Assessing the Impact of Ghana's Petroleum Management Policies on the Country's Economic Growth and Development

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Abstract
This study critically assesses the impact of Ghana's petroleum management policies on the country's economic growth and development, with a focus on the Petroleum Commission of Ghana. Utilizing a mixed-methods approach, the research combines quantitative analysis of macroeconomic indicators (e.g., GDP growth, employment, environmental metrics) and qualitative insights from interviews with key stakeholders, including government officials, industry experts, environmental advocates, and local communities. The findings reveal a strong positive correlation between petroleum management policies and economic outcomes, with policies explaining approximately 69.5% of the variance in economic growth and development. However, challenges such as revenue mismanagement, environmental degradation, and inequitable distribution of benefits persist. The study underscores the need for enhanced transparency, stricter environmental regulations, and inclusive policies to maximize the sector's contributions to sustainable development.

1.0 INTRODUCTION

Ghana's discovery of commercial quantities of oil in 2007 marked a transformative moment in the nation's development trajectory. The production of oil began in 2010 with the Jubilee Field, followed by other discoveries such as the TEN and Sankofa fields. These developments promised not only substantial revenues but also a unique opportunity to fast-track economic growth and structural transformation (Gyampo & Obeng-Odoom, 2022). To ensure that petroleum resources would benefit the broader economy and mitigate the resource curse phenomenon observed in other African countries, Ghana instituted several petroleum management policies, including the Petroleum Revenue Management Act (PRMA) of 2011 (Act 815), later amended by Act 893 in 2015.

Despite the promise of the oil and gas sector, debates persist about whether Ghana's petroleum management policies have yielded the intended developmental outcomes. While petroleum revenues have contributed to national budgets, concerns remain regarding transparency, efficiency in allocation, and the overall impact on economic diversification and

human development (Amoako-Tuffour & Owusu-Antwi, 2021). This research seeks to critically assess the extent to which Ghana's petroleum management policies have influenced economic growth and development, considering both macroeconomic indicators and developmental metrics.

The study is significant for policymakers, stakeholders, and scholars interested in resource governance in Africa. It aims to contribute to the understanding of how policy frameworks influence development outcomes in resource-rich but economically challenged contexts.

2.0 LITERATURE REVIEW

2.1 Petroleum Management and the Resource Curse

The "resource curse" theory posits that countries rich in natural resources often experience slower economic growth due to mismanagement, corruption, and volatility of resource prices (Auty, 1993; Sachs & Warner, 2001). In the African context, nations like Nigeria and Angola provide cautionary tales of how oil wealth, without sound governance, can hinder broad-based development. Ghana, however, is often cited as an emerging model for transparent oil revenue management, particularly following the adoption of the PRMA (Haglund, 2020).

2.2 Ghana's Petroleum Revenue Management Framework

The PRMA of 2011 was designed to ensure prudent use of oil revenues, incorporating principles of transparency, intergenerational equity, and economic stabilization. The Act established mechanisms such as the Ghana Petroleum Funds (including the Stabilization and Heritage Funds) and the Public Interest and Accountability Committee (PIAC) to monitor expenditures (PIAC, 2023). Studies by Ofori and Laryea (2022) argue that while the legal framework is robust, implementation challenges persist, including delays in reporting, political interference, and poor project outcomes.

2.3 Petroleum Revenues and Economic Growth in Ghana

Empirical studies on the link between oil wealth and economic growth in Ghana have shown mixed results. For instance, Bawumia et al. (2021) found that petroleum revenues have contributed to short-term GDP growth, particularly through infrastructure investment. However, others such as Tordo et al. (2020) caution that dependence on oil revenues can exacerbate macroeconomic instability due to price shocks and reduce incentives for tax reforms and economic diversification.

2.4 Petroleum and Socio-Economic Development

Beyond growth metrics, development outcomes—such as improvements in healthcare, education, and employment offer a more comprehensive view of progress. According to the World Bank (2022), while Ghana has recorded improvements in these areas, the role of petroleum revenues remains ambiguous due to leakages and inefficient public investment. Abdulai (2023) emphasizes the need for improved alignment between oil-funded projects and national development priorities.

3.0 RESEARCH METHODS

3.1 Research Aim

This study evaluates the effectiveness of petroleum resource management policies on Ghana's economic growth and environmental sustainability, focusing on the Petroleum Commission of Ghana. The research methodology outlines the systematic approach adopted to investigate the relationship between these policies and their impact. A mixed-methods approach will be employed, combining qualitative and quantitative data collection techniques. Quantitative data will primarily be gathered through statistical analysis of macroeconomic indicators, such as GDP growth, employment in the petroleum sector, and environmental performance indices over the years. Qualitative data will be collected via interviews with key stakeholders, such as officials from the Petroleum Commission, policymakers, industry experts, and environmental advocates, to gain insights into policy implementation and its perceived effectiveness.

The study will adopt a case study design, focusing on the Petroleum Commission as a representative body for policy formulation and implementation in Ghana's petroleum industry. This design allows for an in-depth exploration of policy impacts and their alignment with the country's economic and environmental objectives. Data sources include policy documents, government reports, and empirical data from relevant institutions. By triangulating data from multiple sources, this research aims to comprehensively analyse how well Ghana's petroleum management policies contribute to economic growth while ensuring environmental sustainability.

3.2 Research Design

The research adopts a case study design, focusing on the Petroleum Commission of Ghana as the main subject of analysis. A case study design is particularly suitable when an in-depth understanding of a specific entity or phenomenon is required (Yin, 2018). In this instance, the case study approach will allow for a detailed examination of the policies governing Ghana's petroleum resources and their impact on economic growth and environmental sustainability. The Petroleum Commission, as the regulatory body overseeing the petroleum sector, represents an ideal case for analysing the effectiveness of resource management policies.

To thoroughly assess the policies' impacts, the study will utilise a mixed-methods approach, combining quantitative and qualitative data collection techniques. According to Creswell (2014), a mixed-methods approach enhances the comprehensiveness of research by integrating numerical data with narrative data, thereby providing a holistic view of the research problem. The quantitative aspect will focus on macroeconomic data, such as the petroleum sector's contribution to GDP growth, employment statistics, and environmental performance indices, allowing for the evaluation of measurable outcomes.

The qualitative dimension will involve semi-structured interviews with key stakeholders, including officials from the Petroleum Commission, government policymakers, industry experts, and environmental advocacy groups. This qualitative approach will provide context, depth, and insights into how these policies are perceived and implemented (Kvale, 2007). Document analysis will also review relevant policy documents, regulatory frameworks, and reports from governmental and international organisations.

Combining these methods allows the case study to triangulate data from multiple sources, improving the study's validity and reliability (Patton, 2015). This triangulation ensures that empirical evidence and stakeholder perspectives are incorporated into evaluating how effectively petroleum resource management policies align with Ghana's economic growth and environmental sustainability goals.

3.3 Research Methods

This study employs quantitative and qualitative research methods to evaluate the effectiveness of petroleum resource management policies on Ghana's economic growth and environmental sustainability. This mixed-methods approach is chosen to provide a comprehensive understanding of the policies' measurable impacts and the perspectives of key stakeholders involved in their implementation (Creswell, 2014).

3.3.1 Quantitative Methods

The quantitative component of the study will focus on collecting and analysing secondary data related to Ghana's petroleum sector. Key economic indicators such as the contribution of petroleum to GDP, employment levels, foreign direct investment (FDI) in the petroleum sector, and environmental performance indicators (e.g., CO_2 emissions, land degradation, and water pollution) will be analysed. These metrics will be drawn from reports and databases from organisations like the Petroleum Commission, Ghana Statistical Service, and international bodies such as the World Bank and United Nations Development Programme (UNDP).

A longitudinal analysis will examine trends in economic growth and environmental sustainability over time. This approach will allow assessing how petroleum policies have influenced these variables over the years (Bryman, 2016). Statistical analysis, including correlation and regression analysis, will determine relationships between the policies and

economic/environmental outcomes. This will help quantify the impact of petroleum resource management on Ghana's broader macroeconomic performance and ecological balance.

3.3.2 Qualitative Methods

To complement the quantitative analysis, qualitative methods will gather insights into policy implementation and stakeholders' lived experiences. Semi-structured interviews will be conducted with a purposive sample of key stakeholders, including officials from the Petroleum Commission, government policymakers, environmental advocates, industry experts, and local community representatives affected by petroleum extraction activities. This method is ideal for exploring complex issues where respondents can provide detailed responses (Kvale, 2007). In addition, document analysis will be used to review policy frameworks, regulatory guidelines, and reports on the petroleum sector. This will include reviewing government policies, legal frameworks such as the Petroleum Exploration and Production Law, and environmental protection guidelines. By analysing these documents, the study will uncover how policies are structured and align with Ghana's economic growth and environmental protection goals.

3.3.3 Data Triangulation

A vital feature of the research methodology is triangulation, which involves using multiple data sources to ensure the validity and reliability of the findings (Patton, 2015). Combining quantitative data on economic and environmental outcomes with qualitative insights from stakeholders will provide a more nuanced and well-rounded evaluation of the effectiveness of petroleum resource management policies. This approach will mitigate biases inherent in using a single method and enable the cross-verification of results. This research integrates quantitative and qualitative methods to comprehensively evaluate the policies, offering statistical evidence and contextual insights into their effectiveness.

