

Evaluating Strategies to Enhance Existing Policies and Mitigate the Impact of Climate Change on Security in Zambia.

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ABSTRACT

The problem in Zambia is that the nation is susceptible to the detrimental effects of climate change, of which the agricultural sector is most affected. Changes in weather systems while frequent and prolonged dry seasons are among the greatest threats that, as a nation which, greatly depends on agriculture as the leading economic activity that the country’s economy relies on. Climate change disruption is not a standalone issue but the aggravating factor of other societal factors, including food security, livelihoods, and socioeconomic vulnerability. Due to the fact that agroecology has become the key pillar in Zambia’s economy, the vulnerability of this branch to climate change is viewed as the most serious threat to be solved. Resilience and sustainable development in the country will face a huge challenge if this issue is not carefully addressed. This study looks at the effectiveness of implementing existing policies and strategies to address security concerns highlighted by climate change in Zambia. The qualitative research design calls for collecting data through interviews and open-ended questions involving the security actors and the related agencies. The analysis revealed a mixed view of the policy’s effectiveness, which was accompanied by barriers such as socioeconomic and implementation difficulties and challenges that were seen to stop the full manifestation of the policies. Policy recommendations include, but are not limited to, increased partnership with the local authorities to ensure policy implementation mainly, public education and mobilization, objectives in which efforts to achieve sustainable practices are recognized. Another prospect for future research is to monitor the evolving patterns with critical assessments, eventually define the policy impacts, compare them with previous conclusions, and specify measures in times of peak crisis. Through its efforts to address these inadequacies, Zambia may be able to improve upon its climate change resilience, establish a trajectory of sustainable development, and actively contribute to global climate change efforts whose goal is to minimize impacts.

Keywords: Adaptation, Climate Change, Climate Change Policy, Disaster risk reduction, Mitigation, Natural disasters

INTRODUCTION

Climate change is one of the principal challenges facing society and the global community. The effects of climate change are borne by the most vulnerable people, whether at home or around the world. Therefore, every country is responsible for ensuring that its people are protected from the effects of climate change. Worldwide observed and anticipated climatic changes for the twenty-first century and global warming are significant global changes that have been encountered during the past 65 years. Climate change (CC) is an

inter-governmental complex challenge globally with its influence over various components of the ecological, environmental, socio-political, and socioeconomic disciplines.

Zambia is a country shaded by green fields, situated in the heart of the African continent in the southern part. It hugely depends on agriculture for economic growth. In the past, the agricultural sector employed many individuals in society, contributing greatly to the country's GDP. Therefore, the sector's vulnerability to climate change raises a fundamental challenge (Ombara, 2021). Erratic rainfall patterns, prolonged dryness, and an increase in the number of pests and diseases affect the productive activity of agriculture, endangering food security and creating concerns regarding peoples' Climate crisis-related challenges stir the already vulnerable socioeconomic location such as poverty and inequality, strongly evidencing the need for combined and innovative adaptation and mitigation measures.

The impact of climate change on national security is a growing concern worldwide, with Zambia being no exception. The country faces significant challenges due to its vulnerability to climate-related threats such as droughts, floods, and extreme weather events. These threats jeopardize agricultural productivity and water resources and exacerbate socioeconomic instability and conflict over scarce resources. To address these issues, evaluating and enhancing existing policies to mitigate climate change's impact on security is crucial. This evaluation involves assessing the effectiveness of current strategies, identifying gaps, and proposing innovative approaches to strengthen resilience. By fortifying policy frameworks and implementing robust mitigation measures, Zambia can better safeguard its national security and ensure sustainable development in a changing climate. This paper explores various strategies to enhance existing policies, focusing on integrated, multi-sectoral approaches that address climate security's environmental and socioeconomic dimensions.

LITERATURE REVIEW

Research done by Mlambo (2022) on the climate change vulnerability of rural areas in Zambia proved that the adaptation strategy is vital at the local level. The surveys and interviews among the local community showed what adaptation measures were most preferable by the community. These included diversification of livelihoods, sustenance agriculture, and utilization of climate-smart technology. Despite the usefulness of the research in unraveling grassroots initiatives that communities at the face level can deploy, it fails to provide a reference platform for wider policies designed to reduce climate change risks. However, Mlambo (2022) focused on the community-level strategies for dealing with climate change, while his study is on adaptation only and did not expressly evaluate the effectiveness of policy interventions at a national level that tries to reduce the security problems that might result from the climate change in Zambia. Driven-points this here the need for research that evaluates policies' influence beyond the local level, considering their national security, social-economic stability, and environmental resilience implications. The varying degrees of adaptation efforts at the town point and national policy structure can support future studies to develop a broader understanding of the necessary strategies to grow resilience and decrease the security menace created by climate changes in Zambia.

