

An Investigation into Socio-Political Constraints on Decarbonization in Akwa Ibom State, Nigeria

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ABSTRACT

This study investigated socio-political constraints on decarbonization in Akwa Ibom State, Nigeria, with emphasis on how governance structures, institutional frameworks, political interests, and stakeholder dynamics influence policy implementation and outcomes. A descriptive survey research approach was used in the research, covering three oil-producing Local Government Areas (LGAs) in the state: Eket, Ibeno and Eastern Obolo. The primary data for the study were obtained using structured questionnaires distributed to a sample of 400 respondents selected using a multistage sampling procedure, while field observations were also used. Descriptive statistics, Pearson Product-Moment Correlation (PPMC) and multiple regression analyses were used for analysing the data collected from the field at a 0.05 level of significance. From the analysis, it was found that socio-political elements such as political interest in oil revenues, socio-political instability, and economic dependency on fossil fuels significantly hinder decarbonization processes. Perceived lack of effectiveness of government stakeholders, community stakeholders, and industry stakeholders in the push for decarbonization was established through stakeholder analysis, while it is agreed upon that there is a need for collaboration and awareness for better results. Also, the respondents highlighted the poor progress in the realisation of decarbonization outcomes, such as low levels of reductions in carbon emissions, inadequate use of renewable energy and continued deterioration of the environment. Inferential statistics revealed a statistically significant correlation between socio-political factors and the implementation of decarbonization policies ($r = 0.808$; $p < 0.05$), between governance and institutional factors and decarbonization activities ($F = 97.609$; $p < 0.05$) and finally between stakeholder roles/perceptions and decarbonization outcomes ($r = 0.833$; $p < 0.05$). The regression analysis shows that stakeholder perceptions/roles accounted for 39.7% of the variability in decarbonization outcomes. In conclusion, decarbonization activities in Akwa Ibom State are greatly hampered by the prevailing socio-political factors, institutional weaknesses and ineffective stakeholder involvement in achieving poor environmental transition outcomes.

Keywords: Decarbonization; Socio-political constraints; Governance structures; Institutional frameworks; Stakeholder engagement; Akwa Ibom State; Nigeria.

INTRODUCTION

The efforts towards combating global warming by reducing carbon footprints are arguably one of the most significant policies being employed across nations in an attempt to reduce climate change, considering the fact that the amount of greenhouse gas emissions has been rising despite attempts such as the Paris Accord. According to the IPCC, the overall amount of emissions of CO₂ through combustion of fossil fuels has surpassed 37 billion tons annually on a global scale (Intergovernmental Panel on Climate Change, 2023).

The challenge is compounded in developing nations such as Sub-Saharan Africa, where matters such as energy, poverty, and industrialisation outweigh any other issue compared to environmental problems. Although Sub-

Saharan Africa makes up only 3–4% of carbon emissions globally, it is vulnerable to the impacts of climate change, including flooding, coastal erosion, and harsh weather conditions (IEA, 2022). Nigeria is considered one of the largest countries in Africa in terms of population size and production. As such, Nigeria plays a large part in the carbon emissions of Africa that are driven by oil and gas activities and gas flaring (World Bank, 2023; Okedere et al., 2021).

Several recent findings have indicated that the present energy situation in Nigeria depends heavily on fossil fuels, as more than 85 per cent of energy generation is done by natural gas and diesel plants in Nigeria due to the inconsistent supply from the electric grid network (Owebor et al., 2025). This poses challenges to Nigeria in adopting cleaner energy sources since the country plans to achieve net-zero emission targets by 2060.

On the contrary, energy transition should not only be viewed as a challenge associated with technical and economic dimensions. According to the literature, energy transition is a process driven by the issue of governance and politics; particularly, it takes place due to the stubbornness of fossil fuels within the politics and economics of institutions (Idu et al., 2025). In this connection, fossil fuels assume significance in the politics and economics of Nigeria. Also, new research findings indicate that inertia in socio-political processes, non-enforcement of environmental laws, and insufficient stakeholder involvement remain obstacles for decarbonization processes in the energy sector of Nigeria (Ogbonna et al., 2023). This situation is especially acute for oil-rich states like Akwa Ibom State, as the local economy depends heavily on the extraction of fossil fuels amid environmental pollution. Thus, it is critical to examine socio-political constraints to develop effective decarbonization policies.