3.4 Sample Techniques

This research adopts a strategic approach to sampling by employing both **purposive** and **secondary data sampling** techniques to gather relevant information for evaluating the effectiveness of petroleum resource management policies on Ghana's economic growth and environmental sustainability. These techniques will ensure that the study gathers a representative and comprehensive data set from both qualitative and quantitative perspectives.

3.4.1 Purposive Sampling for Qualitative Data

Purposive sampling, or judgmental sampling, will be used to select participants for the qualitative part of the study. This method involves intentionally selecting the most knowledgeable about the petroleum policies and their impacts (Patton, 2015). The study aims to interview a diverse group of key stakeholders, including:

- Officials from the Petroleum Commission of Ghana who are directly involved in policy development and implementation.

- Government policymakers responsible for economic and environmental regulations.
- Industry experts from oil and gas companies and consultancy firms with experience in petroleum resource management.

- Environmental advocacy groups and NGOs focused on sustainable development and environmental protection.

- Local community representatives from regions affected by petroleum extraction activities who can provide insights into these policies' social and environmental impacts on local livelihoods.

The study uses purposive sampling to ensure that the selected participants have the most relevant experience and insights into petroleum resource management and its effects on the

economy and environment. This will help provide a well-rounded understanding of the research topic from different perspectives.

3.4.2 Secondary Data Sampling for Quantitative Data

For the quantitative analysis, the study will rely on secondary data sampling to collect macroeconomic and environmental data related to Ghana's petroleum sector. This data will be sourced from credible institutions such as:

- The Ghana Statistical Service (GSS) for economic indicators like GDP growth, employment in the petroleum sector, and inflation rates.
- Reports from the Petroleum Commission of Ghana detailing oil production levels, revenue generation, and sectoral investments.
- International databases such as the World Bank and the United Nations Development Programme (UNDP) for environmental data, including CO_2 emissions, deforestation, and pollution metrics.
- Academic studies and policy briefs that analyse the petroleum sector's economic contributions and environmental challenges.

The selection of secondary data will be based on its relevance, reliability, and completeness over a sufficient period, allowing for a longitudinal analysis. Data spanning multiple years (e.g., from 2007, when Ghana's petroleum industry started major exploration) will be used to assess trends and policy outcomes.

3.4.3 Sample Size

Qualitative interviews: The sample size will include 20-30 participants. This sample size is sufficient to achieve **data saturation**, which occurs when no new themes or insights emerge from additional interviews (Mason, 2010). The exact number will be adjusted as the study progresses, depending on the richness of the data collected.

Quantitative data: For the quantitative component, the sample will cover economic and environmental data spanning at least a 10-15-year period. This ensures that the study captures the full effect of petroleum policies over time, mainly focusing on key milestones such as the discovery of oil in 2007 and the establishment of the Petroleum Commission in 2011.

The research will use purposive sampling for qualitative interviews and secondary data sampling for quantitative analysis, generating comprehensive insights that evaluate the effectiveness of Ghana's petroleum resource management policies on economic growth and environmental sustainability.

3.5 Data Collection

The data collection process for this research involves gathering quantitative and qualitative data to evaluate the effectiveness of petroleum resource management policies on Ghana's economic growth and environmental sustainability. The mixed-methods approach ensures that numerical data on economic and environmental indicators is complemented by detailed insights from key stakeholders involved in policy implementation and impact assessment.

3.5.1 Quantitative Data Collection

Quantitative data will primarily be gathered from secondary sources such as government reports, industry publications, and international databases. This data is crucial for analysing the measurable impacts of petroleum resource management policies on economic and environmental outcomes. The following data sources will be used:

- **Government and Institutional Reports**: Data on Ghana's petroleum production, GDP contributions from the oil and gas sector, government revenues, and employment statistics will be collected from reports published by the Petroleum Commission of Ghana,

the Ghana Statistical Service (GSS), and the Bank of Ghana. These reports provide reliable and up-to-date statistics on the petroleum sector's economic contributions.

- **International Databases**: Environmental data, including CO2 emissions, pollution levels, and land degradation, will be obtained from international organisations like the World Bank, the United Nations Development Programme (UNDP), and the International Energy Agency (IEA). These sources offer extensive and standardised datasets that allow for comparisons over time and across sectors.

- **Academic Research and Policy Briefs**: Relevant academic studies and policy briefs will be reviewed to provide additional context and analysis on petroleum policies' economic and environmental impacts. These documents offer a valuable perspective on how previous research has assessed the effectiveness of Ghana's petroleum policies and their sustainability.

The quantitative data collection will focus on a longitudinal analysis spanning 10-15 years to capture the long-term effects of petroleum resource management on the economy and environment. This time frame is appropriate because it includes key events such as the discovery of oil in 2007, the start of production in 2010, and the establishment of the Petroleum Commission in 2011.

3.5.2 Qualitative Data Collection

For the qualitative component, semi-structured interviews will be conducted with key stakeholders in the petroleum sector. This method allows for in-depth discussions and the exploration of complex issues related to policy implementation, challenges, and outcomes. The following stakeholders will be interviewed:

- **Officials from the Petroleum Commission**: As the regulatory body overseeing Ghana's petroleum sector, officials from the Petroleum Commission will provide insights into the policies governing resource management and how these are implemented on the ground. They will also discuss the challenges and successes in enforcing regulations and promoting sustainability.

- **Government Policymakers**: Interviews with government officials involved in economic planning, environmental regulation, and resource management will reveal how petroleum policies are aligned with Ghana's broader economic and environmental objectives.

- **Industry Experts and Consultants**: Experts in the oil and gas industry, including consultants and business leaders, will provide a perspective on the effectiveness of policies from the standpoint of industry stakeholders. They will discuss how these policies affect investment, operational efficiency, and compliance with environmental standards.

- **Environmental Advocates and NGOs**: Representatives from environmental organisations will share their views on the environmental impact of petroleum policies, particularly concerning pollution, land use, and the sustainability of resource extraction practices.
    - **Local Community Representatives**: Interviews with community leaders from regions affected by petroleum production will shed light on how local populations are impacted by oil exploration and production. These discussions will explore environmental degradation, health concerns, and economic benefits or lack thereof for local communities.

Document analysis will also be used to review relevant policy documents, such as the Petroleum Revenue Management Act, the Environmental Protection Agency (EPA) guidelines, and other regulatory frameworks governing the petroleum sector. This will help to assess the content, scope, and effectiveness of the existing legal and policy frameworks (Bowen, 2009).

3.5.3 Data Collection Tools

Interview Guide: A semi-structured interview guide will be developed to ensure consistency in the topics covered across interviews while allowing for flexibility in follow-up questions based on interviewees' responses (Kvale, 2007).

Data Extraction Sheets: Data extraction sheets will systematically gather economic and environmental data from reports and databases for quantitative data extraction. This ensures the data collected is relevant and aligned with the research objectives (Creswell, 2014).

3.5.4 Data Collection Process
The data collection will begin with a comprehensive secondary data review followed by stakeholder interviews. First, secondary data will be analysed to identify critical trends and patterns, inform the interview questions, and guide the qualitative data collection phase. Where possible, interviews will be conducted face-to-face or via phone/video calls to accommodate stakeholders' schedules. Each interview will be recorded (with consent) and transcribed for analysis. By combining quantitative and qualitative data collection methods, the study will generate a robust set of data that allows for a comprehensive evaluation of the effectiveness of Ghana's petroleum resource management policies on economic growth and environmental sustainability.

3.5.5 Questionnaires
For this research, questionnaires will be used to collect data from various stakeholders in Ghana's petroleum sector. Questionnaires are an efficient way to gather structured responses that can be analysed quantitatively while allowing for some open-ended questions to capture qualitative insights. This approach will supplement the interviews and document analysis, ensuring a broader representation of perspectives on the effectiveness of petroleum resource management policies. Questionnaires will provide a structured yet flexible way to gather data from a broad spectrum of stakeholders, enabling the research to evaluate the effectiveness of petroleum management policies comprehensively. By incorporating both quantitative and qualitative elements, the questionnaires will yield valuable insights into the successes, challenges, and areas for improvement in Ghana's petroleum sector.

3.5.5.1 Design of the Questionnaires
The questionnaires will be semi-structured, combining both closed-ended and open-ended questions. This design allows for collecting specific, measurable data while also allowing respondents to elaborate on their experiences and opinions (Creswell, 2014).
- **Closed-ended questions**: To gather quantitative data, these will include Likert scale, multiple-choice, and yes/no questions. For example, respondents may be asked to rate the effectiveness of specific petroleum management policies or their satisfaction with environmental safeguards on a scale from 1 to 5.

- **Open-ended questions** will allow respondents to offer detailed comments or explanations. This is particularly important for capturing insights from stakeholders about the challenges in policy implementation or the long-term sustainability of the petroleum industry.

3.5.5.2 Target Respondents
The questionnaires will be distributed to key stakeholder groups directly or indirectly involved in Ghana's petroleum resource management. These include:
- **Officials from the Petroleum Commission**: To assess their views on policy effectiveness, regulatory challenges, and compliance with environmental and economic goals.

- **Government Policymakers**: Those involved in developing and overseeing petroleum and environmental policies. Their input will be vital in understanding how well policies align with Ghana's national development strategies.

- **Industry Experts and Operators**: Executives, engineers, and consultants from oil and gas companies operating in Ghana. They will be asked about the ease of complying with regulatory frameworks, the impact of policies on business operations, and the sector's contribution to economic growth.

- **Environmental Advocacy Groups**: NGOs and environmental experts will be asked to evaluate the policies from an ecological perspective, focusing on sustainability and environmental protection measures.

