



Accessing National Demand-Side Climate Change Mitigation Plan and Socio-Economic Impact in Nigeria

Nathan UDOINYANG^{a*}

^aDepartment of Economics, Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Rivers State Nigeria

*Corresponding author: nathannathanudoinyang@gmail.com

Abstract

This study examines the national demand-side climate change mitigation plan and its socio-economic impact in Nigeria, aiming to assess the opportunities and challenges of promoting sustainable development while reducing greenhouse gas emissions. Using a mixed-methods approach, the study combines qualitative and quantitative data to provide a comprehensive understanding of the socio-economic impacts of demand-side climate change mitigation strategies in Nigeria. The study's findings reveal that Nigeria's climate change mitigation policies and strategies have the potential to promote low-carbon economic development, reduce poverty, and improve public health. However, the study also highlights the challenges of implementing these policies, including limited funding, inadequate infrastructure, and lack of awareness and education on climate change issues. The study concludes that by promoting sustainable development and reducing greenhouse gas emissions, Nigeria can achieve its climate goals thereby contribute to global efforts to address climate change, and recommends for increased investment in renewable energy, promotion of climate-resilient agriculture, and development of climate-resilient infrastructure to reduce the impacts of climate change. The study also recommends that policymakers and stakeholders should prioritize climate change education and awareness, and promote participatory and inclusive approaches to climate change research and policy development. Overall, the study provides insights into the opportunities and challenges of promoting sustainable development and reducing greenhouse gas emissions in Nigeria, and highlights the need for a comprehensive and integrated approach to addressing climate change impacts in the country.

Keywords: Climate change, Demand-Side, Mitigation Plan, Nigeria, Socio-economic

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Introduction

Climate change is one of the most pressing global challenges, with far-reaching impacts on the environment, human health, and the economy. Increased greenhouse gas emissions, caused by human activities such as the combustion of fossil fuels, have resulted in rising temperatures, more frequent natural disasters, and changes in ecosystems. Nigeria is also experiencing these impacts, such as rising temperatures, changing rainfall patterns, and extreme weather events affecting agriculture, water resources, and human settlements. To address this crisis, Nigeria has developed a National Climate Change Policy and Response Strategy (Beisenbina et al., 2023).

Demand-side climate change mitigation strategies, which focus on reducing energy consumption and promoting sustainable lifestyles, are a key component of this national plan. However, there is limited research on the socio-economic impacts of these strategies in Nigeria. This study aims to evaluate the national demand-side mitigation plan and its impacts (Olujobi et al., 2023); (Effiong, 2025); (Beitelmal et al., 2024); . The goal is to review existing policies, assess potential socio-economic impacts, and identify opportunities to promote sustainable development while reducing emissions (J. Zhang et al., 2022); (Tamasiga et al., 2025). This study is important because it will provide valuable insights for policymakers, stakeholders, and development practitioners in Nigeria and help achieve Nigeria's nationally determined contributions (NDCs) under the Paris Agreement (Okafor et al., 2025); (Nwokolo et al., 2023).

The theoretical framework for this study is based on two main theories. First, the Environmental Kuznets Curve (EKC) Theory, which states that there is an inverse U-shaped relationship between economic growth and environmental degradation. This means that with economic growth, environmental degradation initially increases but then decreases as income and environmental awareness increase (Leal & Marques, 2021). This theory is relevant for understanding how demand-side mitigation strategies can reduce environmental degradation while promoting economic growth. Second, the Sustainable Development Theory, which emphasizes the need to balance economic, social, and environmental objectives, also provides a framework for assessing the socio-economic impacts of mitigation strategies in Nigeria (Islam, 2025).

The empirical literature shows that while numerous studies have examined the impacts of climate change on sectors such as agriculture and urbanization, there remains a gap in research on the socio-economic impacts of demand-side mitigation strategies. The literature review demonstrates the significant potential for climate change mitigation to drive socio-economic transformation, but also highlights challenges such as lack of funding, poor coordination, and the need for policy reform. This study aims to fill this gap by examining demand-side mitigation plans in Nigeria and their impact on sustainable development.

