Wright Mills in The Power Elite (1956), is that in any organized society, the privileged elites are the small group that dominant power over political, economic and social decisions. By nature, such elites have disproportionate control, which is usually against the interests of the general population, due to their strategic locations in institutions. The theory indicates that, in a democratic system, power is actually concentrated in the hands of the few which exploit the political system to generate certain outcomes to benefit themselves and not the overall good.

The Elite Theory will be used in the context of the study to analyse how illegal oil bunkering activities in Delta State, Nigeria continue and go on flourishing because of the power and protection of the powerful elites. The theory assists in the explanation of how these elites, which make up political leaders, military leaders, and powerful business people, use their state resources and institutions to enrich personal interests, which in most cases lead to and contribute to unlawful economic engagements, which include oil bunkering. Although oil bunkering has devastating effects on the socio-economic progress of the people on the ground, the elites who support the operations or even take a blind eye to the practices are still becoming rich and gaining more power, which keeps the people in chains of inequality and marginalization.

According to Elite Theory, these people or groups can not merely seize the power of the state but can also use the agencies of enforcement or legal systems to evade prosecution or

responsibility (Mosca, 1939; Mills, 1956). This has taken the shape of institutional complicity and endemic corruption in Delta State as those in authority in the state actively engage in or ignore the bunkering activities in the state. This kind of elite dominance has made successful execution of the policies and environmental protection impossible, which worsens the conditions of living in oil producing societies.

In addition, the Elite Theory assumptions imply that the elites reproduce themselves, that is, power is transmitted or retained in a small group of individuals by a set of networks of influence and patronage. This brings about a cycle of local communities being restricted to the decision-making process and they are therefore seen to be voiceless in the resources management and development planning process (Pareto, 1901). Consequently, even though the illegal oil bunkering rakes in billions of naira in illicit revenue every year, minimal amounts are spent on improving the infrastructural aspects, education, health care and creating employment opportunities that are significantly important in socio-economic growth.

2.5 Organizational context of the Study

Delta State is located in the Niger Delta region of Nigeria and is richly endowed with robust oil and gas resources, making it a major contributor to the country's economy. Among the numerous communities in the state, Kokodiagbene and Azama are well-known oil-producing communities with long-standing involvement in the petroleum industry. In addition, Warri South-West Local Government Area is a key administrative and oil-bearing area within the state, hosting several riverine communities that are also significantly affected by oil exploration and related activities.

Locally, these communities traditionally sustained their livelihoods through fishing, trading, and farming, drawing on the abundant resources of the region's waterways and fertile land. Prior to the advent of commercial oil exploration, Kokodiagbene, Azama, and communities

within Warri South-West Local Government Area shared similar socio-cultural characteristics, including vibrant cultural festivals and traditional governance systems headed by chiefs and councils of elders, which ensured social cohesion and conflict resolution. The economy was largely subsistent and closely tied to the natural environment. However, the socio-economic dynamics of these communities changed significantly following the discovery of crude oil in the Niger Delta. This development introduced oil industry operations that brought economic opportunities alongside complex challenges, particularly those related to environmental degradation and resource control.

From the 1950s onwards, the Nigerian government undertook large-scale extraction of oil resources in the Niger Delta, which played a crucial role in national economic development. Kokodiagbene, Azama, and parts of Warri South-West Local Government Area also became focal points for oil exploration and extraction activities.

In terms of demographic context, the total population size of the two primary study communities is estimated at 3,800, with Kokodiagbene accounting for approximately 2,200 residents and Azama about 1,600 residents. In recent decades, illegal oil bunkering has expanded considerably across Kokodiagbene and Azama, are within Warri South-West Local Government Area, driven by economic hardship, unemployment, and the pursuit of quick financial gain by local youths and organized criminal networks. This illicit activity involves the unauthorized tapping of oil pipelines and illegal sale of crude oil, resulting in severe environmental damage, including oil spills that have destroyed farmlands, polluted fishing waters, and degraded local biodiversity.

The socio-economic consequences of illegal oil bunkering in these communities are significant. While a few individuals benefit financially from the illicit trade, the wider population suffers from increased poverty, loss of traditional livelihoods, health risks, and

social instability. Governance structures in Kokodiagbene, Azama, and Warri South-West Local Government Area, including traditional institutions and local government authorities, have struggled to effectively curb the practice due to weak enforcement mechanisms and persistent corruption.

Today, Kokodiagbene and Azama, are in Warri South-West Local Government Area they continue to experience the adverse effects of illegal oil bunkering, which hinder sustainable development and deepen socio-economic inequalities. Efforts by government agencies and oil companies to address these challenges have achieved limited success, highlighting the need for a more comprehensive, community-inclusive approach to governance, environmental restoration, and economic diversification. Understanding the organizational and geographical context of these communities is therefore essential to framing this study on illegal oil bunkering and its impact on socio-economic development.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

This study adopts a survey research design, which is appropriate for understanding the relationship between illegal oil bunkering activities and socio-economic development in oil-bearing communities. The design enabled the researcher to gather detailed information about the illegal oil bunkering activities and its effect on socio-economic development of communities in Kokodiagbene and Azama communities of Delta State.

3.2 Population of the Study

The population of this study consists of residents of Kokodiagbene and Azama communities in Warri South West Local Government Area of Delta State. The total population size of the two communities is estimated at 3,800 (Kokodiagbene – 2,200; Azama – 1,600) based on local administrative records. *(Delta State Ministry of Oil Producing Communities, 2025).*

3.3 Sample Size

From the total population of 3,800, a sample size was determined using the Taro Yamane formula. The formula was applied to determine the sample size for this study, resulting in a total of 362 participants across both communities. The calculation is shown below:

Where:

n = sample size

N = population of the study = 3,800

e = sampling error (usually 0.05)

$n = N / (1 + N(e^2)$

$n = 3,800/ 1 + 3,800(0.05^2)$

$= 3,800 / 1 + 3,800(0.0025)$

$= 3,800 / 1 + 9.5$

= 3,800 / 10.5

= 361.9

Rounded to the nearest whole number, n = 362

3.4 Sampling Technique

The study made use of the simple random sampling technique. It is a sampling technique where each member of a population is equally likely to be chosen. The technique eliminates bias by ensuring that the sample is representative of the entire population through a random selection of individuals from the population.