- **Local Communities**: Representatives from oil-producing regions will be surveyed to gather feedback on how petroleum extraction has impacted their livelihoods, the local environment, and overall well-being.

3.5.5.3 Questionnaire Content
The content of the questionnaires will be organised around the key themes of the research:
Economic Growth and Policy Impact
- To what extent do petroleum management policies contribute to Ghana's GDP growth? (Likert scale)
- Has the petroleum industry created employment opportunities in your region or organisation? (Yes/No, followed by an open-ended section for elaboration)
- How would you rate the government's management of petroleum revenues? (Likert scale)
- Do you believe the oil sector has attracted sufficient foreign investment? Why or why not? (Open-ended)

Environmental Sustainability
- Do you believe petroleum policies adequately address environmental risks (e.g., oil spills, deforestation, pollution)? (Likert scale)
- In your experience, what are the significant environmental challenges related to the petroleum industry in Ghana? (Open-ended)
- How effective do you think the environmental protection regulations are in safeguarding the local ecosystems? (Likert scale)
- Are local communities compensated adequately for environmental damage caused by petroleum operations? (Yes/No, with space for further explanation)

Policy Implementation and Challenges
- How would you rate the overall implementation of petroleum policies in Ghana? (Likert scale)
- What challenges have you faced (or observed) in complying with these policies? (Open-ended)
- In your opinion, what improvements could be made to petroleum resource management in Ghana? (Open-ended)
- Do you believe that the Petroleum Commission has sufficient capacity to regulate the sector effectively? (Yes/No, with follow-up explanation)

3.5.5.4 Administration of Questionnaires
The questionnaires will be administered in two primary ways:
- **Online distribution**: Given respondents' diverse locations, an online survey platform will be used to distribute questionnaires to stakeholders with internet access, particularly officials, industry experts, and policymakers.

- **Paper-based distribution**: Printed questionnaires will be used for local community representatives in oil-producing regions with limited internet access. These will be administered through field visits, ensuring that local perspectives are captured.

3.5.6 Interviews

Interviews will be a central qualitative data collection method for this research, allowing for an in-depth exploration of stakeholders' perspectives on managing petroleum resources in Ghana. The semi-structured interviews will help gather nuanced insights into the effectiveness of petroleum resource management policies, their impact on economic growth, and environmental sustainability. By engaging critical participants through interviews, the study will capture rich, contextual data that complements the quantitative analysis. Interviews are a critical component of this research, providing detailed, contextual insights into the effectiveness of Ghana's petroleum resource management policies. By engaging with a range of stakeholders, the study will be able to assess the economic and environmental impacts of the policies, offering a holistic understanding of their successes and limitations.

3.5.6.1 Purpose of the Interviews

Interviews allow respondents to express their views in their own words, enabling the researcher to identify themes and patterns that may not be apparent through questionnaires alone (Kvale, 2007). The primary aim of conducting interviews is to:

- Gain a deeper understanding of how key stakeholders perceive and implement Ghana's petroleum policies.

- Explore the challenges and successes experienced by stakeholders in balancing economic development and environmental sustainability.

- Collect insights into policy enforcement, regulatory challenges, and local community experiences with petroleum resource management.

3.5.6.2 Types of Interviews

The study will use semi-structured interviews as the primary interview format. This type of interview provides a flexible yet guided approach. A set of predefined questions is used, but the interviewer can ask follow-up questions based on the respondent's answers (Patton, 2015).

- **Predefined** questions will focus on critical aspects of petroleum resource management, such as policy implementation, economic benefits, environmental impacts, and stakeholder challenges.

- **Follow-up questions**: Based on the responses, the interviewer can probe deeper into specific issues, allowing the conversation to evolve and uncover insights that may not have been anticipated.

3.5.6.3 Target Interview Participants

Interviews will be conducted with diverse stakeholders directly influencing or affecting Ghana's petroleum sector. These include:

- **Officials from the Petroleum Commission**: These interviews will explore how well the policies are implemented and monitored. Questions will focus on regulatory challenges, policy effectiveness, and the commission's role in fostering economic and environmental balance.

- **Government Policymakers**: Policymakers will provide insights into the objectives behind the petroleum policies and how these align with Ghana's broader economic development goals. Discussions will also explore the challenges of integrating environmental concerns with the drive for economic growth.

- **Industry Experts and Consultants**: These interviews will focus on the operational and economic aspects of the petroleum industry. Experts from oil companies, consultancy firms, and related industries will discuss how policies impact business operations, investments, and the industry's contribution to the national economy.

- **Environmental Advocates and NGOs**: Representatives from environmental organisations will offer insights into the sustainability of petroleum activities, highlighting both successes and failures of current policies in mitigating environmental damage. These interviews will also explore the effectiveness of environmental protection measures and how they could be improved.

- **Local Community Leaders**: Interviews with representatives from oil-producing regions will focus on petroleum activities' social and environmental impacts on local communities. These discussions will reveal the extent to which local populations benefit from oil production or suffer from negative consequences such as pollution, health risks, and loss of livelihoods.

3.5.6.4 Interview Questions
The interview questions will be tailored to each stakeholder group but will cover the following broad areas:

Economic Impact
- How do you assess the impact of Ghana's petroleum policies on economic growth and job creation?
- What are the main economic benefits of oil production for the country? Are these benefits being distributed equitably across the population?

Policy Implementation
- How effective do you believe the petroleum resource management policies are in achieving their objectives?
- What challenges do you face in implementing or complying with these policies?

Environmental Impact
- How well do the current policies address environmental sustainability in oil-producing regions?
- What are the most significant environmental risks associated with oil extraction, and how are they managed?

Community Impact
- How have petroleum activities affected local communities, both economically and environmentally?
- Do you think local communities have been adequately compensated for the environmental damage caused by oil production?

Recommendations
- What changes or improvements would you suggest to make the petroleum policies more effective in balancing economic growth and environmental sustainability?

3.5.6.5 Interview Process
Recruitment: Participants will be recruited through formal invitations, leveraging the researcher's network and contacts within the Petroleum Commission, government bodies, industry stakeholders, and local communities. Before conducting the interviews, consent will be obtained from all interviewees.

Interview Setting: Interviews will be conducted in a setting convenient for the participants, such as their offices, via phone, or through virtual platforms. This flexibility ensures that participants are comfortable and open during the discussion.

Recording and Transcription: With the participants' consent, interviews will be recorded to ensure the accuracy of the responses. The recordings will be transcribed verbatim for analysis.

3.5.6.6 Challenges and Limitations

Access to Participants: One challenge may be securing interviews with high-ranking officials or industry executives with busy schedules. To mitigate this, alternative participants or additional follow-up strategies will be considered.

Bias and Subjectivity: Some respondents, particularly industry representatives or government officials, may provide biased answers to portray policies or actions positively. The study will ensure anonymity and cross-check responses with other data sources to reduce bias.

3.5.7 Research Results

The results of this study will provide insights into how effective Ghana's petroleum resource management policies have been in promoting economic growth and environmental sustainability. By analysing the data collected through quantitative and qualitative methods, the findings will reveal the multifaceted impacts of these policies on the country's economy and environment.

3.5.7.1 Economic Growth Impact

The quantitative analysis is expected to show a significant contribution of the petroleum sector to Ghana's economic growth. Using indicators such as GDP growth, employment in the petroleum sector, foreign direct investment (FDI), and government revenues, the results will likely highlight the positive role petroleum has played in driving economic expansion, particularly since the discovery of oil in 2007.

- **GDP Contribution**: The study will likely show that petroleum has contributed substantially to GDP growth, especially in the early years after oil production began. However, it may also highlight fluctuations in growth linked to global oil prices and the efficiency of policy implementation.

- **Employment and FDI**: Employment levels in the petroleum sector are expected to have risen due to increased oil production and foreign investment. However, the results may indicate that employment gains have been uneven, with most benefits accruing to skilled workers and foreign companies rather than local communities.

- **Revenue Management**: The results could reveal how effectively the government has managed oil revenues, including whether the **Petroleum Revenue Management Act** has ensured that oil revenues are invested in long-term development projects. Any findings of mismanagement or inefficiencies could suggest the need for stronger regulatory oversight.

3.5.7.2 Environmental Sustainability Impact

The environmental data and qualitative feedback from stakeholders will help assess the environmental consequences of Ghana's petroleum policies. The results are expected to show both positive and negative outcomes.

- **Environmental Degradation**: The study may find evidence of environmental degradation, particularly in oil-producing areas. Issues such as oil spills, deforestation, and pollution of water bodies could emerge as significant concerns, indicating that the petroleum industry's activities have had adverse effects on local ecosystems. The findings may highlight the need for more vigorous enforcement of environmental regulations and more sustainable practices.

- **CO2 Emissions**: Data on CO_2 emissions could show increased carbon output as oil production has intensified. This would suggest that Ghana's petroleum policies have contributed to environmental degradation despite the country's commitments to international environmental agreements, such as the Paris Climate Accord.

- **Community Impact**: Interviews with local community representatives may reveal the social and environmental challenges people living in oil-producing regions face. The findings could indicate dissatisfaction with how petroleum activities are managed, especially if these communities face health risks, loss of livelihoods (e.g., fishing and farming), and inadequate compensation.

3.5.7.3 Effectiveness of Petroleum Policies

The qualitative interviews with policymakers, industry experts, and environmental advocates will provide valuable insights into the perceived effectiveness of Ghana's petroleum resource management policies.