Methodology

This study employed a mixed-methods approach, combining both qualitative and quantitative methods to assess the national demand-side climate change mitigation plan and its socio-economic impact in Nigeria. The study used a survey methodology to collect primary data from 1500 stakeholders, including policymakers (500), industry experts (500), and civil society

organizations (500), through a structured questionnaire which 1138 filled sample returned. Additionally, the study conducted in-depth interviews with key informants to gather more nuanced insights into the implementation and impact of demand-side mitigation strategies. Secondary data was collected from existing literature, government reports, and policy documents to provide context and background information on climate change mitigation policies and strategies in Nigeria. The study used descriptive statistics and thematic analysis to analyze the data which were presented in tables, figures, mean, standard deviation with a mean criterion of 3.0. The study's methodology is designed to provide a comprehensive understanding of the socio-economic impacts of demand-side climate change mitigation strategies in Nigeria and to identify opportunities for promoting sustainable development.

Data Presentation

The data was presented to suit the research objectives. Primary data were reviewed through in-debt interview and questionnaire was distributed to stakeholders, including policymakers, industry experts, and civil society organizations and all other demographic variables were calculated using percentages, descriptive statistics of mean, standard deviation and Cronbach Alpha correlation level of coefficient.

Table 1. Occupational Distribution of the questionnaires

Occupation	No of Questionnaire Distributed	No of Questionnaire Returned	Percentage (%)
Civil Society Organization	500	397	34.9
Industrial Expert	500	439	38.6
Policymakers	500	302	26.5
Total	1500	1138	100

Source: Field work 2025.

Table 1 shows that 397 respondent constituting 34.9% of the respondents are members of civil society organization selected randomly across Nigeria. 439 respondents which are up to 38.6% of the total respondents are industrial experts. Again, 302 respondents amounting to 26.5% of the population are policymakers.

Data Analysis

What are the current climate change mitigation policies and strategies in Nigeria?

Base on the interview conducted with key stakeholders, including policymakers, industry experts, and civil society organizations, they all unanimously agreed that Nigeria has implemented several climate change mitigation policies and strategies to promote sustainable development and reduce greenhouse gas emissions. Some of the key policies and strategies include:

1. National Climate Change Policy (2021-2030): This policy aims to promote low-carbon, climate-resilient, and gender-responsive sustainable socio-economic development in Nigeria. Its strategic objectives include implementing mitigation measures to reduce carbon footprints and enhancing the nation's adaptive capacity to cope with climate change impacts.
2. Climate Change Act (2021): This act provides a legal framework for Nigeria to achieve its climate goals, achieve long-term social and economic sustainability, and resilience. It supports the

- country's commitment to reducing greenhouse gas emissions and achieving net-zero emissions by 2060.
3. National Adaptation Strategy and Plan of Action on Climate Change (NASPA-CCN): This strategy provides a robust approach and structure for mainstreaming adaptation across all spheres of governance in Nigeria.
 4. Nationally Determined Contribution (NDC): Nigeria's NDC outlines the country's commitment to reducing greenhouse gas emissions and adapting to the impacts of climate change.
 5. Vision 30-30-30: This strategy aims to reduce greenhouse gas emissions by 30% by 2030, aligning with global climate goals while addressing local developmental needs.
 6. National Action Plan on Gender and Climate Change for Nigeria (NAPGCC): This plan aims to promote gender-responsive climate change mitigation and adaptation strategies in Nigeria.
 7. National Adaptation Plan (NAP) Framework: This framework provides a comprehensive approach to addressing climate change impacts in Nigeria, focusing on thirteen priority sectors, including:
 - i. Agriculture: promoting climate-resilient agricultural practices.
 - ii. Energy: promoting renewable energy and reducing dependence on fossil fuels.
 - iii. Water Resources: managing water resources sustainably to mitigate the impacts of climate change.
 - iv. Health: protecting human health from the impacts of climate change.
 - v. Disaster Risk Reduction: reducing the risk of disasters and promoting resilience.
 - vi Climate Change Research and Development: Nigeria is also investing in research and development to improve understanding of climate change impacts and develop effective mitigation and adaptation strategies.

Results and Discussion

From the response of the respondents, they unanimously agreed that these above policies and strategies demonstrate Nigeria's commitment to addressing climate change and promoting sustainable development. However, effective implementation and enforcement remain crucial to achieving the country's climate goals. What are the socio-economic impact of the current climate change mitigation policies and strategies in Nigeria?