Statement of the Problem

Despite Nigeria's promise of achieving zero emissions in 2060 as well as having different climate policies in effect, decarbonization has been significantly restricted. Particularly in oil-producing areas such as Akwa Ibom State. It is evident from the study results that Nigeria relies significantly on fossil fuels for its energy production, since more than 85% of electrical energy produced is through gas-fired generators, while diesel-fired generators are used because there is an inadequate energy supply (Ogbonna et al., 2023). The dependence of the institution on fossil fuels still obstructs climate change mitigation strategies. Despite the considerable body of literature available on financial and technological barriers for decarbonization initiatives, there have been fewer studies on socio-political barriers, particularly concerning Nigeria. Academic studies have highlighted that socio-political factors such as weak governance, policy implementation problems, and inconsistent policy formulation pose problems for energy transition in Nigeria (Idu et al., 2025). In the case of Akwa Ibom State, the situation is worsened by the significant contribution that oil makes to its economy, thus creating a conflict between environmental sustainability and employment security. Studies have shown that social and political inertia, limited stakeholder participation, and a lack of proper implementation mechanisms prevent the use of low-carbon energies (Ogbonna et al., 2023; Perri et al., 2024). As a result, the main question that will be considered in this research is the lack of understanding of how socio-political barriers limit decarbonization efforts in Akwa Ibom State. If Nigeria's broad climatic objectives are to be realised, particularly in regions that depend entirely on fossil fuels, the above-given problems need to be addressed.

Aim of the Study

This study aimed to investigate the socio-political constraints on decarbonization in Akwa Ibom State, Nigeria. The specific objectives of the study are to:

1. Examine the major socio-political factors constraining the implementation of decarbonization policies in Akwa Ibom State, Nigeria.
2. Assess the influence of governance structures, political interests, and institutional frameworks on decarbonization efforts in Akwa Ibom State.
3. Evaluate the perceptions and roles of key stakeholders, including government actors, local communities, and industry stakeholders, in shaping decarbonization outcomes in Akwa Ibom State.

Hypothesis

1. There is no significant relationship between socio-political factors and the implementation of decarbonization policies in Akwa Ibom State, Nigeria.
2. There is no significant relationship between governance structures, political interests, institutional frameworks, and decarbonization efforts in Akwa Ibom State, Nigeria.
3. There is no significant relationship between stakeholder perceptions/roles (government, communities, and industry actors) and decarbonization outcomes in Akwa Ibom State, Nigeria.