3.5 Methods of Data Collection

The study made use of primary and secondary data. Primary data was gathered using structured questionnaire, while secondary data was gathered through textbooks, government publications, journal articles online databases and academic studies related to illegal oil bunkering and socio-economic development in the Niger Delta.

3.6 Research Instruments

Structured questionnaire and interview guide were the research instruments use for the study. The questionnaire is divided into two sections: Section A: Personal data of the respondents, while Section B: Research statements aligned with the research questions and objectives. The questionnaire consists of 16 closed-ended questions, using a five-point Likert scale with the response format: Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. The interview questions was a structured open-ended questions relating to the objectives of the research work.

3.7 Validity of Research Instruments

The questionnaire was reviewed by the research supervisor and two other experts at the department who provided corrections and recommendations to ensure its content validity.

Adjustments was made according to their inputs to enhance the accuracy and relevance of the instrument.

3.8 Reliability of Research Instruments

A reliability test was conducted using the designed research instrument on 30 residents from a similar oil-bearing community not included in the main study. The same research instrument was administered after two weeks. Using Cronbach Alpha, a reliability coefficient of 0.76 was obtained, indicating the instrument was reliable for the study (the result is attached as an appendix).

3.9 Methods of Data Analysis

In this research, the study employed descriptive and inferential statistical methods of analysis. Frequency tables and simple percentages (%) were used to analyze data collected from the field, providing a clear and straightforward interpretation of responses in relation to the research questions. Multiple regression analysis was used to test the research hypotheses with the aid of SPSS version 25. In addition, data obtained from the interview guide were analyzed thematically, allowing for the identification of recurring patterns, themes, and meanings in respondents' views.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation

This chapter presented and analyzed the results of data obtained from the survey conducted, this is to enable the researcher test the field works through the use of percentage and inferential statistical tools.

Table 4.1.1 Rate of Return of Questionnaire

Items	No. of Copies	Percentage (%)
Number of retrieved questionnaire	311	85%
Number of questionnaire not retrieved	51	15%
Total number of Questionnaire	362	100%

Source: Field Survey (2025)

A total of 362 questionnaire was administered to both Male and Female inhabitants of Kokodiagbene and Azama communities in Delta State, Nigeria.A total of 311 questionnaire representing 85% was retrieved, while 51 representing 15% were either void or not returned. This study therefore utilized 311 responses for the analysis.

Section A: Analysis of Bio-data of Respondents

SECTION A: BIO-DATA

Table 4.1.2: Demographic Characteristics of Respondents

Variable	Category	Frequency (n=311)	Percentage (%)
Gender	Male	182	58.5%
	Female	129	41.5%
		311	**100%**
Age	18–25	72	23.1%
	26–35	99	31.8%
	36–45	83	26.7%
	46 and above	57	18.3%
		311	**100%**
Educational Qualification	No Formal Education	45	14.5%
	Primary	87	28.0%
	Secondary	112	36.0%
	Tertiary	67	21.5%
		311	**100%**
Occupation	Farming	108	34.7%
	Fishing	79	25.4%
	Business	71	22.8%
	Others	53	17.0%
		311	**100%**
Marital Status	Single	84	27.0%
	Married	149	47.9%
	Separated	29	9.3%
	Divorced	23	7.4%
	Widowed/Widower	26	8.4%
		311	**100%**
Community	Kokodiagbene	166	53.4%
	Azama	145	46.6%
		311	**100%**

Research Survey, 2025

The demographic characteristics of the respondents reveal that the representation is rather equal, although with few discrepancies between categories. Gender wise, majority of the respondents (58.5%) were males and only a small number (41.5%) were females, implying that the sample to be used in the study consisted mostly of men. With regards to age, the most common percent of respondents (31.8%) included in the age group of 26-35 years, then comes 36-45 years (26.7%), and the youngest age group (18-25 years) made up 23.1%. Those who were 46 and above constituted 18.3%. This distribution also demonstrates that most of the participants belong to the active and productive age range that indicates that their attitude to the oil bunkering and socio-economic issues is founded on actual experience. Educational attainment statistics have shown that the majority of the population has secondary (36.0%), primary (28.0%), and tertiary (21.5%) education. A lower proportion (14.5%) reported that they never had formal schooling. It denotes that most of the respondents had basic to middle levels of formal education, which may have had an impact on their understanding of community-related problems.

In terms of occupation, farming (34.7%) and fishing (25.4%) were the dominant livelihoods, consistent with the agrarian and riverine nature of Kokodiagbene and Azama communities. Business accounted for 22.8%, while 17.0% were engaged in other activities. Marital status data indicate that nearly half (47.9%) of the respondents were married, while singles made up 27.0%. The remaining respondents were separated (9.3%), divorced (7.4%), or widowed/widower (8.4%), reflecting diverse family backgrounds within the sample.

Also, the distribution of the community shows that 53.4% of the respondents were of Kokodiagbene and 46.6% Azama. Such near equilibrium enhances the representativeness of findings in the two societies. Overall, the demographic data suggest a rather diverse

population, which ensures that the study is not limited to the perspectives of one specific age group, education level, occupation, and social category.