Also, through research done by McClure et al. (2023) on the effective socioeconomic impacts of climate change on smallholder farmers in southern Africa, it is evident that target support and investments in adaptive mechanisms are essential. The study employed household surveys and econometric cross-sectional analysis to examine variables influencing farmers' exposure to climate risk factors. The results do address the challenges experienced by vulnerable populations but do not focus on which interventions and strategies can be implemented to develop resilience and minimize security risks. Furthermore, McClure et al. (2023) offer a comprehensive view of the economic and social impacts of climate change on smallholder farmers in Zambia; however, they majorly deal with identifying the factors that bring about vulnerability instead of thoroughly addressing economic strategies and policies specifically designed to support the farmers and

make them more resilient to such vulnerability. This underlines the point that more study, which doesn't stop with identifying the vulnerabilities but also evaluating the policies' effectiveness, is needed for better governance for the climate change challenges of scale and complexity. By merging policy analysis, vulnerability, and adaptive data, future works can strengthen evidence-based decision-making processes and thus make communities and their environments more secure in the face of climate change consequences.

Similarly, the report from the Zambia Climate Change Secretariat (2018) offers a profound analysis of the existing climate change policies and strategies in Zambia. It verifies the gaps and opportunities for improvement. The report highlights the importance of in-climate-change risk analysis of actors and increasing coordination and implementation mechanisms to address climate-related risks effectively. However, the context of the outlined document hardly covers the assessment of a level actualizing of the strategies or their performance on the security front. Hence, an evaluation of how the measures were used to control such security risks should be conducted. Therefore, further research is needed. As such, the analysis will provide correspondents for policymakers and stakeholders to strengthen the socioeconomic and environmental systems in the face of climate-related security challenges.

Although there are some observations on the assessment of policies for controlling climate change in the country, the studies that examine the effect of climatic change on security in the republic are yet to mature. In principle, current research compiled a lot of information about climate change effects and adaptation strategies that helped a lot. However, there is a large scientific gap, and it should have more rigorous evaluations of policy interventions. Future research should try to identify and analyze the efficiency of these interventions in fortifying resilience and observing the extent to which security risks are reduced at various levels of government and all sectors. Beyond that, the study that brings together various social, economic, and environmental views is vital to formulate policy insights and plans based on the complex link between the planet's warming and the nation's security. This approach of network investigation provides the possibility of understanding the complex mechanisms of the interaction of many factors in vulnerability and resilience, which can be used as the basis for evidence-based decision-making. On top of this, researchers-policymakers-stakeholder collaboration is imperative as coin-producing knowledge and making the research applicable and relevant is central. A well-founded body of empirical research will create a growing resource of evidence to formulate viable policies for climate change adaptation in Zambia and far beyond.

Research Gap

An uncovered gap occurs in the area of comprehensive examinations of policies in the existing literature on assessing techniques for upgrading the existing policies and deflecting the security consequence of climate change in Zambia because most of the literature only focuses on tool screening. While numerous studies have been making significant contributions by highlighting the interplay between socioeconomic, environmental, and political aspects of the climate challenges in Zambia, there is a notable absence of in-depth analysis of specific policy interventions addressed at fighting climate change-related security risks (McClure et al., (2023; Mlambo, (2022). Sometimes, the research interests can focus only on assessing vulnerability and adaptation at the community level, with policies at the broader system level and their implications being undigged. Furthermore, limited interdisciplinary research that incorporates social, economic, and environmental aspects to get a comprehensive picture of Climate and human security is another problem (Zambia Climate Change Secretariat, 2018). Against this background, it is evident that there is a gap in research protocols that are formulated to measure policy implementation and outcomes objectively and, therefore, assess their effectiveness and inform evidence-based decision-making for climate adaptation and security in Zambia.