Study Area

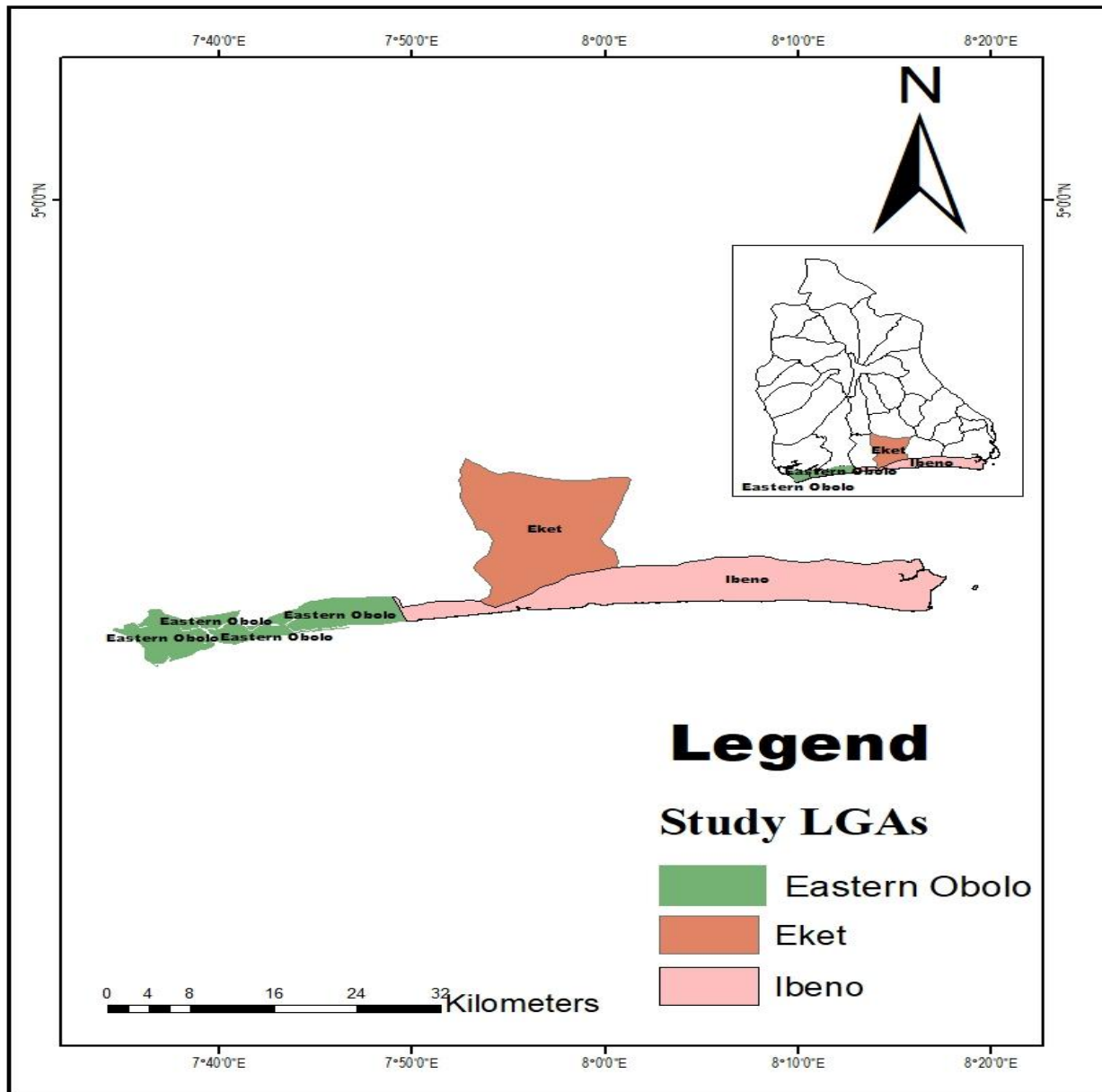


Figure 1: Akwa Ibom State Showing Selected Study LGAs

Source: Researcher's Analysis, 2026

Akwa Ibom State is located in the coastal southern part of Nigeria within the Niger Delta region. The selected study areas—Eket, Ibeno, and Eastern Obolo Local Government Areas (LGAs) lie approximately between latitude 4°30'N to 5°30'N and longitude 7°30'E to 8°30'E. These LGAs are bounded by the Atlantic Ocean to the south, Cross River State to the east, Rivers State to the west, and other inland LGAs of Akwa Ibom State to the north. The study area is predominantly a coastal lowland environment, characterised by extensive mangrove

swamps, creeks, estuaries, and tidal rivers that drain into the Atlantic Ocean. Major water bodies such as the Qua Iboe River and its tributaries support local livelihoods but are highly vulnerable to oil pollution. The terrain is generally flat and prone to flooding, particularly during the rainy season. There are two clear seasons of the year, within which there exists a wet season, from April to October, and a dry season, from November to March. The annual precipitation ranges from 2,000 mm to 3,500 mm, thus marking it among the most humid regions in Nigeria. The vegetation consists mostly of mangrove swamps as well as freshwater swamp species, together with raffia palms. The soils have mostly alluvial and hydromorphic characteristics, waterlogged and rich in organic matter, yet very prone to erosion and pollution through oil spillage. The ecological sensitivity of the region is quite high due to proximity to offshore oil fields. The LGAs of Eket, Ibeno, and Eastern Obolo are among the most prolific locations when it comes to oil and gas exploration in Akwa Ibom State. This makes the area face environmental problems like gas flaring, oil spills, and the destruction of ecosystems. The main ethnic groups living in this area are Ibibio, Oron, and Obolo. The settlements are found alongside rivers. Fishing, agriculture, petty trading, and oil-based operations are some of the major economic activities in the LGA. The LGA has administrative wards, while socio-political conflicts concerning resources and the environment make the area ideal for my study.

METHODOLOGY

Research Design

This study adopted a mixed-methods research design to investigate the socio-political constraints to decarbonization in Akwa Ibom State, Nigeria. The design combined quantitative and qualitative approaches to provide a comprehensive understanding of governance, institutional, stakeholder, and socio-economic factors influencing decarbonization efforts. The quantitative aspect employed a descriptive survey design, while the qualitative component utilised key informant interviews and focus group discussions to obtain in-depth information from relevant stakeholders. The design was considered appropriate because it enabled the integration of numerical and explanatory data, thereby enhancing the validity of the findings.

Population

The population of the study comprised residents and stakeholders in three major oil-producing Local Government Areas (LGAs) of Akwa Ibom State: Eket, Ibeno, and Eastern Obolo. According to the 2006 National Population and Housing Census, Eket had a population of 172,856, Ibeno 74,840, and Eastern Obolo 60,543. Using an annual growth rate of 2.5%, the populations were projected to 2025, resulting in 276,901 for Eket, 119,857 for Ibeno, and 96,953 for Eastern Obolo. The projected population of the study area was therefore 493,711 persons. The target population included government officials, oil and gas workers, community leaders, environmental practitioners, youth representatives, and residents of host communities.

Sample/Sampling Technique

A sample size of 400 respondents was determined using the Taro Yamane formula:

The Yamane calculation should technically be:

$$n = \frac{493,711}{1 + 493,711 (0.0025)} = \frac{493,711}{1,234.28} = 399.99 \approx 400$$

A multi-stage sampling technique was employed. First, the three LGAs were purposively selected because of their prominence in oil and gas production. Second, the population was stratified according to the LGAs and stakeholder groups. Finally, simple random sampling was used to select respondents. The sample was proportionally allocated as follows: Eket (224 respondents), Ibeno (97 respondents), and Eastern Obolo (79 respondents).