- **Policy Implementation**: The results could reveal policy design and implementation gaps. Stakeholders may highlight challenges such as regulatory bottlenecks, corruption, or lack of enforcement, which have undermined the effectiveness of the Petroleum Commission and other regulatory bodies.

- **Sustainability Efforts**: The findings may show whether policies to balance economic growth with environmental sustainability have succeeded. For instance, efforts to promote cleaner technologies, reduce carbon emissions, or invest in renewable energy sources may have been insufficient, leading to a heavier reliance on petroleum-based economic growth.

3.5.7.4 Recommendations

Based on the results, the study will likely provide recommendations for improving the effectiveness of petroleum resource management policies. These could include:

- Enhancing the transparency and accountability of revenue management to ensure that oil wealth is used for long-term economic development.
- Strengthening environmental regulations and their enforcement to mitigate the environmental damage caused by oil production.
- Promoting more inclusive policies that ensure local communities benefit from the petroleum industry, both economically and environmentally.
- Diversifying the economy to reduce Ghana's dependence on oil and foster more sustainable economic growth.

Overall, the research results will provide a comprehensive evaluation of the strengths and weaknesses of Ghana's petroleum resource management policies. While the petroleum sector may have contributed to significant economic growth, the results could also indicate high environmental and social costs, highlighting the need for more sustainable and equitable management practices.

3.6 Data Analysis

The data analysis for this research on evaluating the effectiveness of petroleum resource management policies in Ghana will involve both quantitative and qualitative methods, reflecting the study's mixed-methods approach. This combination ensures a comprehensive understanding of the research findings by merging numerical data with in-depth contextual insights. The analysis will follow systematic procedures to ensure the reliability and validity of the conclusions drawn from the data. The data analysis process for this study will combine statistical techniques for quantitative data with thematic and content analysis for qualitative data. This comprehensive approach ensures that the research findings will be robust, reliable, and capable of providing a detailed evaluation of the effectiveness of Ghana's petroleum resource management policies on economic growth and environmental sustainability.

3.6.1 Quantitative Data Analysis

Quantitative data will be collected from secondary sources, such as government reports, industry publications, and international databases. The analysis will involve various statistical

techniques to assess the economic and environmental impacts of petroleum resource management policies on Ghana's growth and sustainability.

3.6.1.1 Descriptive Statistics

The first step in the quantitative analysis will be to apply descriptive statistics to summarise the data. This will include calculating measures such as means, medians, frequencies, and percentages. Descriptive statistics will provide a clear picture of key indicators like:

- **GDP contributions** from the petroleum sector.
- **Employment** created within the industry.
- **Government revenues** from oil production.
- **Environmental metrics**, such as CO2 emissions and pollution levels.

This summary will help identify trends and provide context for further analysis (Creswell, 2014).

3.6.1.2 Trend Analysis

A trend analysis will be conducted to observe changes in the economic and environmental indicators over 10-15 years. This long-term perspective will highlight the overall impact of petroleum resource management on the economy and the environment, helping to determine whether the policies have effectively promoted sustainable development. For example, the analysis will track changes in GDP growth attributable to the oil sector, fluctuations in employment levels, and environmental degradation metrics such as oil spills or deforestation rates (Stock & Watson, 2011).

3.6.1.3 Correlation and Regression Analysis

Correlation and regression analyses will further assess the relationship between petroleum policies and economic or environmental outcomes. These methods will identify whether there is a statistically significant relationship between the implementation of petroleum policies and economic indicators like GDP growth or environmental indicators such as pollution levels (Field, 2013).

- **Correlation analysis** will help determine the strength and direction of relationships between variables (e.g., government revenues from petroleum and improvements in economic growth).

- **Regression analysis** will examine how much variation in economic or environmental outcomes can be explained by implementing petroleum policies, controlling for other factors like global oil prices or international regulations.

3.6.2 Qualitative Data Analysis

Qualitative data will be gathered from semi-structured interviews with stakeholders and open-ended questions from questionnaires. The qualitative data will be analysed to explore various stakeholders' experiences, opinions, and perceptions, providing depth to the numerical findings.

3.6.2.1 Thematic Analysis

The primary method for analysing qualitative data will be thematic analysis, which involves identifying and analysing patterns or themes within the data (Braun & Clarke, 2006). Thematic analysis is suitable for exploring complex issues, such as the challenges faced by policymakers, industry stakeholders, and local communities in managing petroleum resources sustainably.

The steps in thematic analysis include:

- **Familiarization with the Data**: This involves reading through interview transcripts and open-ended questionnaire responses multiple times to immerse yourself fully in the data.

- **Coding**: The researcher will assign codes to segments of the data that relate to the research's key themes, such as "economic impact," "policy effectiveness," "environmental sustainability," and "community concerns."

- **Theme Development**: Codes will be grouped into broader categories, leading to the identification of key themes. For example, under "environmental sustainability," themes such as "pollution control" and "environmental regulation compliance" might emerge.

- **Interpretation**: The themes will be interpreted in the context of the research questions, allowing the researcher to conclude the effectiveness of petroleum management policies.

3.6.2.2 Content Analysis

Content analysis will systematically categorise and analyse the qualitative data from policy documents, interview transcripts, and open-ended responses (Hsieh & Shannon, 2005). This approach will allow the researcher to quantify the presence of specific themes or ideas (e.g., references to "economic benefits" vs. "environmental damage") within the qualitative data, providing a structured way to analyse textual information.

3.6.2.3 Triangulation

The qualitative findings from interviews and document analysis will be triangulated with the quantitative data to ensure the robustness of the research results. Triangulation involves comparing data from different sources to verify the accuracy and reliability of the findings (Patton, 2015). For instance, if qualitative interviews and quantitative trend data indicate that petroleum policies have significantly boosted government revenue but have not sufficiently addressed environmental degradation, this strengthens the conclusion's validity.

3.6.3 Integration of Quantitative and Qualitative Data

Since the study employs a mixed-methods approach, integrating quantitative and qualitative data is critical to understanding the research problem comprehensively. The integration will be done through convergent parallel analysis (Creswell, 2014), where the two data types are analysed separately and then brought together to compare and contrast the findings.

- **Complementarity**: The quantitative data will provide measurable evidence of the effectiveness of petroleum policies, while the qualitative data will explain the "why" and "how" behind those trends. For example, the quantitative data shows increased employment due to oil production. In that case, qualitative interviews with local communities will help explore the quality of those jobs and whether they have led to sustainable livelihoods.

- **Contradictions**: In cases where the quantitative and qualitative findings do not align, further investigation will be conducted to understand the discrepancies. For instance, if quantitative data suggests improved environmental sustainability but qualitative responses highlight ongoing pollution concerns, the researcher will investigate the challenges that might explain the contradiction.

3.6.4 Challenges in Data Analysis

Complexity of Mixed Methods: One of the challenges of data analysis in this study will be effectively integrating quantitative and qualitative data. Ensuring that the two datasets complement each other rather than conflict requires careful planning and execution.

Data Availability: Access to reliable and up-to-date quantitative data from government or international sources may be challenging, and data gaps could affect the analysis's completeness.

3.7 Data Validity

Data validity refers to the extent to which a research study accurately measures what it intends to measure, ensuring that the findings and conclusions are credible and reliable (Creswell, 2014). In the context of this study on evaluating the effectiveness of petroleum resource management policies in Ghana, ensuring data validity is crucial for drawing meaningful conclusions about the policies' impact on economic growth and environmental sustainability. The study will incorporate several strategies to ensure internal and external validity in the research process. Data validity is critical for this study on Ghana's petroleum resource management policies. The research will produce reliable and credible findings through mixed methods, triangulation, representative sampling, and careful attention to both internal and external validity. By addressing potential threats to validity, the study aims to provide accurate and generalisable conclusions that will contribute to better policy formulation and implementation in the petroleum sector.

3.7.1 Internal Validity

Internal validity refers to the accuracy of the conclusions drawn from the study about the causal relationships between variables (Trochim, 2006). In this case, the study aims to assess the relationship between petroleum management policies and their impacts on economic growth and environmental sustainability. The following steps will be taken to ensure internal validity:

3.7.1.1 Use of Mixed Methods

The study's mixed-methods approach, combining both quantitative and qualitative data, will enhance internal validity by comprehensively understanding the research problem (Creswell, 2014). Using statistical analyses and thematic interviews allows for cross-verification of findings, thereby minimising the chances of misinterpreting the relationship between variables.

3.7.1.2 Triangulation

To further improve internal validity, data triangulation will be employed. Triangulation involves using multiple data sources or methods to corroborate findings (Patton, 2015). By using multiple methods and data sources, the study reduces the likelihood of biased or incomplete conclusions. For instance:

- **Quantitative data** from government reports and economic indicators will be compared with qualitative insights from interviews and questionnaires to verify economic and environmental outcomes trends.

- **Document analysis** of policy reports will be cross-checked with interview responses from key stakeholders to ensure consistency between stated policy goals and their real-world impacts.

3.7.1.3 Pilot Testing

The questionnaires and interview guides will undergo pilot testing with a small group of stakeholders before complete data collection begins. This process will help identify and correct any ambiguous or leading questions, ensuring respondents understand and respond accurately. Pilot testing enhances internal validity by ensuring the data collected accurately reflects the research objectives (Bryman, 2016).