Theoretical Framework

This study is anchored on the Climate-Security Nexus Theory and Policy Analysis Theory. The

interconnection between climate change and national security is becoming increasingly evident, particularly in vulnerable regions like Zambia. To address these intertwined challenges effectively, theoretical frameworks such as the Climate-Security Nexus Theory and Policy Analysis Theory are indispensable. These frameworks provide structured approaches to understanding the complex dynamics and formulating robust policies that enhance resilience and security.

Climate-Security Nexus Theory

The Climate-Security Nexus Theory posits that climate change acts as a threat multiplier, exacerbating existing vulnerabilities and socioeconomic tensions, leading to conflict and instability (Ningelgen 2018). This theory is particularly relevant to Zambia, where climatic changes such as prolonged droughts, erratic rainfall, and extreme weather events significantly impact agriculture, water resources, and livelihoods. In Zambia, the Climate-Security Nexus can be observed through several lenses. By applying the Climate-Security Nexus Theory, policymakers in Zambia can better understand the multifaceted impacts of climate change on national security. This understanding can guide the formulation of integrated strategies that address environmental and socioeconomic security dimensions.

Policy Analysis Theory

Policy Analysis Theory provides a systematic approach to evaluating and improving policies. According to Weimer and Vining (2017), it involves several key stages: problem identification, policy formulation, implementation analysis, and impact evaluation. Applying this theory to Zambia's climate security policies can ensure that strategies are evidence-based, targeted, and effective. *Problem Identification:* The first step involves identifying the key climate-related security threats facing Zambia. According to Fellmann (2012), this includes assessing the vulnerability of critical sectors such as agriculture, water resources, and health to climate impacts and the socioeconomic factors that exacerbate these vulnerabilities. *Policy Formulation:* Once the problems are clearly defined, the next step is formulating policies to mitigate these threats. This might include developing water management strategies to ensure equitable distribution, investing in climate-resilient agricultural practices, and strengthening public health systems to cope with climate-induced diseases. *Implementation Analysis:* Effective policy implementation requires evaluating the capacity of institutions to execute strategies and ensuring that resources are allocated efficiently. This involves training personnel, improving infrastructure, and fostering collaboration between government agencies, NGOs, and communities. *Impact Evaluation:* Matsiliza (2019) explains that policies must be continuously monitored and evaluated to assess their effectiveness. This involves setting measurable goals, collecting data on outcomes, and making necessary adjustments to improve policy performance.

By integrating the Climate-Security Nexus Theory with Policy Analysis Theory, Zambia can develop comprehensive strategies that address climate change's immediate and long-term impacts on security. For instance, policies aimed at improving water resource management mitigate the effects of drought and reduce the potential for conflict over scarce resources. Similarly, investing in climate-resilient agriculture enhances food security and reduces socioeconomic vulnerabilities. Furthermore, the continuous evaluation and adaptation of policies ensure they remain relevant and effective in the face of evolving climate challenges. By adopting this integrated approach, Zambia can build a more resilient and secure future where the impacts of climate change are effectively managed and the stability and well-being of its population are safeguarded.

METHODOLOGY

The data used for this study were collected by various means. The methodology for evaluating strategies to enhance existing policies and mitigate the impact of climate change on security in Zambia involved

qualitative and quantitative approaches. Data collection was conducted through a combination of primary and secondary sources. Primary data was obtained via questionnaires and interviews with policymakers, environmental experts, and community leaders. Secondary data was gathered from governmental reports, academic journals, and relevant climate change and security literature. The study design involved combining an action design methodology with a qualitative approach and a descriptive survey design methodology that was aligned with a quantitative approach. This approach facilitated the collection and integration of both quantitative and qualitative data. This scheme made it possible to explore the underlying factors that lead to climate-related security deficits on the one hand and identify a wide range of viewpoints on the other, which creates a deep and nuanced understanding of the complex interconnection between environmental modifications and security dynamics.

Data analysis utilized both thematic and statistical techniques. Qualitative data from interviews and questionnaires were analyzed using thematic analysis to identify recurring themes and patterns related to policy effectiveness and challenges. Quantitative data, including climate trends and socioeconomic indicators, were analyzed using statistical software to assess correlations and impacts. This approach involved purposely tagging responses to the qualitative data and grouping based on similarity to look for potential themes and patterns related to climate change and security in Zambia. This mixed-methods approach provided a comprehensive understanding of the current policy landscape and identified actionable strategies for improvement. Employment of the thematic analysis and a range of other qualitative analysis techniques allowed this research to yield the ultimate product of a meticulous and thorough investigation, enriching the interpretation and presentation of the findings.