Instruments

Primary data were collected using a structured questionnaire, interview guide, focus group discussion guide, and field observation checklist. The questionnaire was designed on a four-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1) and contained items on socio-political constraints, governance, stakeholder participation, environmental concerns, and decarbonization outcomes.

Key informant interviews were conducted with government officials, environmental experts, community leaders, and oil and gas company representatives. Focus group discussions were also held with residents of host communities to obtain deeper insights into decarbonization challenges. Field observations complemented the data collection process.

The reliability of the questionnaire was established using Cronbach's Alpha, which yielded a coefficient of 0.83, indicating high internal consistency. Secondary data were obtained from textbooks, journal articles, policy documents, government publications, and reports from organisations such as the IPCC, World Bank, and International Energy Agency (IEA).

Method of Data Analysis

Quantitative data were coded and analysed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to answer the research questions. Inferential statistics, including Pearson Product-Moment Correlation and Multiple Regression Analysis, were used to test the hypotheses at the 0.05 level of significance. Qualitative data from interviews and focus group discussions were analysed using thematic content analysis, and the findings were integrated with the quantitative results.

Model Specification

The functional relationship for the study is expressed as:

$$DEC = f(SPF, GIN, STR)$$

Where:

- DEC = Decarbonization outcomes
- SPF = Socio-political factors
- GIN = Governance and institutional influence
- STR = Stakeholder roles

The econometric model is specified as:

$$DEC = \beta_0 + \beta_1 SPF + \beta_2 GIN + \beta_3 STR + \mu$$

Where:

- β_0 = constant
- β_1 – β_3 = coefficients of explanatory variables
- μ = error term

Ethical Consideration

Respondents' participation was voluntary, and confidentiality of responses was assured. The data collected were used strictly for academic purposes.

Limitations of the Study

The study is limited to the three selected oil and gas producing LGAs in Akwa Ibom State and does not extend to other LGAs or the Niger Delta states.

It is also limited to perceptual data obtained through questionnaires and field observation, which may not fully capture institutional complexities; however, triangulation of data sources was used to enhance the validity and reliability of findings.

RESULT

Demographic Characteristics of the Respondents

Table 1: Profile of Sampled Respondents

S/N	Variables State	Option	Frequency	Percentage %
1	Gender	Male	312	78
		Female	88	22
		Total	400	100.0
2	Age	Below 25 years	16	4.0
		25–34 years	96	24.0
		35–44 years	205	51.3
		45–54 years	59	14.7
		> 55 years	24	6.0
		Total	400	100.0
3	Educational Qualification	SSCE	11	2.7
		OND/NCE	80	20.0
		B.Sc./HND	275	68.7
		Postgraduate	35	8.7
		Total	400	100.0
4	Years of residence in the study area	1–5 years	8	2.0
		6–10 years	149	37.3
		11–20 years	181	45.3
		> 20 years	61	15.3
		Total	400	100.0
4	Occupation	Government official	51	12.7

		Community leader	115	28.7
		Oil/Gas worker	192	48.0
		Other	43	10.7
		Total	400	100.0

Source: Researchers' Fieldwork, 2026

As shown in Table 1, the total number of respondents in the study was 400, out of which 312 were male (78.0%) and 88 were female (22.0%). From the age distribution, a large percentage, 205 (51.3%), of the respondents were between the ages of 35–44 years, while 96 (24.0%) were within the age range of 25–34 years, 59 (14.7%) were in the age range of 45–54 years, 24 (6.0%) were more than 55 years old, and 16 (4.0%) were less than 25 years. It can be seen that most of the respondents were in the economically active age range. As for the educational qualification of the respondents, 275 (68.7%) had B.Sc./HND qualifications, 80 (20.0%) had OND/NCE qualifications, 35 (8.7%) had postgraduate qualifications, and 11 (2.7%) had SSCE As far as number of years of stay in the study area is concerned, 181 (45.3%) respondents have stayed in the area between 11–20 years, 149 (37.3%) in 6–10 years, 61 (15.3%) in more than 20 years, and 8 (2.0%) in 1–5 years. It means that the major part of the respondents have considerable familiarity with the environment and socio-economic conditions of the study area.

As regards occupation, the majority of the respondents are oil and gas workers, comprising 192 (48.0%) of the total sample. Next came the category of community leaders, consisting of 115 (28.7%) respondents, government officials with 51 (12.7%), and respondents involved in other occupations with 43 (10.7%). The occupational composition shows that a significant number of the respondents were related to the areas covered by the study, which made the acquired information more reliable.