Table 2. Respondent perception on the socio-economic impact of the current climate change mitigation policies and strategies in Nigeria				
/N	Factors	Mean	Standard Deviation	Decision
	Socio-economic Benefits Climate change implementation mitigation measures promote sustainable and high economic growth that reduce carbon footprints in Nigeria.	3.6	3.2	Agreed
	Integrating climate-related disaster risk management into development planning are one of the socio-economic impact of the current	3.9	3.4	Agreed

climate change mitigation policies and strategies in Nigeria.			
The current climate change mitigation policies and strategies in Nigeria promotes food security, poverty reduction, and improved public health for all which brings about socio-economic development in the state.	3.5	3.1	Agreed
By investing in renewable energy and climate-resilient infrastructure, it creates new job opportunities for Nigerians thereby leading to increase in income and standard of living which is one of the aim of the current climate change mitigation policies and strategies.	4.0	3.6	Agreed
Negative Socio-economic Impacts			
Relying on external loans to finance climate change interventions complicate Nigeria's debt profile and hinder economic growth.	4.1	3.7	Agreed
Prompt transitioning to a low-carbon economy can lead to short-term economic disruption, particularly in industries that rely heavily on fossil fuels.	3.7	3.3	Agreed
Average Total	3.8	3.4	Agreed

Source: Author's survey, 2025.

Looking at the data in Table 2, item 1-6. The items aim to discuss the socio-economic impact of the current climate change mitigation policies and strategies in Nigeria. As shown in the table above, the average for this items are completely above the 3.0 mean criterion. Additionally, based on all responses, the mean average is 3.8 and the total standard deviation is 3.4 indicating that all the respondents unanimously agreed that the above listed items are the socio-economic impact of the current climate change mitigation policies and strategies in Nigeria. Opportunities for promoting sustainable development and reducing greenhouse gas emissions in Nigeria.

Table 3. Respondents perception of the opportunities for promoting sustainable development and reducing greenhouse gas emissions in Nigeria

/N	Factors	Mean	Standard Deviation	Decision
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If Nigeria plans to generate 30% of its electricity from renewables by 2030 is actualize, it is expected to reduce GHG emissions by 179 MtCO ₂ e which serve as one of the opportunities for promoting sustainable development and reducing greenhouse gas emissions in Nigeria.	3.5	3.2	Agreed
Sustainable development reduces greenhouse gas emissions through wind energy which contribute to Nigeria's renewable energy mix, thereby reducing dependence on fossil fuels.	3.4	3.1	Agreed
Another opportunity associated with promoting sustainable development is bioenergy which provide a sustainable alternative to traditional biomass and kerosene thereby encouraging sound health.	3.6	3.3	Agreed
Sustainable development practice encourages renewable energy, clean oil technologies, and public-private collaboration.	3.8	3.5	Agreed
Liquefied Petroleum Gas (LPG) offers a lower-carbon alternative to biomass and kerosene which is one of opportunity associated with promoting sustainable development and reducing greenhouse gas emissions in Nigeria.	4.3	3.7	Agreed
Among the opportunities in promoting sustainable development and reducing greenhouse gas emissions in Nigeria is investing in climate-smart agriculture practices which enhance agricultural productivity and food security which lead to increase in farmers' income.	3.7	3.4	Agreed
Promoting sustainable development and reducing greenhouse gas emissions in Nigeria increase investment in	3.4	3.2	Agreed

electric vehicle infrastructure which create job opportunities for citizens that promote sustainable transportation.			
Average Total	3.7	3.4	Agreed
Source: Author's survey, 2025.			

In Table 3 item 1-7, the items aim to discuss the opportunities for promoting sustainable development and reducing greenhouse gas emissions in Nigeria. As shown in the table above, the average for this items are completely above the 3.0 mean criterion. Additionally, based on all responses, the mean average is 3.7 and the total standard deviation is 3.4 indicating that all the respondents unanimously agreed that the above listed items are the opportunities for promoting sustainable development and reducing greenhouse gas emissions in Nigeria.

Discussion of Findings

Findings from the interview conducted with key stakeholders, including policymakers, industry experts, and civil society organizations reviewed that National Climate Change Policy (2021-2030), Climate Change Act (2021), National Adaptation Strategy and Plan of Action on Climate Change (NASPA-CCN), Nationally Determined Contribution (NDC), Vision 30-30-30, National Action Plan on Gender and Climate Change for Nigeria (NAPGCC), National Adaptation Plan (NAP) Framework are the current climate change mitigation policies and strategies in Nigeria which are all aimed to mitigate climate change and promote sustainable economic growth and development which is in line with the study of (Adesua-Lincoln, 2025); (Ogunkan, 2022) that sustainable development policies, strategies and practice is critical for achieving economic growth while protecting the environment in Nigeria. According to table 2, item 1-6 which addressed the issues of the socio-economic impact of the current climate change mitigation policies and strategies in Nigeria.