Data Analysis

Response Rate

The response rate of the survey conducted for this research was examined. The response rate is a crucial metric that indicates the level of participation and engagement of the target population with the study. It provided insights into the effectiveness of the data collection process and the sample's representativeness.

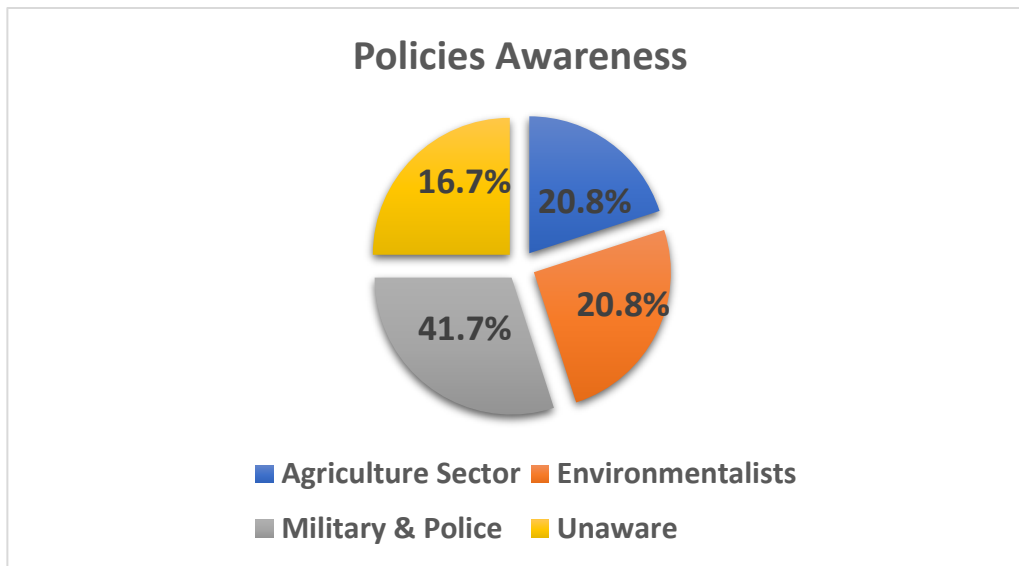
Table 1: Response Rate

Category	Frequency	Percentage (%)
Responded	48	80%
No Response	12	20%
Total	60	100.0%

The survey response rate for this research is presented in Table 1. Of the 60 persons asked to participate in the study, 48 answered, making up 80% of the entire sample. Conversely, 12 persons did not respond, making up the remaining 20%. The high response rate suggests that the obtained sample represented the group being studied, indicating a substantial degree of involvement from the target audience.

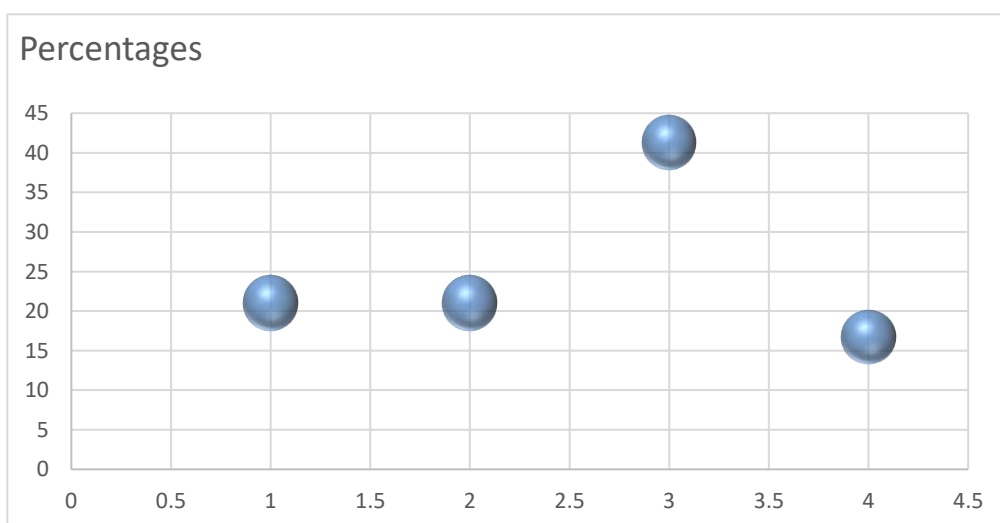
In finding out the availability of policies and strategies on climate change in Zambia, 48 respondents were asked to indicate their awareness of the availability of policies concerning Climate Change in Zambia. Their responses revealed various levels of awareness, which were then recorded accordingly. 10 respondents from the Environmental ministry, 10 from the Agriculture sector and 20 from the military & police confirmed being aware of the existence of the climate change policies, 8 of the respondents were not aware of the availability of climate change policies.