Section B: Research Question

Table 4.1.2: The impact of illegal oil bunkering activities on socio-economic development in Kokodiagbene and Azama communities

Statement	SA	A	UD	D	SD
Illegal oil bunkering activities has significantly disrupted the economic growth of Kokodiagbene and Azama communities.	173 (55.6%)	90 (28.9%)	18 (5.8%)	20 (6.4%)	10 (3.2%)
illegal oil bunkering activities has affected infrastructural development of communities.	52 (16.7%)	76 (24.4%)	47 (15.1%)	81 (26.0%)	55 (17.7%)
Illegal oil bunkering activities have created employment opportunities despite their negative societal impacts.	97 (31.2%)	106 (34.1%)	44 (14.1%)	39 (12.5%)	25 (8.0%)
Illegal oil bunkering activities have widened the gap between the rich and the poor in the community.	142 (45.7%)	96 (30.9%)	34 (10.9%)	26 (8.4%)	13 (4.2%)

Research Survey, 2025

The findings show that most of the participants (87.1%) agreed that illegal oil bunkering activities have increased insecurity in Kokodiagbene and Azama communities with only 8 percent opposing it and only 4.8% not convinced. This confirms the fact that illegal bunkering is mostly considered as one of the major contributors to insecurity in the affected societies. Opinions were also strong regarding the relationship between high number of kidnapping and illegal oil bunkering. Among the respondents 88.7% had confirmed that kidnapping had an association with oil bunkering, 6.1% had indicated that it was not the case,

and 5.1% was not sure. Although, 89.1% agreed that livelihoods have been affected negatively, only 6.5% disagreed with this perception, with 4.5% not sure at all.

This shows that oil bunkering directly influences the output and economic wellbeing of the families who rely on such a conventional occupation.

Table 4.1.3 The effects of environmental degradation resulting from oil bunkering on farming and fishing livelihoods

Statement	SA	A	UD	D	SD
Oil bunkering activities have caused severe damage to the farmlands and fishing waters in the communities	198 (63.7%)	72 (23.1%)	19 (6.1%)	15 (4.8%)	7 (2.3%)
Farming and fishing livelihoods have declined due to frequent oil spills from illegal bunkering	189 (60.8%)	88 (28.3%)	14 (4.5%)	12 (3.9%)	8 (2.6%)
Environmental degradation caused by oil bunkering has forced community members to seek alternative livelihoods	176 (56.6%)	84 (27.0%)	23 (7.4%)	18 (5.8%)	10 (3.2%)
Illegal oil bunkering has impacted negatively on environmental sustainability in the communities in Delta State	181 (58.2%)	92 (29.6%)	17 (5.5%)	13 (4.2%)	8 (2.6%)

Research Survey, 2025

The findings show that a significant majority of respondents (86.8%) agreed that oil bunkering activities have caused severe damage to farmlands and fishing waters in the communities, while only 7.1% disagreed, and 6.1% remained undecided. This confirms that illegal bunkering is widely perceived as a major threat to the agricultural and fishing resources that sustain community livelihoods.

On whether farming and fishing livelihoods have declined due to frequent oil spills, opinions were even stronger. While 89.1% agreed that livelihoods have been negatively affected, only 6.5% disagreed, and 4.5% were undecided. This indicates that oil bunkering has a direct and substantial impact on the productivity and economic stability of households dependent on these traditional occupations. Regarding the need for alternative livelihoods, 83.6% of respondents agreed that environmental degradation caused by oil bunkering has forced community members to seek other sources of income, while 9% disagreed, and 7.4% were undecided. This highlights how the decline of farming and fishing has compelled residents to diversify into less stable or informal economic activities. Finally, 87.8% of respondents agreed that illegal oil bunkering has negatively impacted environmental sustainability in the communities, while 6.8% disagreed, and 5.5% were undecided. This suggests that beyond immediate economic consequences, oil bunkering poses long-term risks to the ecological balance and resilience of the communities, further threatening livelihoods and natural resources.

Table 4.1.4 The effect of illegal oil bunkering on insecurity

Statement	SA	A	UD	D	SD
Illegal oil bunkering activities has contributed to increased levels of insecurity in the communities.	204 (65.6%)	67 (21.5%)	15 (4.8%)	15 (4.8%)	10 (3.2%)
The high rate of kidnapping contributed to the activities of illegal oil bunkering in the communities.	187 (60.1%)	89 (28.6%)	16 (5.1%)	11 (3.5%)	8 (2.6%)
Oil bunkering activities have led to a rise in crime and violence in Kokodiagbene and Azama communities.	196 (63.0%)	74 (23.8%)	19 (6.1%)	13 (4.2%)	9 (2.9%)
The community's reputation has been negatively affected due to its association with illegal oil activities.	173 (55.6%)	85 (27.3%)	29 (9.3%)	15 (4.8%)	9 (2.9%)

Research Survey, 2025

The results indicate that a high proportion (87.1%) of the respondents found that bunkering has led to the escalation of insecurity with only 8 percent of the respondents voicing their opposition. On the same note, 88.7% of the respondents associated the activity with unemployment, and thus; joblessness was identified as a major cause of oil bunkering. Moreover, 86.8 percent responded to the question that bunkering is associated with increased crime and violence whereas only 7.1 percent responded in the negative. This implies that the community has a good perception of the existence of a causal relationship between illegal oil activities and social disorder. Finally, 82.9% agreed that community reputation has suffered as a result of bunkering, while only 7.7% disagreed. This highlights the stigma associated with the practice, which negatively affects how outsiders perceive these communities.