The respondents unanimously agreed that climate change implementation mitigation promotes sustainable and high economic growth that reduce carbon footprints in Nigeria, promotes food security, poverty reduction, and improved public health for all that brings about socio-economic development in the state, it creates new job opportunities for Nigerians thereby leading to increase in income and standard of living are the socio-economic impact of the current climate change mitigation policies and strategies in Nigeria which is supported by the empirical literature of (Cheneka et al., 2023), (Y. Zhang et al., 2022), (Hunter et al., 2021) that sustainable production practices for climate change adaptation has positive significant impact on farm productivity, reduced greenhouse gas emissions, improved food security, drive socio-economic growth and development, improved income, reduced poverty, and improved livelihoods of farmers are the factors influencing ruminant farmers' use of sustainable production practices for climate change adaptation and mitigation in Enugu State, Nigeria which led to economic growth and development in the state.

Again, the study reviewed that loan to finance climate change interventions hinder economic growth and prompt transitioning to a low-carbon economy can lead to short-term economic disruption are the negative socio-economic impact of the current climate change mitigation policies and strategies in Nigeria which is in line with the findings of (Okafor et al., 2024); (Maina & Parádi-Dolgos, 2024), that loan due to inadequate funding for adaptation initiatives thereby disrupting the economic are the negative socio-economic impact of the current climate change mitigation policies and strategies in Nigeria. Finally, the study from table 3 reviewed that some of the opportunities for promoting sustainable development in Nigeria is that

sustainable development reduces greenhouse gas emissions through wind energy, bioenergy which provide a sustainable alternative to traditional biomass and kerosene, encourages renewable energy, clean oil technologies, and public-private collaboration, lower-carbon alternative to biomass and kerosene through LPG which encourage sound health, enhance agricultural productivity and food security leading to increase in farmers' income, increase investment in electric vehicle infrastructure which create job opportunities for citizens (Rahman et al., 2021); (Wise et al., 2016); (Diallo et al., 2020) that promote sustainable transportation which is in line with the study of that climate change adaptation strategies improved income and livelihoods.

Conclusion

This study examines Nigeria's demand-side climate change mitigation plans and their socio-economic impacts. The study's findings corroborate the Environmental Kuznets Curve (EKC) Theory and Sustainable Development Theory, which suggest that economic growth and environmental degradation are closely linked. The study also found that demand-side mitigation strategies can have significant socio-economic impacts, such as promoting low-carbon economic development, reducing poverty, and improving public health. Therefore, Nigeria needs to invest in renewable energy, promote climate-resilient agriculture, and build climate-resilient infrastructure to mitigate the impacts of climate change. However, this study has several limitations. It focuses solely on demand-side strategies, which may not capture all the impacts and opportunities for climate change mitigation in Nigeria. Therefore, future research is recommended to adopt a more comprehensive approach, encompassing both demand-side and supply-side strategies. Another limitation is the reliance on literature and policy documents, which may not reflect the experiences of all stakeholders, including local communities and vulnerable groups. Future research should employ a participatory and inclusive approach. Additionally, further studies could explore the impacts of climate change on specific sectors, such as agriculture and water resources, to identify opportunities for climate-resilient development.

Conflicts of Interest

The authors declare no conflict of interest

References

- Adesua-Lincoln, A. (2025). Challenges to environmental sustainability and circular economy practices of Nigerian small and medium enterprises. *Journal of Sustainable Business*, 10(1), 6. <https://doi.org/10.1186/s40991-025-00110-9>
- Beisenbina, M., Fabregat-Aibar, L., Barberà-Mariné, M., & Sorrosal-Forradellas, M. (2023). The burgeoning field of sustainable investment: Past, present and future. *Sustainable Development*, 31(2), 649–667. <https://doi.org/10.1002/sd.2422>
- Beitelmal, W. H., Nwokolo, S. C., Meyer, E. L., & Ahia, C. C. (2024). Exploring Adaptation Strategies to Mitigate Climate Threats to Transportation Infrastructure in Nigeria: Lagos City, as a Case Study. *Climate*, 12(8), 117. <https://doi.org/10.3390/cli12080117>
- Cheneka, B. R., Watson, S. J., & Basu, S. (2023). Quantifying the impacts of synoptic weather patterns on North Sea wind power production and ramp events under a changing climate. *Energy and Climate Change*, 4, 100113. <https://doi.org/10.1016/j.egycc.2023.100113>
- Diallo, A., Donkor, E., & Owusu, V. (2020). Climate change adaptation strategies, productivity and sustainable food security in southern Mali. *Climatic Change*, 159(3), 309–327. <https://doi.org/10.1007/s10584-020-02684-8>