Fig 1 Awareness of climate Change Policies



An investigation from the respondents on the effectiveness of existing policies and strategies on climate change in Zambia indicated that 21% of respondents from the Agriculture sector, represented by the number 1 on the x-values of Fig 2, showed concern that their sector was one of the worst hit by climate change. They further went on to say that despite having policies in place, there were challenges in implementing them, coupled with limited financial resources, lack of technical capacity, and competing priorities that hindered the effective implementation of those policies. The respondents from the Ministry of Green Environment (21%), represented by the number 2 on the x-values, indicated that some policies, like the National Climate Response Plan, were implemented, especially when natural disasters occurred. 41.3% of the respondents from the Military & Police, represented by the number 3 on the x-values, indicated that the policies were being utilised. The other respondents (16.7%), represented by the number 4 on the x-values of Fig 2, were unsure whether the policies even existed.

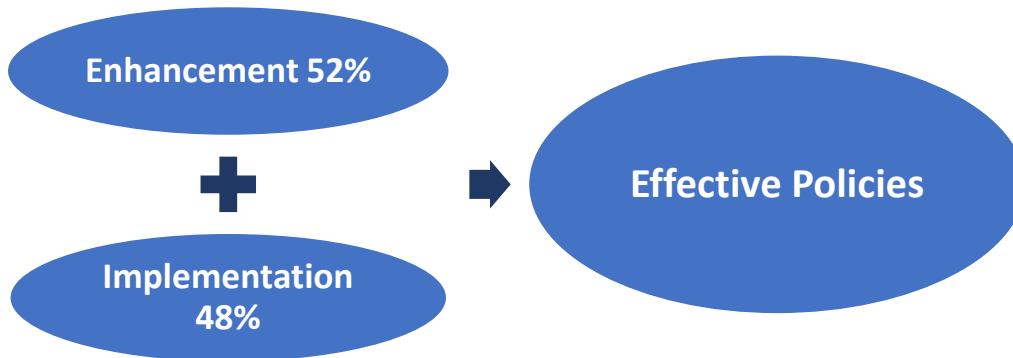
Fig 2 Effectiveness of existing policies and strategies



In ascertaining ways to improve the existing policies and help alleviate the effects of climate change on security in Zambia, respondents were asked to indicate how the existing policies could be improved. Their responses revealed various perceptions, which were then recorded accordingly. 52% of respondents contributed that there is a need for the Zambian Government to develop policies that promote alternative

sources of energy because when there is drought and low water levels in the rivers, the Zambia Electricity Supply Corporation (ZESCO) implements electricity load shading. This increases the number of hours of darkness and creates a conducive environment for criminal activities against the people. 48 % of the respondents suggested that the existing policies should be implemented without compromise.

Fig 3 Ways to improve the existing policies



RESULTS

Climate Change Policies, Strategies, and Adaptation Mechanisms

This section explores climate change policies, strategies, and adaptation mechanisms in Zambia. The researcher delved into respondents' perceptions regarding existing policies, their effectiveness, and the need for enhancement. Additionally, the study examined the mitigation measures employed by the people of Lusaka to address climate change challenges. This section introduced Zambia's climate change policies, tactics, and adaptation mechanisms. By providing a framework for the following conversation, we establish the context for analyzing participants' views on current policies and tactics.

Climate Change Policies in Zambia:

One of the participants noted that

“Yes, through the establishment of the DMMU.”