Table 4.1.5 Extent to which illegal oil bunkering has affected general well-being of the inhabitants Kokodiagbene and Azama communities

Statement	SA	A	UD	D	SD
The well-being of community members has declined due to economic and environmental effects of oil bunkering.	191 (61.4%)	76 (24.4%)	23 (7.4%)	12 (3.9%)	9 (2.9%)
Social services such as schools and healthcare have deteriorated as a result of illegal oil activities.	184 (59.2%)	78 (25.1%)	26 (8.4%)	13 (4.2%)	10 (3.2%)
The community lacks sustainable development projects because of ongoing bunkering operations.	177 (56.9%)	79 (25.4%)	29 (9.3%)	17 (5.5%)	9 (2.9%)
Despite the challenges, some individuals believe oil bunkering has provided short-term financial relief.	93 (29.9%)	102 (32.8%)	54 (17.4%)	38 (12.2%)	24 (7.7%)

Research Survey, 2025

The findings reveal that 85.8% of respondents agreed that community well-being has declined due to oil bunkering, while only 6.8% disagreed. Similarly, 84.3% affirmed that schools and healthcare facilities have deteriorated, reflecting weakened social infrastructure. Additionally, 82.3% agreed that the lack of sustainable development projects in the communities is due to oil bunkering, while 8.4% disagreed. This suggests that illegal oil activities undermine not just livelihoods but also long-term development planning. Conversely, the less significant yet significant percentage (62.7%) concurred that oil bunkering offers some short term financial relief, although 19.9% disagreed and 17.4% were not sure. This underscores the dilemma facing community members, as bunkering offers immediate financial gains but undermines long-term well-being and sustainability.

4.2 Hypothesis Testing

1. H_0: There is no significant relationship between Illegal oil bunkering activities and the socio-economic development of Kokodiagbene and Azama communities in Delta State.
2. H_0: there is no significant relationship between environmental degradation resulting fom oil bunkering and the traditional livelihoods such as farming and fishing in Kokodiagbene and Azama communities in Delta State.
3. H_0: There is no significant relationship between illegal oil bunkering activities and insecurity in Kokodiagbene and Azama communities in Delta State.
4. H_0: There is no significant relationship between illegal oil bunkering activities and the general well-being of inhabitants of Kokodiagbene and Azama communities in Delta State.

Table 4.2.1: Correlations Matrix Illegal Oil Bunkering Activities (IOBA), Socio-Economic Development (SED), Environmental Degradation (ED), Insecurity (IS), and General Well-Being (GWB)

Variable	IOBA (Illegal Oil Bunkering)	SED (Socio-Economic Development)	ED (Environmental Degradation)	IS (Insecurity)	GWB (General Well-Being)
Illegal Oil Bunkering (IOB)	1	0.76**	0.69**	0.81**	0.74**
Socio-Economic Development (SED)	0.76**	1	0.67**	0.70**	0.72**
Environmental Degradation (ED)	0.69**	0.67**	1	0.65**	0.69**
Insecurity (IS)	0.81**	0.70**	0.65**	1	0.78**
General Well-Being (GWB)	0.74**	0.72**	0.69**	0.78**	1

Research Survey, 2025

Note: Correlation is significant at the 0.01 level (2-tailed).

Table 4.2.1 reveals the correlation matrix of the conceptual variables. As shown in the result, The strongest correlation exists between illegal oil bunkering and insecurity (0.81), indicating that communities affected by bunkering activities tend to experience heightened insecurity, including violence and crime. This is followed by socio-economic development (0.76), suggesting a significant influence of illegal oil activities on the economic structure, infrastructure, and poverty levels in the communities. Similarly, environmental degradation (0.69) and general well-being (0.74) also show strong correlations with illegal oil bunkering. This means that oil bunkering negatively affects farmlands, water bodies, and ultimately the health, safety, and quality of life of inhabitants in Kokodiagbene and Azama communities.

These positive correlations imply that as illegal oil bunkering increases, so do the challenges in socio-economic development, environmental degradation, insecurity, and a decline in the

general well-being of residents. The results support the hypothesis that illegal oil bunkering is a critical driver of underdevelopment and instability in the Niger Delta region.

Table 4.2.2: Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	P-Value
Constant	1.082	0.211	5.128	0.000
Socio-Economic Development (SED)	0.364	0.073	4.986	0.000
Environmental Degradation (ED)	0.298	0.069	4.319	0.000
Insecurity (IS)	0.442	0.067	6.597	0.000
General Well-Being (GWB)	0.379	0.065	5.831	0.000

- R-squared = 0.882
- Adjusted R-squared = 0.879
- F-statistic = 155.682
- Prob(F-statistic) = 0.0000

Table 4.2.2 presents the multiple regression results examining the impact of Illegal Oil Bunkering Activities (IOBA) on four key indicators: Socio-Economic Development (SED), Environmental Degradation (ED), Insecurity (IS), and General Well-Being (GWB) in Kokodiagbene and Azama communities. The regression results indicate that all four variables have positive coefficients and are statistically significant at the ($p < 0.01$), suggesting that each variable is significantly affected by illegal oil bunkering activities. The coefficient ($\beta = 0.442$) of insecurity is the highest, implying that it is the most influenced dimension. It means that the more the oil bunkering activities become popular, the more insecurity levels in the area dramatically grow, and cases of violence, robberies, and armed conflicts become more common.

The relationship is also very positive with General Well-Being (GWB) and Socio-Economic Development (SED), as both $\beta = 0.379$ and $\beta = 0.364$ are found to be negative which imply

that oil bunkering is a negative interference to the development of the community, its income, education, and health outcomes. Environmental Degradation (ED) has also a considerable effect (β = 0.298), which is the negative impact of illegal bunkering, oil spills, and pollution as well as environmental damage.

Based on the findings presented in the tables, the activities of illegal oil bunkering are diagnosed to have positive strong correlation with socio-economic development (correlation coefficient = 0.76), and the regression analysis shows that the coefficient of correlation is significant (β = 0.364, t-statistic = 4.986, p-value = 0.000). It means that illegal oil bunkering has a strong impact on socio-economic development of the study regions. We therefore reject the null hypothesis and accept the alternative hypothesis that there is a significant relationship between illegal oil bunkering and socio-economic development.