Table 2: Perception of Respondents on the Socio-Political Factors and Decarbonization in Akwa Ibom State

S/N		LGAs							
		EKET N ₁ =224		IBENO N ₂ =97		EASTERN OBOLO N ₃ =79		Aggregate	Remark
		$\bar{x}_1$	σ_1	$\bar{x}_2$	σ_2	$\bar{x}_3$	σ_3		
1	Political interests in oil revenue hinder the implementation of decarbonization policies.	3.42	.499	3.56	.501	3.90	.303	3.63	Agree
2	Socio-political instability affects environmental policy enforcement in Akwa Ibom State.	3.84	.370	3.26	.443	3.68	.471	3.59	Agree
3	Dependence on oil revenue reduces government commitment to carbon reduction initiatives.	3.98	.141	3.92	.274	3.38	.490	3.76	Agree
4	Community resistance to energy transition projects slows down decarbonization efforts.	2.02	.915	2.12	1.023	1.94	.913	2.03	Agree
5	Socio-political considerations significantly influence	3.54	.646	3.38	.780	3.26	.828	3.39	Agree

	environmental decision-making.								
Grand Mean ($\bar{x}$)		3.36		3.25		3.23		3.28	Agree

Source: Researchers' Fieldwork, 2026

Table 2 indicates the mean scores and standard deviations regarding the perceptions about the socio-political determinants of decarbonization in Akwa Ibom State within the LGAs of Eket, Ibeno, and Eastern Obolo. The mean scores for the five socio-political factors of decarbonization are 3.63, 3.59, 3.76, 2.03, and 3.39, respectively. These scores show that there is general agreement regarding the negative impact that socio-political factors like political interest in oil revenues, socio-political instability, and economic dependence on oil have on decarbonization. Notably, the mean score of 2.03 for factor number four suggests that there is no agreement regarding the significant negative influence that community resistance may have on decarbonization efforts. From the three LGAs analysed, Eket has the highest mean score (3.36), followed by Ibeno (3.25) and Eastern Obolo (3.23). Overall, the mean score of 3.28 further shows general agreement about the negative impact of socio-political factors on decarbonization.

Table 3: Perception of Respondents on the Governance and Institutional Influence on Decarbonization in Akwa Ibom State

S/N		LGAs							
		EKET N ₁ =224		IBENO N ₂ =97		EASTERN OBOLO N ₃ =79		Aggregate	Remark
		$\bar{x}_1$	σ_1	$\bar{x}_2$	σ_2	$\bar{x}_3$	σ_3		
1	Weak institutional enforcement limits the effectiveness of decarbonization policies.	4.00	.000	3.72	.454	3.76	.431	3.83	Agree
2	Government agencies responsible for environmental protection are not well coordinated.	3.78	.418	3.30	.614	3.46	.706	3.51	Agree
3	Policy inconsistency affects long-term decarbonization planning.	3.82	.388	3.74	.443	3.82	.388	3.79	Agree
4	Political leadership priorities often override environmental sustainability goals.	3.96	.198	3.64	.485	3.68	.471	3.76	Agree
5	Institutional frameworks in Akwa Ibom State support fossil fuel dependency more than a clean energy transition.	4.00	.000	3.30	.544	3.78	.418	3.69	Agree
Grand Mean ($\bar{x}$)		3.91		3.54		3.70		3.72	Agree

Source: Researchers' Fieldwork, 2026

Table 3 displays the mean values and standard deviations of the respondents' perception about governance and institutions' influences on decarbonization in Akwa Ibom State. For item numbers one to five, the mean values are 3.83, 3.51, 3.79, 3.76, and 3.69, respectively, which reveal that there is agreement that the influence of governance and institutions is negative on decarbonization. It was observed that the respondents believe that

weak enforcement, lack of coordinated effort among institutions, inconsistent policies, and the government's focus on certain goals affect effective decarbonization. They further believe that the institutions are likely to encourage fossil fuel dependency instead of facilitating decarbonization. The mean scores were found to be highest in Eket (3.91) compared to Eastern Obolo (3.70) and Ibene (3.54). The grand mean value of 3.72 confirms that there was agreement about the influence of governance and institutions on decarbonization.