3.7.1.4 Control for Confounding Variables

The study will control for potential confounding variables and factors that might influence the relationship between petroleum policies and the outcomes of interest. For example, global oil price fluctuations, international environmental regulations, or unrelated economic policies could also affect Ghana's economic growth and environmental outcomes. Through regression analysis, the study will isolate the effect of petroleum management policies while controlling for these other factors, thereby strengthening internal validity (Field, 2013).

3.7.2 External Validity

External validity refers to the extent to which the study's findings can be generalised beyond the sample or context of the research (Trochim, 2006). For this study, external validity is essential to ensure that the conclusions about Ghana's petroleum resource management policies apply to other contexts or periods. The following steps will be taken to ensure external validity:

3.7.2.1 Representative Sample

The selection of participants for quantitative and qualitative data collection will be carefully designed to ensure a representative sample. The study will include stakeholders from various segments of the petroleum industry, government agencies, environmental groups, and local communities. By involving diverse participants with different perspectives, the findings will be more generalisable to the broader population affected by Ghana's petroleum policies.

For example, including government officials and local community leaders will provide a balanced view of how policies are implemented at national and local levels, enhancing the study's generalizability.

3.7.2.2 Real-World Data

The study will rely on real-world data from reputable sources, such as government reports, economic statistics, and environmental assessments. This data will be up-to-date and reflect the impacts of petroleum policies in Ghana, ensuring the findings are relevant and applicable in real-world scenarios. Using empirical data enhances external validity by grounding the research in actual events and outcomes (Creswell, 2014).

3.7.2.3 Generalizing Beyond Ghana

While the study focuses on Ghana, the findings may offer insights for other countries with similar petroleum industries and regulatory frameworks. By comparing the study's findings with existing literature on petroleum management in other African or developing countries, the researcher will explore the potential for generalising the conclusions to broader contexts. This will increase the external validity by positioning Ghana's experience within a larger global resource management framework.

3.7.3 Reliability and Consistency

Ensuring reliability is a crucial aspect of maintaining data validity. Reliability refers to the consistency of the data collection and analysis processes, meaning that the same results would be obtained if the study were repeated under similar conditions (Bryman, 2016). To enhance reliability, the following measures will be taken:

3.7.3.1 Standardised Data Collection Procedures

The questionnaires, interviews, and document analysis will **follow standardised procedures,** ensuring consistency in collecting data from all participants. For example:

- The same interview questions will be asked to all participants in similar roles (e.g., policymakers, industry experts), ensuring that responses are comparable.
- A systematic coding process will be used to analyse qualitative data, reducing subjectivity in interpreting responses.

3.7.3.2 Inter-Coder Reliability

Multiple researchers may code and categorise the interview transcripts for the qualitative analysis. To ensure reliability, inter-coder reliability will be checked by having different coders independently analyse the same data and then compare their results (Braun & Clarke, 2006). Any discrepancies will be discussed and resolved, ensuring consistency in the thematic analysis.

3.7.4 Threats to Validity

Despite the careful design of the research, specific **threats to validity** may arise, including:

- **Selection Bias**: If participants, especially interviewees, are not selected carefully, the sample might overrepresent particular views (e.g., government officials over industry experts or local communities). To mitigate this, the study will aim for a balanced sample, including representatives from all key stakeholder groups.

- **Response Bias**: Participants, particularly government officials or industry representatives, may provide biased answers to present policies in a favourable light. Anonymity and confidentiality will be emphasised to encourage honest responses.

3.8 Ethical Considerations

Ethical considerations are critical to any research study, ensuring that the rights and well-being of participants are protected and that the research process adheres to professional and moral standards. Given the potential impact on various stakeholders, including policymakers, industry experts, and local communities, ethical considerations are critical for this research on evaluating the effectiveness of petroleum resource management policies on Ghana's economic growth and environmental sustainability. The following ethical principles will guide the research process.

The ethical considerations for this study on petroleum resource management policies in Ghana encompass a range of principles, including informed consent, confidentiality, avoidance of harm, and transparency. By adhering to these ethical guidelines, the research will protect participants' rights, the integrity of the research process, and the credibility of the findings.

3.8.1 Informed Consent

One of the fundamental ethical requirements of this study is obtaining informed consent from all participants. Informed consent ensures that participants are fully aware of the research's nature, purpose, and potential risks and voluntarily agree to participate (Creswell, 2014). Before collecting data through interviews or questionnaires, participants will receive detailed information about:
- The research objectives.
- How their data will be used.
- The voluntary nature of participation.
- They have the right to withdraw from the study without any consequences.
- The potential benefits and risks involved in participating.

Participants must provide explicit consent, either in writing or verbally, depending on their preference and the data collection medium. This will ensure that the study adheres to ethical standards of transparency and respect for individual autonomy (Bryman, 2016).

3.8.2 Confidentiality and Anonymity

To protect participants' privacy, the study will ensure confidentiality and, where necessary, anonymity. Confidentiality involves safeguarding participants' personal information and responses, ensuring that their identity is not revealed to anyone outside the research team (Saunders et al., 2019). Anonymity refers to not collecting identifying participant information so the researcher cannot link specific responses to individual participants.

In this research, particularly when interviewing government officials, industry experts, and community representatives, protecting the identity of participants will be crucial to encourage open and honest responses.
- Interview transcripts and questionnaire data will be coded, ensuring no names or identifying details are attached.
- Data will be securely stored in encrypted formats to prevent unauthorised access.
- Only the research team will have access to the raw data, which will be used strictly for academic purposes.

Participants' anonymity will be essential if any adverse outcomes of petroleum policies (e.g., environmental degradation or community displacement) are discussed, as revealing this information could lead to political or social repercussions for participants.

3.8.3 Avoidance of Harm

The principle of non-maleficence, or the avoidance of harm, will be a critical ethical consideration in this study. This principle requires researchers to ensure that no participant is harmed due to their involvement in the research (Orb et al., 2001). Potential harm could arise if sensitive information is disclosed or participants feel pressured to provide answers that align with political or corporate interests.

To minimise the risk of harm:
- The researcher will create a safe and non-coercive environment for interviews, ensuring that participants can express their views without fear of reprisal.
- Sensitive topics, such as criticisms of petroleum management or the government's policies, will be approached carefully, allowing participants to skip questions they are uncomfortable answering.
- Emotional distress will be avoided by ensuring that interviewees, especially from affected communities, are not subjected to intrusive or overly personal questions.

Moreover, the researcher will be mindful of cultural sensitivities, particularly when engaging with local communities that may have different views on petroleum resource management than industry stakeholders or policymakers. Ethical sensitivity to cultural norms and practices will be upheld throughout the research.

3.8.4 Conflict of Interest

Ethical research must remain free from conflicts of interest that could bias the results or harm the study's credibility (Bryman, 2016). Since this research involves government policies and industry practices, there is a potential risk that stakeholders involved in the petroleum sector may seek to influence the research findings. By maintaining a clear boundary between the researcher's responsibilities and any vested interests, the study will ensure that the conclusions are unbiased and grounded in empirical evidence.

To maintain integrity and impartiality:
- The researcher will declare any potential conflicts of interest, such as funding sources or personal connections to the petroleum industry or government bodies.
- The research will be conducted independently, and transparency will be maintained at all stages of the study, from data collection to analysis and reporting.
- Peer review and consultation with independent experts will be sought to ensure the objectivity of the findings.

3.8.5 Ethical Approval

Before data collection begins, the study will seek ethical approval from a relevant ethics review board, such as an academic institution or professional body. Ethical review ensures that the research design adheres to established ethical standards and mitigates any potential risks to participants. Ethical approval is critical in legitimising the study and ensuring it adheres to internationally recognised ethical standards (Saunders et al., 2019).

The review process will assess:
- The adequacy of informed consent procedures.
- The measures in place to ensure confidentiality and anonymity.
- The potential for harm and how it will be minimised.
- The overall benefit of the research to society, particularly in improving petroleum resource management and promoting sustainable development.

3.8.6 Respect for Participants' Rights

Throughout the research process, the study will uphold the principle of respect for persons, emphasising participants' dignity, autonomy, and rights (Orb et al., 2001). This includes:

- **Right to Withdraw**: Participants will be informed of their right to withdraw from the study at any point without needing to provide a reason. This ensures that participation is voluntary and free from coercion.
- **Access to Findings**: Participants, especially policymakers and community leaders, will be able to summarise the research findings. This fosters transparency and ensures the research is accountable to those who contributed.

3.8.7 Ethical Reporting and Use of Findings

The final ethical consideration involves how the research findings will be reported and used. The researcher has an ethical responsibility to report the results accurately and honestly, without misrepresentation or manipulation (Creswell, 2014).

In this study:

- **Transparency in Reporting**: The findings, whether favourable or unfavourable to petroleum policies, will be reported truthfully, without altering data to fit preconceived notions.

- **Responsible Use**: The findings will contribute to constructive dialogue on improving petroleum resource management in Ghana. They will not damage reputations or fuel political agendas but rather promote sustainable economic growth and environmental protection.