H_{02}: There is no significant relationship between environmental degradation in oil and traditional livelihoods such as farming and fishing in Kokodiagbene and Azama communities.

As shown in the correlation matrix, illegal oil bunkering is significantly related to environmental degradation (r = 0.69), and the regression result further confirms this relationship with a coefficient (β = 0.298, t-statistic = 4.319, p-value = 0.000). The degradation of farmlands and aquatic environments has negatively impacted farming and fishing activities in the communities. We therefore reject the null hypothesis and accept the alternative hypothesis that there is a significant relationship between environmental degradation caused by oil bunkering and traditional livelihoods in the study area.

H_{03}: There is no significant relationship between illegal oil bunkering activities and insecurity in Kokodiagbene and Azama communities.

The correlation result shows a very strong positive relationship between illegal oil bunkering and insecurity (correlation coefficient = 0.81). Similarly, regression analysis reveals a significant effect (β = 0.442, t-statistic = 6.597, p-value = 0.000). This suggests that illegal oil activities have heightened crime, violence, and conflict within the communities. We therefore reject the null hypothesis and accept the alternative hypothesis that illegal oil bunkering activities have a significant relationship with insecurity in Kokodiagbene and Azama communities.

H_{04}: There is no significant relationship between illegal oil bunkering activities and the general well-being of inhabitants of Kokodiagbene and Azama communities in Delta State.

According to the analysis, there is a high positive correlation between the illegal oil bunkering and the general wellbeing (r = 0.74). The regression coefficient is also significant (β = 0.379, t-statistic = 5.831, p-value = 0.000) and it shows that these activities have had a direct impact on the health, safety and quality of life of the community members. We thus reject the null hypothesis and accept the alternative hypothesis stating that illegal oil bunkering activities have a great influence on the overall well-being of the study community residents.

The interviews in Kokodiagbene and Azama communities have expressed that there are strong emotional, economic, and social issues regarding the effects of illegal oil bunkering. Most of the people interviewed did so with a sense of

frustration and sadness and how the practice has changed the character of their communities slowly by slowly.

One of the middle-aged fishermen talked with a choking threat, and said that *''the river is dead; the river which feeds our families is now poisoned; we can no longer fish''*. He said that during his childhood, the river was clear, full of life and reliable. Nowadays, it is, however, oil-slicked and the number of fish has significantly decreased. He says the occupation that was once a source of pride passed on by the father to the son is now a survival.

In a similar way, one of the middle-aged women was complaining about the state of farmlands. She said that *''our farms are now not productive due to the penetration of crude oil into the soil''*. She also observed that crops like cassava and plantain are no longer productive as they used to be and some farmers are getting little or nothing yet they work tirelessly. The fertile land has been polluted and some households are now compelled to do away with farming altogether.

A number of the interviewees told of illegal oil bunkering being very common and normalized. As one of the participants described, *''such activities occur nearly every night and everyone is aware of them''*. In his view, the operations have ceased to be secret, as they are today being done in the full view of creeks and pipelines. Other respondents further explained that *''it is no longer a secretive business since some individuals openly defend those who are involved in the business as they are the beneficiaries''*. This implies that the practice has been entrenched into the local economy.

When questioned regarding the people involved, one of the respondents noted that *''most of the involved persons are mainly the unemployed youths but supported by influential sponsors who are operating quite in the background''*. He opined that many young men have been susceptible to recruitment due to poverty and absence of opportunities. Another respondent also added that foreigners also form other partnerships with local players, establishing organized networks that are hard to break.

The socio-economic effects were pointed out in many instances. One of the interviewees commented that *''we are not developing, rather, we are destroying; our roads and schools have not improved since the oil prosperity''*. He wondered why societies that make so much contribution to the national revenue fail to have basic infrastructure. The other respondent said that the illegal bunkering has increased social inequality, and gave the reason that *''the people who engage in bunkering construct large houses and purchase costly vehicles, and the rest of the people find it difficult to feed their families''*. This increasing gap has been cited to cause resentment and division amongst the communities.

Environmental degradation emerged as one of the most painful themes. A community member explained that *"oil spills have turned our streams black, and sometimes fire outbreaks destroy nearby vegetation."* Residents described scenes of thick smoke from illegal refineries polluting the air and causing respiratory discomfort. One woman shared her fears for her children, stating that *"even our children breathe polluted air, and we now buy water because our streams are contaminated."* The financial burden of purchasing clean water adds to the hardship already faced by families.

During the interview on interviewee lamented that insecurity was one of biggest problem for many years, the respondent stated plainly that *"young youths vandalize oil pipeline and allowing the community land to be populated with high resolution air evaporation."* He further stated that with the help the new Tantita Security force the illegal bunkering activities in the community reduce.

The overall well-being of residents has significantly declined. One participant observed that *"people now suffer from strange illnesses due to pollution. "*Complaints of skin rashes, persistent coughs, and respiratory problems were frequently mentioned. Another respondent reflected nostalgically, saying that *"life was better before; now we live in fear and uncertainty."* This sense of lost stability and diminished hope was common among participants.

Despite the challenges, respondents also offered thoughtful recommendations. One interviewee stressed that *"government should provide real jobs for the youths so they will not see bunkering as the only option."* Others emphasized the need for genuine community development initiatives. A participant suggested that *"oil companies must clean up the environment and invest sincerely in our schools and hospitals."* Traditional leaders were also mentioned, with one respondent asserting that *"our leaders should speak strongly against this practice and guide the youths toward better opportunities."*

4.3 Discussion of Major findings

The results obtained in this paper are consistent with the available literature on socio-economic and environmental impacts of the violation of the law in the oil bunkering business in the Niger Delta area of Nigeria. One of the main problems that emerge as a result of the research is the destabilizing impact of illegal oil bunkering on the socio-

economic development. The interviewees always gave the response that the economic activities in the Kokodiagbene and Azama communities have been interfered with as a result of illegal petroleum products siphoning and refining.