Table 4: Perception of Respondents on the Stakeholder Roles on Decarbonization in Akwa Ibom State

S/N		LGAs							
		EKET N ₁ =224		IBENO N ₂ =97		EASTERN OBOLO N ₃ =79		Aggregate	Remark
		$\bar{x}_1$	σ_1	$\bar{x}_2$	σ_2	$\bar{x}_3$	σ_3		
1	Government officials actively promote decarbonization initiatives in the state.	1.70	.463	1.58	.731	1.40	.639	1.56	Disagree
2	Local communities are adequately involved in environmental decision-making.	1.46	.613	1.40	.606	1.92	.566	1.59	Disagree
3	Oil and gas companies contribute positively to reducing carbon emissions.	1.78	.418	1.64	.485	1.26	.443	1.56	Disagree
4	Lack of awareness among stakeholders limits support for decarbonization policies.	3.18	.691	3.12	.849	3.36	.663	3.22	Agree
5	Effective stakeholder collaboration is essential for successful decarbonization.	3.58	.499	3.42	.499	3.22	.418	3.41	Agree
Grand Mean ($\bar{x}$)		2.34		2.23		2.23		2.27	Disagree

Source: Researchers' Fieldwork, 2026

Table 4 contains mean ratings and their corresponding standard deviation in regard to the respondents' perception of stakeholder roles in decarbonization activities within Akwa Ibom State. Respondents rated items one to five an average of 1.56, 1.59, 1.56, 3.22, and 3.41, respectively.

In the first place, from the findings, it can be seen that the majority of respondents did not agree with the idea that government officials promote decarbonization activities, that the locals have adequate participation in making environmental decisions, or that the oil and gas companies play any role in minimising carbon emissions. It can therefore be noted that such information indicates poor performance of the stakeholders, as indicated by the respondents.

However, the respondents agreed on the fact that lack of awareness inhibits effective implementation of decarbonization strategies ($\bar{x}$ =3.22), while stakeholder cooperation is essential ($\bar{x}$ =3.41). In regard to mean rating across the LGAs, while Eket recorded a mean of 2.34, Ibene and Eastern Obolo had a mean of 2.23. On average, the mean score across the LGAs was 2.27, which means general agreement could not be reached about the stakeholders' performance.

Table 5 Perception of Respondents on the Decarbonization Outcomes in Akwa Ibom State

S/N		LGAs							
		EKET N ₁ =224		IBENO N ₂ =97		EASTERN OBOLO N ₃ =79		Aggregate	Remark
		$\bar{x}_1$	σ_1	$\bar{x}_2$	σ_2	$\bar{x}_3$	σ_3		
1	There has been a noticeable reduction in carbon emissions in Akwa Ibom State.	1.94	.424	1.72	.671	1.28	.454	1.65	Disagree
2	Renewable energy adoption is increasing in the state.	2.16	.934	2.04	.832	2.04	.807	2.08	Disagree
3	Gas flaring has significantly reduced in recent years.	2.22	.954	1.92	.396	1.32	.471	1.82	Disagree
4	Environmental policies in the state have improved air quality.	2.20	.904	1.30	.678	1.14	.351	1.55	Disagree
5	Decarbonization efforts in Akwa Ibom State are effective overall.	1.96	.348	1.32	.471	1.34	.479	1.54	Disagree
Grand Mean ($\bar{x}$)		2.10		1.66		1.42		1.73	Disagree

Source: Researchers' Fieldwork, 2026

Table 5 illustrates the mean and standard deviations of the respondents' views on the decarbonization outcomes in Akwa Ibom State within the Eket, Ibeno, and Eastern Obolo LGAs. The mean scores of items 1 to 5 were found to be 1.65, 2.08, 1.82, 1.55, and 1.54, respectively.

It can be observed from the findings that there is a general disagreement on whether there has been a significant decrease in carbon emissions ($\bar{x} = 1.65$), an increase in the adoption of renewable energy ($\bar{x} = 2.08$), and a significant decrease in the occurrence of gas flaring ($\bar{x} = 1.82$). Respondents are also of the opinion that air quality has not improved significantly due to the implementation of environmental policies ($\bar{x} = 1.55$) and that the decarbonization activities have not yielded positive results ($\bar{x} = 1.54$). Eket scored a mean score of 2.10, Ibeno had a mean score of 1.66, while Eastern Obolo had a mean score of 1.42. A grand mean score = 1.73 indicates a generally negative view that there have been no significant decarbonization outcomes.

RESULTS of Tested Hypotheses

Hypothesis 1: There is no significant relationship between socio-political factors and the implementation of decarbonization policies in Akwa Ibom State, Nigeria.

Table 6: Summary of Pearson Product-Moment Correlation (PPMC) on the relationship between socio-political factors and the implementation of decarbonization policies in Akwa Ibom State.