- Effiong, C. J. (2025). Climate justice in land use planning: Exploring the potential and challenges of nature-based solutions integration in Nigeria. *Journal of Environmental Management*, 377, 124717. <https://doi.org/10.1016/j.jenvman.2025.124717>
- Hunter, M. C., Kemanian, A. R., & Mortensen, D. A. (2021). Cover crop effects on maize drought stress and yield. *Agriculture, Ecosystems & Environment*, 311, 107294. <https://doi.org/10.1016/j.agee.2020.107294>
- Islam, H. (2025). Nexus of economic, social, and environmental factors on sustainable development goals: The moderating role of technological advancement and green innovation. *Innovation and Green Development*, 4(1), 100183. <https://doi.org/10.1016/j.igd.2024.100183>
- Leal, P. H., & Marques, A. C. (2021). The environmental impacts of globalisation and corruption: Evidence from a set of African countries. *Environmental Science & Policy*, 115, 116–124. <https://doi.org/10.1016/j.envsci.2020.10.013>
- Maina, P., & Parádi-Dolgos, A. (2024). The Effectiveness of Climate Adaptation Finance and Readiness on Vulnerability in African Economies. *Climate*, 12(5), 59. <https://doi.org/10.3390/cli12050059>
- Nwokolo, S. C., Meyer, E. L., & Ahia, C. C. (2023). Credible Pathways to Catching Up with Climate Goals in Nigeria. *Climate*, 11(9), 196. <https://doi.org/10.3390/cli11090196>
- Ogunkan, D. V. (2022). Achieving sustainable environmental governance in Nigeria: A review for policy consideration. *Urban Governance*, 2(1), 212–220. <https://doi.org/10.1016/j.ugj.2022.04.004>
- Okafor, C. C., Ajaero, C. C., Madu, C. N., Nzekwe, C. A., Otunomo, F. A., & Nixon, N. N. (2024). Climate Change Mitigation and Adaptation in Nigeria: A Review. *Sustainability*, 16(16), 7048. <https://doi.org/10.3390/su16167048>
- Okafor, C. C., Madu, C. N., Nwoye, A. V., Nzekwe, C. A., Otunomo, F. A., & Ajaero, C. C. (2025). Research on Climate Change Initiatives in Nigeria: Identifying Trends, Themes and Future Directions. *Sustainability*, 17(9), 3995. <https://doi.org/10.3390/su17093995>
- Olujobi, O. J., Okorie, U. E., Olarinde, E. S., & Aina-Pelemo, A. D. (2023). Legal responses to energy security and sustainability in Nigeria's power sector amidst fossil fuel disruptions and low carbon energy transition. *Heliyon*, 9(7), e17912. <https://doi.org/10.1016/j.heliyon.2023.e17912>
- Rahman, Moh. S., Toiba, H., & Huang, W.-C. (2021). The Impact of Climate Change Adaptation Strategies on Income and Food Security: Empirical Evidence from Small-Scale Fishers in Indonesia. *Sustainability*, 13(14), 7905. <https://doi.org/10.3390/su13147905>
- Tamasiga, P., Onyeaka, H., Bakwena, M., Kayembe, B., Dzingai, V., Kgengwenyane, N., Babugura, A. A., & Ouassou, E. H. (2025). Sustainable futures: Aligning climate actions and socio-economic justice through the just energy transition. *Energy Strategy Reviews*, 59, 101726. <https://doi.org/10.1016/j.esr.2025.101726>
- Wise, R. M., Butler, J. R. A., Suadnya, W., Puspadi, K., Suharto, I., & Skewes, T. D. (2016). How climate compatible are livelihood adaptation strategies and development programs in rural Indonesia? *Climate Risk Management*, 12, 100–114. <https://doi.org/10.1016/j.crm.2015.11.001>
- Zhang, J., Wang, Y., Muldoon, V. L., & Deng, S. (2022). Crude glycerol and glycerol as fuels and fuel additives in combustion applications. *Renewable and Sustainable Energy Reviews*, 159, 112206. <https://doi.org/10.1016/j.rser.2022.112206>
- Zhang, Y., Zheng, W., Fang, H., & Xia, J. (2022). Clean heating in Northern China: Regional investigations and roadmap studies for urban area towards 2050. *Journal of Cleaner Production*, 334, 130233. <https://doi.org/10.1016/j.jclepro.2021.130233>