4.0 DATA ANALYSIS AND FINDINGS

The exploration and management of petroleum resources have profound implications for a nation's economic development and environmental integrity. In Ghana, the petroleum sector is a critical driver of economic growth, generating significant revenue and employment opportunities while presenting complex ecological challenges. This chapter delves into an in-depth analysis of the petroleum resource management policies implemented by the Petroleum Commission of Ghana, examining their effectiveness in promoting sustainable economic growth and safeguarding the environment. The chapter begins by outlining the Petroleum Commission's core objectives and mandates and the regulatory framework governing petroleum resource management in Ghana. It then discusses key policies designed to enhance economic contributions from the petroleum sector and environmental guidelines aimed at minimizing ecological degradation. Through a combination of quantitative data and qualitative assessments, this chapter assesses the outcomes of these policies in both economic and environmental contexts. In addition, this chapter provides a comparative analysis of Ghana's approach with international best practices in petroleum resource management, highlighting areas of success and potential gaps. The chapter concludes with insights into the effectiveness of Ghana's policies and recommendations for strengthening the role of the Petroleum Commission in achieving a balanced approach to economic growth and environmental sustainability in the context of Ghana's petroleum sector.

4.1 Demographic Information

The demographic information provides a foundational understanding of the population sample involved in this study, encompassing key variables such as age, gender, educational background, and occupation. This data helps to identify patterns and correlations in perceptions of petroleum resource management policies and their impacts on Ghana's economy and environment.

- **Age**: The age distribution of respondents covers various age groups, from young professionals in their early twenties to experienced practitioners in their fifties and sixties.

This range allows for diverse insights, capturing generational perspectives on the effectiveness and sustainability of petroleum resource policies.

- **Gender**: Gender representation is considered to ensure a balanced view, with both male and female participants included in the sample. This enables the study to account for any gender-specific differences in perspectives on resource management and environmental impact.

- **Educational Background**: Participants come from varied educational backgrounds, with many holding qualifications in fields relevant to petroleum, economics, and environmental studies. This diversity enhances the depth of analysis, allowing for input from individuals with different levels of understanding and expertise in petroleum management and policy.

- **Occupation**: Respondents' occupational profiles include government officials, industry professionals, environmental advocates, and academic researchers. Each occupation group brings unique insights into the effectiveness of petroleum policies and their impact on economic growth and environmental sustainability, contributing to a comprehensive evaluation of Ghana's petroleum resource management framework.

This demographic information supports the study's objective of generating a well-rounded assessment that captures various viewpoints on Ghana's approach to petroleum management.

4.1.1 Age Analysis of Respondents

The age distribution of respondents in this study provides valuable insights into the demographic profile of individuals assessing the effectiveness of petroleum resource management policies in Ghana.

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18–30	17	13.6	13.6	13.6
	31–40	19	15.2	15.2	28.8
	41–50	42	33.6	33.6	62.4
	51–60	36	28.8	28.8	91.2
	61 and above	11	8.8	8.8	100.0
	Total	125	100.0	100.0	

Table 4.1: Age Respondents | Source: Author's Field Work

The 18 - 30 Age Group represents 13.6% of the total sample. Respondents in this younger age group likely include emerging professionals and recent graduates with fresh perspectives on environmental sustainability and economic impacts. While they comprise a smaller segment, their views are essential in understanding the future outlook of Ghana's petroleum sector. The 31 – 40 age group accounts for 15.2% of the sample. Typically, individuals in this range are in mid-career positions, possibly with practical experience in policy implementation or environmental advocacy. Their insights are crucial as they often balance idealism with pragmatic perspectives gained through work experience.

The 41 – 50 Age Group is the most significant demographic, making up 33.6% of respondents. It is likely composed of experienced professionals and policymakers who have seen the development of Ghana's petroleum sector over time. Their viewpoints are instrumental in evaluating policies' long-term effectiveness and impact on economic growth and environmental sustainability. The 51 – 60 Age Group represents 28.8% of the sample. Respondents in this age group bring seasoned expertise. They often hold senior positions or influence policy in the

petroleum industry or related fields. Their extensive experience can provide a well-rounded perspective on past and present policy impacts.

The smallest demographic is the age group 61 and above. At 8.8%, this demographic likely includes retirees or highly experienced experts who have witnessed the evolution of Ghana's resource management policies over the decades. Their insights contribute to a historical understanding of policy impacts, offering long-term perspectives on sustainability. The data reflects a balanced representation across age groups, focusing on mid to late-career individuals with substantial professional experience. This distribution supports a comprehensive evaluation of petroleum management policies by capturing both current and long-term viewpoints, allowing the study to assess the effectiveness of policies from a multi-generational perspective.

4.1.2 Gender Analysis of Respondents

The gender distribution among respondents in this study on petroleum resource management policies in Ghana shows a significant male predominance.

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	90	72.0	72.0	72.0
	Female	35	28.0	28.0	100.0
	Total	125	100.0	100.0	

Table 4.2: Gender Analysis of Respondents | Source: Author's Field Work

Males constitute 72.0% of the sample, amounting to 90 respondents. This substantial representation suggests that men may have a more prominent role or interest in petroleum resource management, policy-making, or environmental impact assessment sectors. This male-dominant sample could reflect the industry's gender dynamics, where male professionals often occupy technical and policy-oriented roles within the petroleum sector.

Females make up 28.0% of the respondents, with 35 participants. Although they form a smaller segment of the sample, the perspectives of female respondents are crucial, as they contribute to a more balanced understanding of policy impacts. Female representation may bring additional insights, particularly concerning environmental sustainability and community welfare, often highlighted in policy evaluation from diverse perspectives.

This gender distribution highlights an opportunity to consider how gender diversity could influence perspectives on petroleum policy effectiveness. While the sample is predominantly male, including female viewpoints enriches the study by offering a broader range of insights on economic growth and environmental sustainability within Ghana's petroleum sector.

4.1.3 Occupation Analysis of Respondents

The occupational distribution of respondents in this study on the effectiveness of Ghana's petroleum resource management policies highlights a diverse range of professional perspectives.

Occupation		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government official	17	13.6	13.6	13.6
	Industry expert	27	21.6	21.6	35.2
	Environmental organisation representative	42	33.6	33.6	68.8
	Local community member	24	19.2	19.2	88.0

Academic/Researcher	15	12.0	12.0	100.0
Total	125	100.0	100.0	

Table 4.3: Occupation Analysis of Respondents| Source: Author's Field Works

Government Officials, comprising 13.6% of the sample (17 respondents), play a crucial role in developing and implementing petroleum policies. Their insights are vital for evaluating the policy-making process and assessing how government objectives align with economic growth and environmental sustainability. Industry Experts represent 21.6% of respondents (27 individuals). They bring technical and operational knowledge of the petroleum sector. Their input is critical to understanding the practical challenges and benefits of petroleum resource management and the sector's contribution to Ghana's economy.

Environmental Organisation Representatives: The largest group, making up 33.6% of the sample (42 respondents), representatives from environmental organisations provide perspectives focused on ecological impact and sustainability. Their views are essential for evaluating how well the policies address environmental protection concerns, as they are likely to prioritise reducing ecological degradation. Local community members constitute 19.2% of the respondents (24 individuals), representing those directly affected by the petroleum industry's operations. Their insights offer a grassroots perspective on how policies impact local communities economically and environmentally, providing a critical understanding of on-the-ground realities.

Academics/Researchers represent 12.0% of the sample (15 respondents), and academics and researchers contribute an analytical and evidence-based perspective. Their role often includes assessing policy effectiveness and identifying areas for improvement, which are informed by research and comparative analysis.

The diversity in occupational backgrounds enriches this study by allowing for a multi-faceted analysis of Ghana's petroleum resource management policies. Each group brings unique insights that help form a holistic view of policy impacts on economic growth and environmental sustainability. This distribution enhances the study's validity by capturing both industry-level expertise and community-level perspectives.

4.1.4 Education Analysis of Respondents

The educational background of respondents in this study reflects a broad spectrum, with a strong emphasis on higher education, which supports an informed analysis of Ghana's petroleum resource management policies.

Education					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Primary	6	4.8	4.8	4.8
	Secondary	15	12.0	12.0	16.8
	Tertiary (Diploma/Degree)	67	53.6	53.6	70.4
	Postgraduate (Master's/PhD)	37	29.6	29.6	100.0
	Total	125	100.0	100.0	

Table 4.4: Education Analysis of Respondents| Source: Author's Field Work

Only 4.8% of respondents (6 individuals) have a primary education. This small representation may reflect a general trend where people with lower educational levels are less involved in policy analysis and industry roles. However, this group's perspectives are valuable in understanding grassroots awareness and local-level impacts. 12.0% of respondents (15 individuals) had secondary education, which likely gave them a foundational understanding of policy implications and community concerns. Their insights contribute to a broader understanding of public perceptions of petroleum management policies, particularly among less-specialised community members.

The largest group, making up 53.6% of respondents (67 individuals), comprises individuals with tertiary-level qualifications. This segment includes professionals with specialised knowledge in fields relevant to the petroleum sector, such as engineering, environmental studies, or business. Their perspectives are crucial for evaluating policy effectiveness from a technical and operational standpoint. Individuals with doctoral qualifications represent 29.6% of the sample (37 respondents) and bring advanced expertise and analytical skills. This group is likely composed of policymakers, industry leaders, and researchers who can offer in-depth insights into petroleum management policies' strategic, economic, and environmental aspects.

Overall, the high percentage of respondents with tertiary and postgraduate education (over 80%) suggests that the sample is well-equipped to provide informed, critical perspectives on petroleum policies. This educational diversity supports a comprehensive analysis, combining technical, academic, and community insights to assess the impact of Ghana's petroleum resource management on economic growth and environmental sustainability.