		Socio-Political Factors	Decarbonization Policies
Socio-Political Factors	Pearson	1	.808
	Correlation Sig. (1tailed)		
	N		.000
Decarbonization Policies	Pearson	400	400

	Correlation Sig. (1tailed)		
	N	.808	1

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

Table 6 presents the Pearson Product-Moment Correlation (PPMC) on the relationship between socio-political factors and the implementation of decarbonization policies in Akwa Ibom State. From the result, there is a strong positive and statistically significant relationship between socio-political factors and decarbonization policy implementation, where the relationship has a correlation coefficient of $r = .808$. The relationship is significant at $p = .000$ ($p < 0.05$) with a sample size of 400 respondents. Based on this finding, the null hypothesis was therefore rejected while the alternative hypothesis was accepted, suggesting that there is a significant relationship between socio-political factors and the implementation of decarbonization policies in Akwa Ibom State. Socio-political factors explain approximately 65.29% of the variation in the implementation of decarbonization policies based on the coefficient of determination ($r^2 = 0.6529$). In this regard, changes in socio-political factors are significantly related to changes in levels of policy implementation, which is in agreement with the views held by respondents regarding their perceptions of decarbonization policies.

Hypothesis 2: There is no significant relationship between governance structures, political interests, institutional frameworks, and decarbonization efforts in Akwa Ibom State, Nigeria.

Table 7: Model Summary of the governance structures, political interests, institutional frameworks, and decarbonization efforts in Akwa Ibom State, Nigeria.

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.630	.397	.393	.47696

Predictors: (Constant), Stakeholder perceptions/roles

Coefficient of Determination (R^2): 0.397. This means that 39.7% of the variation in the decarbonization measures taken in Akwa Ibom State can be attributed to the variations in the predictor variable (Stakeholders' roles/perceptions, consisting of the government, the communities, and the business entities). Consequently, 39.7% of the variation in the decarbonization measures in Akwa Ibom State can be attributed to stakeholders' roles/perceptions.

Table 8: Analysis of variance of regression of the governance structures, political interests, institutional frameworks, and decarbonization efforts in Akwa Ibom State, Nigeria.

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	22.205	1	22.205	97.609	.000
	Residual	33.668	398	.227		
	Total	55.873	399			

Dependent Variable: Decarbonization outcomes

b. Predictors: (Constant), Stakeholder perceptions/roles

From Table 8, the value of the F-statistic at 97.609 is statistically significant at the level of 0.000 ($p < 0.05$). This implies that there is a significant relationship between the results of decarbonization and stakeholders' perception/roles within the study location of Akwa Ibom State. Consequently, the null hypothesis is rejected.

Table 9: t-values of regression of the governance structures, political interests, institutional frameworks, and decarbonization efforts in Akwa Ibom State, Nigeria.

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.842	.363		-5.070	.000
	Stakeholder perceptions/roles	.960	.097	.630	9.880	.000

a. Dependent Variable: Decarbonization outcomes

Table 9 presents the contribution of the predictor variable (stakeholder perceptions/roles) towards decarbonization outcomes. From the result, a significant positive correlation was found between the two variables, where stakeholder perceptions/roles positively predict decarbonization outcomes (Beta = 0.630, $t = 9.880$, $p < .001$). This means that stakeholder perceptions/roles have a significant impact on decarbonization outcomes in Akwa Ibom State. This is because stakeholder perceptions/roles contribute positively and significantly to decarbonization outcomes ($B = 0.960$, $t = 9.880$, $p = .000$); this means that any improvement in the role and perception of stakeholders leads to low decarbonization outcomes in the study area.

Hypothesis 3: There is no significant relationship between stakeholder perceptions/roles (government, communities, and industry actors) and decarbonization outcomes in Akwa Ibom State.

Table 10: Summary of Pearson Product-Moment Correlation (PPMC) on the relationship between stakeholder perceptions/roles (government, communities, and industry actors) and decarbonization outcomes in Akwa Ibom State

		Stakeholder Perceptions/Roles	Decarbonization Outcomes
Stakeholder Perceptions/Roles	Pearson	1	.833
	Correlation Sig. (1tailed)		
	N		.000
Decarbonization Outcomes	Pearson	400	400
	Correlation Sig. (1tailed)		
	N	.833	1

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

The results for Table 10, which shows the Pearson Product-Moment Correlation (PPMC) for the relationship between stakeholder perceptions/roles and decarbonization outcomes in Akwa Ibom State, suggest that there exists a highly significant and positive correlation between the two variables. Specifically, a correlation coefficient of $r = .833$ shows that there is a highly significant and positive relationship between stakeholder perceptions/roles and decarbonization outcomes. In other words, the relationship between stakeholder perceptions/roles and decarbonization outcomes is significant at $p = .000$ ($p < 0.05$), considering a sample size of 400 respondents. Based on this finding, the null hypothesis was rejected while the alternative hypothesis was accepted, suggesting that there is a highly significant relationship between stakeholder perceptions/roles and

decarbonization outcomes in Akwa Ibom State. This can be seen from the coefficient of determination ($r^2 = 0.6939$), implying that about 69.39% of variations in decarbonization outcomes are accounted for by stakeholder perceptions/roles.