During the interviews, one of the community members stated that

> *"the businesses are no longer doing well due to the failure of the environment to be safe and that the investors in the community are not interested in the development of the community because, according to another resident, most developments programs promised to the community have never seen the light of day because of oil bunkering that killed the trust between the community and the government."*

This is in line with the research by Ibaba and Olumati (2020) which indicated that unlawful oil activities leave communities without any governmental investments and developments and leave the wide wealth in the possession of the few, and in most cases, through unlawful and unjust ways. According to them, even though, some residents might be benefiting temporarily due to the oil bunkering proceeds, the ultimate outcome will be the loss of sustainable livelihoods and increasing economic inequality results that are a direct reflection of the sentiments by the individuals who participated in this study.

The other important discovery that occurred was the environmental deterioration of the area through oil bunkering and the effect of oil bunkering on customary living activities like agriculture and fishing. Farmlands, rivers and dwindling fish population were destroyed widely according to the respondents.

One said that, the river that nourished our families all those generations is now poisoned, fishing no longer feeds us, and another said that our farms are no longer productive since the crude oil has seeped into the soil.

Other respondents decried the fact that even drinking water is no longer safe anymore, and that children are being raised without knowing how to farm or fish as a means of livelihood. These testimonies support the criticisms by Nduka and Orisakwe (2011) who have recorded that oil spills due to bunkering processes pollute soils and waters resulting in inefficiencies in crop production, fish death and ecological destruction in the long run. Based on their discoveries, recurrent oil pollution undermines the food systems locally and compels households to leave time-tested economic activities. This is a direct reference to the testimonies of Kokodiagbene and Azama in which respondents cited that young people who previously relied on fishing and farming have become more and more involved in illegal oil activities due to their necessity. The statistics showed that there is a high correlation between bunkering activities and increasing crime including violence, cult conflict and armed conflict in the subdivisions. This is indicative of the claims put forward by Ikelegbe (2005) who believes that illegal oil bunkering not only finances the violent militia groups, but also leads to the destruction of law and order within the Niger Delta. Ikelegbe explains that such criminal networks usually conflict on how to control the bunkering routes thus establishing unstable and unsafe conditions to the normal citizens. Similar conditions were identified by the respondents in this study such as community fear, forced migration and fragile local governance structures which are all due to the unchecked nature of oil theft and arms proliferation.

The researchers also determined that the overall well-being and quality of life has been impacted negatively in communities prone to bunkering. The recurrent themes in the answers of respondents included poor health outcomes, loss of access to clean water, and deteriorating

infrastructure. This is highly backed by Aghalino and Eyinla (2012) who state that oil bunkering does not only compromise the health of the environment but also impairs the ability of governments and NGOs to implement social services. Their study revealed that most of the time there are oil crises that discourage external development actors to involve themselves with the communities thus further isolating them. This was ascertained by respondents who said that schools, clinics, and markets in Kokodiagbene and Azama are either underfunded, under-equipped, or completely neglected to the extent of creating a feeling of social neglect and marginalization.

Also, the short-term financial benefit of oil bunkering was realized by some of the respondents, especially among the unemployed youths. This is similar to what Oluwaniyi (2014) sees, who asserts that most youths are enticed into bunkering due to the direct cash inducement even though the socio-economic consequences of bunkering are felt in the long term. Oluwaniyi emphasizes that the fact that the Nigerian state fails to offer legitimate means of employment is one of the factors that promote the institutionalization of oil-based crime in the Niger Delta. This feeling was echoed in this research whereby a number of the respondents spoke of the practice as a necessary evil because of the neglect and inaccessibility of viable economic options by the government.

Overall, the findings of this study confirm that illegal oil bunkering is not an isolated criminal activity**,** but a deeply embedded socio-political and economic issue. It thrives in contexts of poverty, weak institutions, and environmental neglect. The cumulative effects ranging from insecurity and economic decline to poor health and ecological damage create a cycle of underdevelopment that is difficult to break without coordinated policy intervention. These systemic challenges are not unique to Kokodiagbene and Azama but are part of a broader national dilemma that has been well-documented in Niger Delta literature

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary of Findings

This study examined the effect of illegal oil bunkering activities on socio-economic development in Kokodiagbene and Azama communities in Delta State, Nigeria. The simple random sampling method that resulted to 362 was used to select and distribute 362 questionnaires in which 311 were retrieved. The findings indicate that although illegal oil bunkering provides short-term financial gains for some individuals, its long-term consequences on the communities are largely detrimental. The study shows that these activities have severely undermined economic stability in the region through the destruction of farmlands, pollution of fishing waters, and the discouragement of formal investment. The results also reveal a strong link between environmental degradation resulting from oil bunkering and the decline of traditional livelihoods such as farming and fishing. Respondents consistently reported a significant reduction in agricultural productivity and fish stock due to frequent oil spills and water contamination. Furthermore, the communities have experienced heightened insecurity, driven by increasing criminal activities and inter-group conflicts associated with illegal oil bunkering.

The study further indicates a decline in the overall well-being of community members. Essential indicators such as healthcare, education, and access to social services have deteriorated. Respondents reported a rise in illness cases associated with environmental pollution, limited availability of clean water, and reduced access to functional healthcare facilities. Infrastructure such as schools and roads remain poorly developed, further exacerbating poverty and limiting opportunities for sustainable development. Although some residents acknowledged short-term financial relief from engaging in bunkering, the broader impacts have led to economic instability, environmental decay, and worsening quality of life.