The Disaster Management and Mitigation Unit (DMMU) is essential in Zambia's attempts to address Climate change-induced disasters. It oversees the coordination of disaster planning, response, and recovery initiatives. The DMMU was created to tackle urgent humanitarian need during crises specifically. It has played a crucial role in assisting populations impacted by floods, droughts, and other climate-related incidents. Although the DMMU's emphasis on disaster response is crucial for protecting lives and livelihoods in the immediate future, its ability to tackle the root causes of climate change and establish long-term resilience is unclear.

In order to comprehensively evaluate the efficacy of the DMMU in addressing climate change concerns, it is imperative to assess its ability to incorporate climate change considerations into plans for reducing catastrophe risks. This encompasses reacting to catastrophes and executing strategies to alleviate the effects of climate change and strengthen community resilience. Expanding the DMMU's authority to encompass climate change adaptation measures, such as implementing early warning systems, constructing climate-resilient infrastructure, and promoting sustainable land management practices, will empower it to effectively tackle immediate and long-term climate-related concerns.

Moreover, it is imperative to establish cooperation between the DMMU and various government agencies,

civil society organizations, and foreign partners to implement all-encompassing climate change adaptation strategies effectively. The DMMU can improve its efficacy in tackling the intricate and interrelated concerns of climate change by utilizing the knowledge and resources of various stakeholders. Moreover, allocating resources to programs that enhance the capabilities of communities and facilitate the exchange of knowledge will enable them to play an active role in adapting to climate change and making meaningful contributions towards sustainable development objectives.

Another respondent stated that;

“Agricultural practices, environmental protection through the Ministry of Environment and the campaign against indiscriminately cutting of trees and campaign of smart energy usage.”

The finding emphasizes Zambia’s multi-sectoral strategy for mitigating climate change, which demonstrates the country’s understanding of the interdependent nature of climate-related issues and the significance of addressing them holistically. The Ministry of Environment’s engagement in advocating for sustainable agriculture practices and addressing deforestation signifies a deliberate endeavor to address the fundamental drivers of climate change while fostering sustainable development. Zambia seeks to bolster its ability to withstand climate-related hazards and safeguard food security and biodiversity conservation by incorporating climate change considerations into agricultural policies and forestry management practices. Moreover, Zambia’s focus on intelligent energy consumption demonstrates its dedication to shifting towards sustainable energy sources, which is in line with worldwide endeavours to decrease carbon emissions and address climate change.

Previous research, such as the studies conducted by Aryal et al. (2020) and Kangai et al. (2021), revealed recurring patterns in tactics for adapting to and mitigating climate change. These studies highlight the significance of comprehensive strategies tackling climate change’s socioeconomic, environmental, and institutional aspects. Similarly, Zambia’s approach, as indicated by the statements, demonstrates a comprehensive plan that acknowledges the interdependence of climate-related issues and aims to tackle them through coordinated efforts across several sectors. Zambia’s findings exemplify its proactive approach to mitigating and adapting to climate change, which aligns with global endeavours to tackle the intricate and pressing issues caused by climate change.

Effectiveness of Policies:

One of the participants noted that

“They are somewhat effective.”

The term “somewhat effective” used to assess Zambia’s climate change policies implies a nuanced perspective recognizing accomplishments and constraints. Although the policies have resulted in favourable consequences, such as heightened consciousness and the introduction of specific steps to reduce harm, there are still difficulties in executing them and allocating resources. This categorization suggests that although there has been some progress, it may not be entirely sufficient to tackle the intricate nature of climate change concerns. This highlights the necessity for ongoing enhancement and adjustment in the execution of policies, allocation of resources, and involvement of stakeholders to strengthen Zambia’s efforts in responding to climate change.

Another respondent stated that

“Due to poverty, cutting of trees has continued as a means of income for charcoal burners.”

This viewpoint highlights a significant obstacle to the success of climate change policy in Zambia: the

widespread impact of socioeconomic issues, namely poverty. The condition of poverty frequently compels individuals to prioritise their immediate economic necessities over long-term environmental concerns, resulting in a predicament where their livelihoods rely on activities that contribute to the deterioration of the environment, such as the production of charcoal. Although rules are in place to address deforestation and encourage sustainable land use, the ongoing necessity for revenue sustains unsustainable practices. The complex interplay between poverty and policy execution shows the intricate processes that shape responses to climate change. The statement underscores the importance of tackling fundamental socioeconomic vulnerabilities in conjunction with policy measures to make significant and lasting strides in mitigating the effects of climate change.