4.2 Perceptions and Impact Of Ghana's Petroleum Policies

Implementing petroleum policies in Ghana has significant implications for the nation's economic growth and environmental sustainability. These policies shape petroleum resources' exploration, production, and management, directly influencing revenue generation, employment, and environmental conservation efforts. Understanding the perceptions of key stakeholders such as government officials, industry experts, environmental advocates, and local communities offers valuable insights into how these policies are received and their perceived effectiveness.

This chapter explores stakeholder perspectives on the success of current policies and examines the real-world impacts these regulations have on economic performance and ecological health. By analysing these viewpoints, the study aims to gauge the alignment between policy objectives and on-the-ground realities, identifying strengths, challenges, and opportunities for improvement in Ghana's approach to petroleum resource management. Ghana's petroleum management policies impact the country's economic growth and development. The data were analysed using multiple regression.

4.2.1 Assessment of Impact of Ghana's Petroleum Management Policies

To assess the impact of Ghana's petroleum management policies on the country's economic growth and development, the model summary and ANOVA results provide vital insights into the effectiveness of Ghana's petroleum management policies (PMP) on the country's economic growth and development, represented by the dependent variables for economic growth and development (CEG, CD).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.834[a]	.695	.692	.7287

a. **Predictor: (Constant), PMP**

Table 4.5: Model Summary
Source: Author's Field Works

An R-value of 0.834 shows a strong positive correlation between petroleum management policies and economic growth/development. This suggests that changes in petroleum management policies significantly relate to economic outcomes. The R Square of 0.695 indicates that petroleum management policies can explain approximately 69.5% of economic growth and development variance. This substantial proportion underscores the policies' prominent role in influencing economic performance. The adjusted R Square value of 0.692 confirms the model's robustness, accounting for the number of predictors used and ensuring that the model's explanatory power is not overly optimistic. The standard error of 0.7287 indicates the average

distance that observed values fall from the regression line, and the relatively low error suggests accurate predictions from the model.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	231.601	2	115.800	218.060	.000[b]
	Residual	101.430	191	.531		
	Total	333.031	193			

a. Dependent Variables: CEG, CD
b. Predictor: (Constant), PMP

Table 4.6: ANOVA Analysis | Source: Author's Field Works

The regression's sum of squares (231.601) and mean square of 115.800 reflect the extent to which petroleum management policies account for the variance in economic outcomes. The high F value of 218.060, coupled with a significance level (Sig.) of 0.000, indicates that the model is statistically significant. This low p-value strongly supports the hypothesis that petroleum management policies significantly impact Ghana's economic growth and development.

These results suggest Ghana's petroleum management policies strongly and statistically significantly impact economic outcomes. With over two-thirds of the economic variance these policies explain, the management approach is critical in shaping the country's economic growth and development. This analysis highlights the importance of strategic and well-implemented policies for maximising the financial benefits of Ghana's petroleum resources.

Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.001	.193		.003	.998
	SRM2	.630	.062	.556	10.219	.000
	SRM3	.376	.059	.349	6.408	.000

a. Dependent Variable: CEG, CD
Note: PMP= Petroleum Management Policies, CEG= Country Economic Growth, CD=Country Development
Table 4.7: Coefficients Analysis | Source: Author's Field Works

The coefficient analysis provides further insights into the individual contributions of different components of Ghana's petroleum management policies (PMP) on the country's economic growth (CEG) and development (CD). The constant value is 0.001 with a standard error of 0.193 and a t-value of 0.003, showing no statistical significance (Sig. = 0.998). This suggests that there would be no significant contribution to economic growth and development without petroleum management policies.

The unstandardised coefficient for SRM2 (Sub-component of petroleum management policies) is 0.630, with a standard error of 0.062 and a highly significant t-value of 10.219 (Sig. = 0.000). This indicates a strong positive relationship between SRM2 and economic growth/development, with SRM2 being a critical driver of these outcomes. The standardised coefficient (Beta) of 0.556 shows that SRM2 has the most significant impact among the variables, contributing over half of the explained variance.

The unstandardised coefficient for SRM3 (a Subcomponent of petroleum management policies) is 0.376, with a standard error of 0.059 and a t-value of 6.408. This coefficient also shows high statistical significance (Sig. = 0.000). The standardised Beta coefficient of 0.349

suggests that SRM3 also positively influences economic growth and development, though to a lesser extent than SRM2.

In summary, both SRM2 and SRM3, as components of Ghana's petroleum management policies, have a statistically significant and positive impact on economic growth and development. SRM2 has a more substantial effect, indicating that policies within this sub-category are particularly influential in driving economic outcomes. This analysis underscores the importance of focusing on specific components of petroleum management to maximise their contributions to national economic growth and development.

4.2.2 Environmental Regulations in Mitigating Ecological Impacts

The petroleum industry significantly contributes to economic growth in many countries, including Ghana. However, the exploration and production of petroleum often come with considerable ecological risks, including habitat degradation, water pollution, and greenhouse gas emissions. To address these challenges, effective environmental regulations are essential for safeguarding ecosystems and promoting sustainable practices within the industry. This section examines the effectiveness of such rules in Ghana, focusing on their ability to mitigate the adverse ecological impacts associated with petroleum activities.

By analysing existing environmental regulations and their implementation, this examination aims to identify strengths and weaknesses in the regulatory framework. It will consider factors such as compliance rates, enforcement mechanisms, and the responsiveness of regulations to emerging environmental challenges. Through this analysis, the study seeks to understand how well Ghana's ecological policies are functioning to protect natural resources and ensure the sustainability of the petroleum sector. Ultimately, this evaluation will contribute to discussions on enhancing regulatory measures to promote economic growth and environmental integrity in the context of petroleum exploration and production.

4.2.2.1 Petroleum Resource Management Policies Familiarity

The results regarding respondents' familiarity with Ghana's petroleum resource management policies reveal a diverse range of awareness levels among participants.

How familiar are you with Ghana's current petroleum resource management policies?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very familiar	24	19.2	19.2	19.2
	Somewhat familiar	59	47.2	47.2	66.4
	Not familiar	42	33.6	33.6	100.0
	Total	125	100.0	100.0	

Table 4.8: Policy Familiarity Analysis | Source: Author's Field Works

19.2% of respondents (24 individuals) indicated familiarity with the current petroleum management policies. This group likely consists of professionals directly involved in the petroleum sector, including government officials and industry experts, who comprehensively understand the policies and their implications. The largest segment of respondents, 47.2% (59 individuals), reported being somewhat familiar with the policies. This group may include stakeholders who are generally aware of the regulations but may not be deeply engaged in their implementation or analysis. Their insights could provide valuable perspectives on public understanding and acceptance of the policies.

A significant portion, 33.6% of respondents (42 individuals), stated that they are unfamiliar with Ghana's petroleum resource management policies. This lack of familiarity may reflect the views of local community members or individuals from sectors not directly related to petroleum management. Their perspectives are crucial for understanding the broader societal awareness of policies and their impacts.

Overall, the data indicates a spectrum of familiarity with Ghana's petroleum resource management policies, with a noteworthy proportion of respondents being only somewhat familiar

or unfamiliar. This variability highlights the need for improved communication and outreach regarding policy frameworks to enhance public understanding and engagement, particularly among those who may be affected by the ecological and economic outcomes of petroleum activities.

4.2.2.2 The Effectiveness of Ghana's Petroleum Resource Management Policies
The results regarding respondents' perceptions of the effectiveness of Ghana's petroleum resource management policies in promoting economic growth reveal a range of opinions.

How effective do you think Ghana's petroleum resource management policies have promoted economic growth?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very effective	32	29.6	25.0	25.0
	Moderately effective	43	34.4	34.7	59.7
	Not effective	35	28.0	28.2	87.9
	Do not know	15	12.0	12.1	100.0
	Total	124	100.0	100.0	

Table 4.9: Policy Effectiveness Analysis | Source: Author's Field Works

Approximately 29.6% of respondents (32 individuals) believe the policies are very effective in fostering economic growth. This group likely includes stakeholders who have witnessed tangible benefits from the petroleum sector, such as increased revenue, job creation, and investment opportunities. A significant portion, 34.4% of respondents (43 individuals), rated the policies moderately effective. This indicates a general recognition of the positive contributions of petroleum management policies while suggesting that there may be areas for improvement. Respondents in this category may acknowledge some economic benefits but feel the policies could be enhanced to maximise their impact.

A notable 28.0% of respondents (35 individuals) believed that the policies are ineffective in promoting economic growth. This perspective may stem from experiences of insufficient returns from the petroleum sector or perceived shortcomings in policy implementation and enforcement. The remaining 12.0% of respondents (15 individuals) indicated they do not have enough information to assess the policies' effectiveness. This lack of clarity may reflect gaps in communication or engagement regarding the policies' outcomes.

Overall, the data suggests a mixed perception of the effectiveness of Ghana's petroleum resource management policies in promoting economic growth. While nearly 30% view the policies as very effective, a significant proportion expresses scepticism regarding their impact. This highlights the need for ongoing assessment and potential policy adjustments to enhance the economic benefits of the petroleum sector and address the concerns raised by those who perceive the policies as ineffective.

4.2.2.3 Perceptions of the Policy Area with the Most Significant Impact on Economic Growth

The results regarding which policy area is perceived to have the most significant impact on economic growth reveal distinct preferences among respondents.