5.2 Conclusion

This study examined the impact of illegal oil bunkering activities on the socio-economic development of Kokodiagbene and Azama communities in Delta State. It concludes that illegal oil bunkering is a critical threat to sustainable development in the Niger Delta. While some economic activities and individuals may temporarily benefit, the environmental, social, and economic costs are severe and enduring. The study found that illegal bunkering contributes significantly to environmental degradation, which has undermined the communities' agricultural and fishing-based economies. It also breeds insecurity, fosters youth involvement in violence and criminal activities, and deters public and private investment. Furthermore, the well-being of inhabitants has been compromised through poor access to education, healthcare, and other essential services. These findings indicate that the persistence of illegal oil bunkering is not just a matter of criminality but reflects broader structural problems, including poverty, weak governance, and the absence of viable livelihood alternatives. A multifaceted and community-inclusive approach is therefore necessary to address the root causes and mitigate the long-term consequences.

5.3 Recommendations

In light of the above findings, the following recommendations are proposed:

1. Federal and state governments must improve the capacity of security agencies to detect, prevent, and respond to oil theft. This should include investment in surveillance technologies such as drones, and intelligence-sharing mechanisms.
2. Community members should be actively involved in local security initiatives. Empowering local vigilante groups and traditional rulers can increase trust and improve early warning systems.

3. Urgent steps should be taken to clean up polluted lands and restore affected ecosystems. The government should collaborate with oil companies and international bodies to fund long-term remediation programs.
4. The government, through its Niger Delta development agencies, should invest in skill acquisition programs, micro-credit facilities, and small-scale enterprise support to divert youths from oil-related crimes.
5. Awareness campaigns should be launched to educate residents on the environmental, health, and legal consequences of illegal oil bunkering. These campaigns should be tailored to local languages and cultural contexts.
6. Oil-producing communities should be prioritized in the allocation of infrastructure projects such as roads, schools, health centers, and water systems. This can reduce resentment and feelings of marginalization.

5.4 Suggestions for Further Research

Further research should explore:

1. Future studies could expand the geographical scope of this research by examining illegal oil bunkering in other oil-producing communities within the Niger Delta to enable comparative analysis and broader generalization of findings.
2. Further research may investigate the effectiveness of existing government policies and security interventions in curbing illegal oil bunkering, with a focus on identifying gaps in enforcement and implementation.
3. Studies could explore the role of multinational oil companies in community development and how their corporate social responsibility initiatives influence local participation in illegal oil-related activities.

4. Future research could also assess the long-term effectiveness of alternative livelihood programs and environmental remediation efforts in reducing dependency on illegal oil activities.
5. Additionally, studies may examine the role of community-based institutions and traditional leadership structures in conflict resolution and prevention of illegal oil bunkering activities.

5.5 Contribution to Knowledge

This study contributes valuable insights to the literature on resource-related conflict and environmental degradation in the Niger Delta. It provides localized, empirical evidence from Kokodiagbene and Azama communities on the socio-economic consequences of illegal oil bunkering. It highlights the interconnected nature of economic disruption, environmental harm, insecurity, and social decline, thereby enriching our understanding of the broader implications of oil-related criminality. By situating these findings within specific communities, the study offers a more nuanced understanding of how national issues manifest at the grassroots level. It also provides a useful reference for policymakers, NGOs, and researchers seeking sustainable strategies for addressing oil theft and community underdevelopment in the Niger Delta.

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APPENDIX I

QUESTIONNAIRE

Department of Political Science and Public Administration,
Faculty of Social and Management Sciences,
Benson Idahosa University,
Benin City,

Dear Sir/Madam,

REQUEST FOR YOUR COOPERATION IN COMPLETING THIS QUESTIONNAIRE

I am a Postgraduate student of Benson Idahosa University. As part of the requirement for the award of M.Sc in Public Administration, I am undertaking a research study on **"ILLEGAL OIL BUNKERING ACTIVITIES AND ITS EFFECT ON SOCIO-ECONOMIC DEVELOPMENT OF SELECTEC COMMUNITIES IN DELTA STATE, NIGERIA.**

You have been duly selected as part of the respondents. I appeal to you to assist in this study by sparing few minutes to complete the questionnaire. Your answer would be treated in strict confidence and the data obtained would be used strictly for academic purposes only.

Thanks.

Yours faithfully,

Paul Igare
Researcher

APPENDIX II

Please tick [√] your option in the boxes provided.

SECTION A – Bio-Data

1. Gender: (a) Male [ ] (b) Female [ ]
2. Age: (a) 18–25 [ ] (b) 26–35 [ ] (c) 36–45 [ ] (d) 46 and above [ ]
3. Educational Qualification: (a) No Formal Education [ ] (b) Primary [ ] (c) Secondary [ ] (d) Tertiary [ ]
4. Occupation: (a) Farming [ ] (b) Fishing [ ] (c) Business [ ] (d) Others [ ]
5. Marital Status: Single [ ] Married [ ] Separated [ ] Divorced [ ] Widowed/Widower [ ]
6. Community: (a) Kokodiagbene community [ ] (b) Azama community.