DISCUSSION

According to the results obtained in the study, the influence of socio-political aspects is crucial for determining the process of decarbonization in Akwa Ibom. The respondents stated that socio-political instability, political interests in oil money, and fossil fuel dependency were significant barriers to efficient decarbonization. It corresponds to previous research, which indicates the policy inertia caused by the resource-dependent character of an economy and the interests of politicians in oil extraction (Roshchina et al., 2020; Heras, 2024). Analogous to oil-producing areas like the Niger Delta, oil dependency makes policymakers less likely to implement decarbonization programs. Yet, contrary to assumptions, community resistance was not considered a significant obstacle to decarbonization initiatives. In addition, the current study highlights that governance and institutional systems greatly limit decarbonization efforts. Lack of enforcement, low coordination, and policy inconsistencies are among the factors mentioned by participants, and these results support the previous findings (for example, see Mdleleni et al., 2025), who argued that weak governance systems hinder the implementation of policies related to environmental protection in developing countries. The belief that institutions support dependency on fossil fuels supports the statement about misalignment of policy environments in fossil fuel-rich countries with global decarbonization targets. Furthermore, stakeholder actions were seen as quite ineffective, in particular, in terms of governmental actions, community engagement, and corporate responsibility. Such findings support earlier research focusing on multistakeholder approaches for climate policies (see Bulkeley & Newell, 2015). Whereas respondents recognised the significance of collaboration and awareness, the poor rating implies there is a lack of implementation and coordination among the stakeholders. Besides, the results show that there are no concrete achievements towards reducing carbon emissions, increasing renewables, and improving environmental conditions. This has been shown by other research in sub-Saharan Africa, whereby energy transition is slow due to infrastructure, economic, and governance-related issues (IEA, 2022; Agoundedemba et al., 2023). The poor rating for environmental outcomes suggests a disparity between the objectives of environmental policies and actual environmental outcomes. The high positive correlation between socio-political indicators and policies' implementation ($r = .808$), and between stakeholder perspectives and decarbonization success ($r = .833$), clearly points to the importance of these variables for the process of decarbonization. The regression analysis proves this idea once again, since stakeholders' views significantly impact the variance in decarbonization success. All these facts provide evidence for the assumption that good governance, specific policies, and the role of various stakeholders are the key determinants of effective environmental policy-making. In general, the results of the analyses prove that the issues of decarbonization in Akwa Ibom State are strongly related to the socio-political and institutional sphere, and not to natural and technical aspects.

CONCLUSION

This research has found that social and political considerations, institutions and governance mechanisms have greatly influenced the situation regarding decarbonization in Akwa Ibom State. From the findings derived from the three selected LGAs (Eket, Ibeno, and Eastern Obolo), it is clear that political considerations about the earnings from oil, institutions, inconsistencies in policies, and fragmented governance are some of the major barriers to the successful implementation of decarbonization strategies. It is, however, noteworthy that despite the strong connection between socio-political and governance considerations and decarbonization processes and strategies, the current status promotes fossil fuels. Moreover, it was found that the level of stakeholder participation is still weak, since government departments, oil and gas companies, and local communities were reported to have been performing poorly in terms of their contribution towards decarbonization goals. On the other hand, the lack of adequate awareness and low coordination between stakeholders emerged as some of the challenges, despite a consensus about the need for collaboration in efforts to address climate change. It is even more crucial to mention that decarbonization achievements in this region were reported to be weak, with the respondents reporting little success in achieving results on reducing greenhouse emissions, promoting renewable sources of energy, reducing gas flaring, and improving environmental quality. Thus, it can be stated that there

are considerable limitations to decarbonization efforts in Akwa Ibom State because of socio-political factors, poor capacity, and ineffective stakeholder participation.

RECOMMENDATIONS

Based on the findings of the study, the following measures are suggested:

- i. There is a need for comprehensive policy reforms that reduce overdependence on oil revenue and strengthen political commitment toward low-carbon and renewable energy transition pathways in Akwa Ibom State.
- ii. Government should strengthen institutional coordination among environmental agencies through clear mandates, improved inter-agency collaboration, and enforcement mechanisms to ensure effective implementation of decarbonization policies.
- iii. Deliberate efforts should be made to enhance stakeholder participation by integrating local communities, civil society organisations, and the oil and gas sector into environmental decision-making and climate governance frameworks.
- iv. Continuous public awareness and capacity-building programs should be implemented to improve stakeholder understanding of decarbonization benefits, risks of carbon-intensive practices, and opportunities within the green economy.
- v. Strict environmental regulations should be enforced on gas flaring and industrial emissions, while incentives should be provided to encourage investment in renewable energy infrastructure and cleaner production technologies across the state.

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