The results obtained in Zambia on the impact of socioeconomic determinants on the success of climate change policies largely correspond to the conclusions reached by Owen (2020) and Wamsler et al. (2020). These studies highlight the pivotal significance of socioeconomic factors influencing the effectiveness or ineffectiveness of climate change adaptation and mitigation endeavors. These experts argue for specific measures that target the underlying socioeconomic situation by acknowledging the intricate relationship between poverty, livelihood strategies, and environmental sustainability. The correlation between the discoveries in Zambia and previous research observations highlights the problem's widespread nature and the significance of tailoring climate policy development and execution to unique contexts.

Enhancement of Policies:

On this, a respondent noted that

“There is a need for enhancement of policies, especially implementation of climate action programs.”

The statement highlights the crucial significance of transitioning from mere policy creation to efficient execution in Zambia's endeavours to address climate change. Although establishing policies is an essential initial measure, their actual effectiveness depends on their practical implementation and enforcement. The reference to “climate action programs” implies a more comprehensive structure that includes diverse efforts designed to reduce and adjust to climate change. However, the success of these programmes depends on strong implementation mechanisms. To enhance the impact of existing policies, it is crucial to implement capacity-building efforts, promote stakeholder participation at all levels, and establish robust monitoring and evaluation systems. Zambia can enhance the efficacy of its climate change initiatives and provide better protection to its inhabitants and environment from the consequences of climate change by rectifying implementation deficiencies and establishing mechanisms for accountability.

Another respondent stated that;

“Sensitization should be an ongoing process and not just a once-off thing.”

This finding emphasizes the crucial need for ongoing education and awareness initiatives in promoting changes in behaviour and encouraging adherence to climate change policy in Zambia. This underscores the importance of continuous communication and educational efforts to ensure communities are well-informed and actively involved in climate change mitigation and adaptation efforts. Zambia can foster a culture of environmental stewardship and collective action by consistently raising awareness and educating the population. This is essential for effectively tackling the issues presented by climate change.

On comparing these insights with previous studies conducted by Fawzy et al. (2020) and Brosch (2021), it becomes clear that Zambia's strategy is consistent with broader research findings that highlight the importance of ongoing improvement and involvement of the public in efforts to mitigate climate change. Both studies emphasise the crucial importance of continuous communication and education in mobilising

stakeholders and promoting a unified response to the challenges posed by climate change. Zambia's commitment to increasing grassroots engagement and driving meaningful change in the face of climate uncertainty is evident through its persistent awareness-raising programmes, which draw similarities with scholarly approaches.

Climate Change Mitigation Measures in Lusaka

One of the participants stated that;

“Encouraging use of renewable sources of energy.”

Promoting renewable energy sources, particularly solar power, in Lusaka underscores a proactive approach towards mitigating carbon emissions and decreasing reliance on fossil fuels. The city seeks to promote sustainable development and tackle climate change by adopting renewable energy technologies. Adopting renewable energy sources such as solar power decreases greenhouse gas release and fosters energy self-sufficiency, strengthening the local energy infrastructure's ability to withstand challenges. Lusaka's strategic shift aligns with worldwide initiatives to address climate change by moving to cleaner and more sustainable energy sources. This demonstrates Lusaka's dedication to environmental stewardship and sustainable development.

Another respondent stated

“The government has implored the population to avoid using charcoal, which has brought up the demand for tree cutting.”

This finding highlights the government's proactive approach to addressing deforestation and encouraging sustainable land use practices in Lusaka. The authorities intend to alleviate environmental deterioration and promote the adoption of cleaner energy options by restricting charcoal, a major cause of deforestation. These activities align with wider efforts to reduce climate change and show a dedication to sustainable development. The mitigation methods seen in Lusaka align closely with the research findings of Chen and Gong (2021) and Aryal et al. (2020). These studies highlight the crucial need for adopting renewable energy and sustainable land management practices to mitigate climate change's impacts effectively. These studies emphasise the significance of shifting towards renewable energy sources and adopting sustainable agriculture techniques to decrease carbon emissions and improve resilience to climate change. The similarities across different urban situations, such as Lusaka, emphasise the importance and efficiency of employing comparable techniques.