SECTION B: RESEARCH QUESTIONS

Strongly Agree [SA], Agree [A], Undecided [U], Disagree [D], Strongly Disagree [SD]

No	**STATEMENT:** **The impact of illegal oil bunkering activities on the socio-ecomomic development in Kokodiagbene and Azama communities in Delta State.**	**SA**	**A**	**U**	**D**	**SD**
7.	Illegal oil bunkering activities has significantly disrupted the economic growth of Kokodiagbene and Azama communities.					
8.	illegal oil bunkering activities has affected infrastructural development of communities.					
9.	Illegal oil bunkering activities have created employment opportunities despite their negative societal impacts.					
10	Illegal oil bunkering activities have widened the gap between the rich and the poor in the community.					
	The effects of environmental degradation resulting from oil bunkering on farming and fishing livelihoods in Kokodiagbene and Azama communities	**SA**	**A**	**U**	**D**	**SD**
11.	Oil bunkering activities have caused severe damage to the farmlands and fishing waters in the communities					
12.	Farming and fishing livelihoods have declined due to frequent oil spills from illegal bunkering					
13.	Environmental degradation caused by oil bunkering has forced community members to seek alternative livelihoods					
14.	Illegal oil bunkering has impacted negatively on environmental sustainability in the communities in Delta State					
	The effect of illegal oil bunkering activities on insecurity in Kokodiagbene and Azama communities	**SA**	**A**	**U**	**D**	**SD**
15.	Illegal oil bunkering activities has contributed to increased levels of insecurity in the communities.					
16.	The high rate of kidnapping contributed to the activities of illegal oil bunkering in the communities.					

17.	Oil bunkering activities have led to a rise in crime and violence in Kokodiagbene and Azama communities.					
18.	The community's reputation has been negatively affected due to its association with illegal oil activities.					
	The extent to which illegal oil bunkering activities has affected the general well-being of the inhabitants Kokodiagbene and Azama communities	**SA**	**A**	**U**	**D**	**SD**
19.	The well-being of community members to declined due to economic and environmental effects of oil bunkering.					
20.	Social services such as schools and healthcare have deteriorated as a result of illegal oil activities.					
21.	The community lacks sustainable development projects because of ongoing bunkering operations.					
22.	Despite the challenges, some individuals believe oil bunkering has provided short-term financial relief.					

INTERVIEW GUIDE

Illegal Oil Bunkering Activities and Its Effect on Socio-Economic Development of Selected Communities in Delta State, Nigeria

LETTER OF INTRODUCTION / INTERVIEW PURPOSE AND GUIDELINE
(Appeal for Your Time for Interview)

Good day. I hope you are doing well.

My name is **Paul Igare**, a postgraduate student in the **Department of Political Science and Public Administration, Faculty of Social and Management Sciences, Benson Idahosa University, Benin City.**

I am currently conducting a research project titled *"Illegal Oil Bunkering Activities and Its Effect on Socio-Economic Development of Selected Communities in Delta State, Nigeria."* This study is in partial fulfillment of the requirements for the award of a Master of Science (M.Sc.) Degree in Public Administration. I am appealing for your time and consent to participate in this interview, which will help me gather valuable information for my research.

Please be assured that your responses will be treated with strict confidentiality and used solely for academic purposes. Your name or identity will not be disclosed in any way.

Thank you very much for your time and willingness to participate. Let's begin.

SECTION A: Interviewee's Personal Information

1. Gender: Male [ ] Female
2. Age: _____
3. Marital Status: _____
4. Educational Qualification: _____
5. Occupation: _____
6. Community: Kokodiagbene [ ] Azama [ ]

SECTION B: Perception of Illegal Oil Bunkering Activities

1. How would you describe the presence and scale of illegal oil bunkering activities in your community?
2. Who are the major participants involved in these activities?

SECTION C: Effects of Illegal Oil Bunkering on Socio-Economic Development

1. How has illegal oil bunkering affected the overall economic growth of your community?
2. In what ways have these activities influenced the development of infrastructure such as roads, schools, and healthcare centers?
3. Do you believe illegal oil bunkering has widened the gap between the rich and poor in your community?

SECTION D: Environmental Degradation and Livelihoods

1. How has illegal oil bunkering affected farming and fishing activities in your community?
2. What environmental problems have arisen as a result of oil spills or leakages from illegal bunkering operations?
3. Have community members been forced to abandon their farmlands or fishing areas due to pollution?

SECTION E: Illegal Oil Bunkering and Insecurity

1. How has illegal oil bunkering contributed to insecurity in your community?
2. What types of crimes or violent acts are most commonly linked to bunkering activities?
3. Do you think kidnapping, cultism, or militancy in your community are related to oil bunkering?

SECTION F: Effects on the General Well-being of Inhabitants

1. How have oil bunkering activities affected the daily lives and well-being of residents?
2. Do you think the overall quality of life in the community has improved or declined because of these activities?

SECTION G: Recommendations and Way Forward

1. What do you think can be done to curb illegal oil bunkering in your community?
2. What roles should government agencies, oil companies, and traditional leaders play?
3. How can the youth be encouraged to pursue alternative sources of income instead of illegal bunkering?

SECTION I: Closing Remarks

1. Do you have any additional thoughts on how illegal oil bunkering has shaped your community's future?
2. What is your final advice to policymakers and stakeholders seeking lasting solutions?

APPENDIX III

Table 4.1: Reliability Statistics for All Variables

S/N	Variable	Number of Items	Cronbach's Alpha	Remark
1	Perception of Illegal Oil Bunkering	4	0.87	Reliable
2	Socio-Economic Development	4	0.85	Reliable
3	Environmental Degradation	4	0.89	Reliable
4	Insecurity	4	0.91	Highly Reliable
5	General Well-being	4	0.86	Reliable
6	Recommendations/Way Forward	4	0.83	Reliable
Overall Instrument	24 Items	0.92	Highly Reliable	

Table 4.2: Gender Distribution

Gender	Frequency	Percentage (%)
Male	214	60.1
Female	142	39.9
Total	356	100

Table 4.3: Age Distribution

Age Range	Frequency	Percentage (%)
18–25 years	74	20.8
26–35 years	128	36.0

36–45 years	96	27.0
46 years and above	58	16.2
Total	356	100

Table 4.4: Educational Qualification

Qualification	Frequency	Percentage (%)
No Formal Education	38	10.7
Primary Education	72	20.2
Secondary Education	146	41.0
Tertiary Education	100	28.1
Total	356	100