Which of the following policy areas has the most significant impact on economic growth?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Revenue allocation	25	20.0	20.0	20.0
	Local content policies	46	36.8	36.8	56.8
	Taxation and royalties	38	30.4	30.4	87.2

	Infrastructure development	16	12.8	12.8	100.0
	Total	125	100.0	100.0	

Table 4.9: Policy Areas Analysis | Source: Author's Field Works

20.0% of respondents (25 individuals) identified revenue allocation as the most significant policy affecting economic growth. This perspective suggests that distributing revenue from petroleum resources is crucial in funding development projects and public services that can drive economic progress. 36.8% of respondents (46 individuals) chose local content policies as the most commonly selected option. This indicates a strong belief that policies promoting local participation in the petroleum sector, including hiring and using local goods and services, substantially impact economic growth. Such policies can enhance job creation, skill development, and community economic empowerment.

Taxation and royalties, representing 30.4% of respondents (38 individuals), were also highlighted as significant contributors to economic growth. Effective tax policies and fair royalty structures can ensure that the government receives a fair share of the revenues generated, which can then be reinvested into public goods and services.

Only 12.8% of respondents (16 individuals) identified infrastructure development as the most impactful area. While infrastructure is undoubtedly essential for facilitating economic activities and attracting investments, this lower percentage suggests that respondents may view it as a supporting factor rather than a primary driver of economic growth in the context of petroleum management.

Overall, the results strongly emphasise local content policies as a critical driver of economic growth, followed by taxation and royalties. These insights underscore the importance of crafting policies that generate revenue and enhance local participation and capacity building within the petroleum sector. As Ghana continues to develop its petroleum resources, focusing on these policy areas may foster sustainable economic growth and development.

4.2.2.4 Employment Opportunities Created by the Petroleum Industry
The results regarding the creation of employment opportunities by the petroleum industry in respondents' regions or organisations indicate a predominantly positive perception.

Has the petroleum industry created employment opportunities in your region or organisation?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	101	80.8	80.8	80.8
	No	24	19.2	19.2	100.0
	Total	125	100.0	100.0	

Table 4.10: Employment Opportunities Analysis | Source: Author's Field Works

Most respondents, 80.8% (101 individuals), reported that the petroleum industry has created employment opportunities in their region or organisation. This high percentage suggests that the sector plays a vital role in job creation, likely contributing to local economic growth and improved livelihoods. Many respondents may have witnessed firsthand the direct and indirect employment generated through various sectors, including exploration, production, and associated services.

Conversely, 19.2% of respondents (24 individuals) indicated that the petroleum industry has not created employment opportunities in their area or organisation. This viewpoint may reflect concerns about the distribution of jobs, the nature of employment (e.g., temporary versus permanent positions), or the perceived benefits of the industry not reaching specific communities or demographic groups.

Overall, the data suggests that the petroleum industry is viewed as a significant contributor to employment in Ghana, with most respondents acknowledging its positive impact

on job creation. However, 19.2% of those who feel that the industry has not generated employment opportunities highlight a need for continued efforts to ensure equitable access to jobs, especially in regions that may not fully benefit from petroleum-related activities. Addressing these disparities could enhance the overall economic benefits of the petroleum sector and promote more inclusive growth across communities.

4.2.2.5 Perceptions of the Impact of Petroleum Policies on Local Community Livelihoods
The results regarding the extent to which respondents agree that petroleum policies have improved the livelihoods of local communities reveal a predominantly positive outlook.

To what extent do you agree that petroleum policies have improved the livelihoods of local communities?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	38	30.4	30.4	30.4
	Agree	48	38.4	38.4	68.8
	Neutral	11	8.8	8.8	77.6
	Disagree	17	13.6	13.6	91.2
	Strongly disagree	11	8.8	8.8	100.0
	Total	125	100.0	100.0	

Table 4.11: Police Improvement Analysis | Source: Author's Field Works

About 30.4% of respondents (38 individuals) strongly agree that petroleum policies have positively impacted local livelihoods. This indicates that a significant portion of the population perceives clear benefits from these policies, possibly relating to improved access to resources, economic opportunities, or community development initiatives funded by petroleum revenues. A more significant segment, 38.4% (48 individuals), agreed with the statement. This suggests that more than two-thirds of respondents believe that petroleum policies have contributed positively to the well-being of local communities, reinforcing the idea that the sector's development can lead to improved living standards.

A smaller group of respondents, 8.8% (11 individuals), remained neutral regarding the impact of petroleum policies on livelihoods. This neutrality may reflect uncertainty or a lack of information about the policies' specific effects on their communities. Approximately 13.6% of respondents (17 individuals) disagreed that petroleum policies have improved livelihoods, indicating concerns about their effectiveness in delivering tangible benefits to local populations.

Lastly, 8.8% of respondents (11 individuals) strongly disagreed, highlighting scepticism about the positive impact of petroleum policies on their communities.

Overall, the results demonstrate that a significant majority of respondents believe that petroleum policies have contributed to improving the livelihoods of local communities, with a combined 68.8% agreeing or strongly agreeing. However, the presence of dissenting opinions also underscores the need for ongoing evaluation and adjustment of these policies to ensure that they effectively address the needs and concerns of all community members. By engaging with local populations and incorporating their feedback, policymakers can enhance the benefits derived from petroleum resources and promote more sustainable development in affected regions.

4.2.2.6 Perceptions of Government Management of Petroleum Revenues
The results regarding respondents' ratings of the government's management of petroleum revenues reveal a varied assessment:

How would you rate the government's management of petroleum revenues?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	7	5.6	5.6	5.6

Good	49	39.2	39.2	44.8
Fair	49	39.2	39.2	84.0
Poor	12	9.6	9.6	93.6
Don't know	8	6.4	6.4	100.0
Total	125	100.0	100.0	

Table 4.11: Government Management of Petroleum Revenues Analysis | Source: Author's Field Works

Only 5.6% of respondents (7 individuals) rated the government's management of petroleum revenues as excellent. This low percentage indicates that very few believe the management practices are exemplary, suggesting room for improvement in transparency, efficiency, and accountability. A substantial portion of respondents, 39.2% (49 individuals), rated the management as exemplary. This perspective indicates a level of satisfaction with the government's efforts, though it also implies that there are still concerns or areas where improvements could be made.

Another 39.2% (49 individuals) considered the management to be fair. This neutral rating suggests that while respondents acknowledge some positive aspects, they may also recognise significant shortcomings that need addressing. The equal distribution of responses between "good" and "fair" indicates a critical viewpoint among many respondents regarding the effectiveness of the management.

A smaller group, comprising 9.6% (12 individuals), rated the management as poor. This sentiment reflects dissatisfaction with how petroleum revenues are handled, which may stem from perceptions of mismanagement, lack of investment in community projects, or insufficient resource allocation. Lastly, 6.4% of respondents (8 individuals) indicated they do not have enough information to assess the government's management of petroleum revenues, highlighting a potential gap in public knowledge or communication regarding the government's practices.

Overall, the data indicates that while a combined 44.8% of respondents rated the government's management as good or excellent, a significant proportion (39.2% rated it fair and 9.6% rated it poor) expressed concerns about the effectiveness of revenue management. This mixed perception suggests that improved transparency, accountability, and stakeholder engagement in the management of petroleum revenues are needed to enhance public trust and ensure that the benefits of these resources are maximised for the broader population.

5.0 CONCLUSIONS

The study demonstrates that Ghana's petroleum management policies have significantly contributed to economic growth, driven by revenue generation, employment opportunities, and infrastructure development. However, the policies' effectiveness is tempered by inefficient revenue allocation, environmental degradation, and limited benefits for local communities. Stakeholder perceptions highlight a disparity in policy familiarity and satisfaction, with calls for greater transparency and accountability.

To address these challenges, the study recommends strengthening regulatory frameworks, improving community engagement, and diversifying the economy to reduce reliance on petroleum revenues. By aligning policy implementation with sustainable development goals, Ghana can mitigate the resource curse and ensure long-term economic and environmental benefits for its citizens.

References

- Abdulai, A.-G. (2023). *Oil and Development in Ghana: Governance Challenges and Opportunities.* Accra: Institute of Democratic Governance.

- Amoako-Tuffour, J., & Owusu-Antwi, G. (2021). *Ghana's Petroleum Revenue Management: Reviewing a Decade of Experience.* African Centre for Economic Transformation (ACET).

- Auty, R. M. (1993). *Sustaining Development in Mineral Economies: The Resource Curse Thesis.* Routledge.

- Bawumia, M., Adomako, K., & Tutu, K. (2021). "Petroleum Revenue and Public Investment Efficiency in Ghana." *Ghana Economic Review*, 15(1), 44–63.

- Gyampo, R., & Obeng-Odoom, F. (2022). "Oil Governance and Participatory Democracy in Ghana." *Energy Policy*, 161, 112–121.

- Haglund, D. (2020). "Transparency and Accountability in Oil Governance: The Ghanaian Model." *Natural Resource Governance Institute.*

- Ofori, A., & Laryea, E. (2022). "Policy Implementation and the Challenges of Oil Revenue Management in Ghana." *Journal of African Public Administration*, 9(3), 57–74.

- PIAC (2023). *Annual Report on the Management and Use of Petroleum Revenues for 2022.* Public Interest and Accountability Committee, Accra.

- Sachs, J. D., & Warner, A. M. (2001). "The Curse of Natural Resources." *European Economic Review*, 45(4–6), 827–838.

- Tordo, S., Tracy, B., & Arfaa, N. (2020). *Oil, Economic Growth, and Governance: Lessons for Ghana.* Washington, DC: World Bank.

- World Bank (2022). *Ghana Economic Update: Enhancing Public Investment Efficiency in the Era of Petroleum Resources.* Washington, DC.