By analysing the intricacies of these comments and comparing them with findings from previous studies, we acquire a more profound understanding of Zambia's climate change policies and efforts to reduce its impact in Lusaka. This comprehensive analysis provides essential recommendations for policymakers, researchers, and practitioners, illuminating successful solutions for improving climate resilience and advancing sustainable development. Furthermore, it emphasises the significance of initiatives that are specifically designed for the particular socioeconomic and environmental characteristics of metropolitan places such as Lusaka.

DISCUSSION

Effectiveness of Existing Policies and Strategies on Climate Change in Zambia

Evaluating the effectiveness of existing policies and strategies on climate change in Zambia reveals a nuanced landscape where progress coexists with persistent challenges. The Zambia Administration even

endeavoured to come up with policies such as the reduction of deforestation and also encouraging a shift from carbon-producing fuels to clean energy, but how much these policies will work remains a subject of criticism. Participant surveys collected results from which it is evident that they currently have mixed responses on the effectiveness of the current policies, with a lot to work on. Although some progress has been made, brick walls must be overcome to complete the policy target successfully. One of the key limitations draws attention to the socioeconomic factors such as poverty and failures to control financial operations that sometimes take precedence over strategies and approaches meant to be employed for forest preservation and conservation of the environment.

Also, the deficit of implementation and oversight in most of the climate change policies has played a big role in heightening the gaps between the plan formulation and the positive outcomes on the ground. Such shortfall reveals the criticality of a comprehensive strategy that entails socioeconomic barrier-breaking, putting governance mechanisms in place, and boosting the capacities to implement climate actions.

This evidence matches previous research implying the presence of a host of factors hindering the achievement of effective climate change mitigation policy objectives. Nigel (Brosch 2021) and Kenji Fawzy et al. (2020) emphasize significant positions of public involvement and awareness of inefficient climate change strategies. Likewise, the authors (Kangai et al., 2021; Owen, 2020) also propose a policy implementation framework that involves improving the current systems and strengthening the institutional capacity to surpass the obstacles that hinder policy effectiveness. While these studies jointly demonstrate the complex nature of the climate change policy arena in Zambia, there is a need for common approaches that embrace the involvement of the public, institutional strengthening, and capacity-building components to enhance the efficiency of climate change policies in Zambia.

CONCLUSION

In summary, policy and strategy evaluation on climate change in Zambia indicates that there is progress as well as persistent challenges. The Zambian government has to be lauded for taking initiatives to reduce the effects of rising temperatures and more extreme weather. However, have their policies not achieved what the government was trying to do? The survey believes that the policies are partially efficient but need improvement. Sociological factors, including impoverishment and financial criteria, sometimes prevent the policies' specific objectives from being fully achieved by altogether ceasing deforestation and adopting sustainable practices.

Moreover, there are weak points in the deployment and supervision processes. These hurdles are even more formidable to efficient policy delivery. The above outcomes coincide with some previous research that mentioned the role of the public in this process, increasing the effectiveness of the implementation process and increasing the capacity to overcome the difficulties that hinder policy effectiveness. Lastly, solutions to these problems will be complex, and addressing them with adequate participation of citizens' institutions with capacity building is a must approach to improve the climate change policies for Zambia. By exploiting these suggestions and utilizing a comprehensive approach, Zambia can progressively respond to the intricate nexuses of climate change and sustain the well-being of contemporary society and the generations to come.

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RECOMMENDATION

Based on the findings of our study, several recommendations can be made to enhance Zambia's response to climate change:

- **Strengthen Policy Implementation:** Improve the implementation of current climate change policies by having better coordination among government agencies, increasing monitoring and evaluation mechanisms, and providing enough resources to enable implementation efforts to succeed.
- **Enhance Public Awareness and Engagement:** Intensify public awareness and participation on climate change matters through open educational campaigns, community ventures, and people's campaigns to create climate change mitigation and adaptation opportunities for all citizens.
- **Promote Sustainable Practices:** Giving higher importance to the development of ecological land use, biodiversity protection, and renewable energy investments is the strategy that should be implemented. This covers sustainable agricultural practices, green investment in renewable energy infrastructure, and ecosystem-based adaptation that coincide with climate change.

REFERENCES

1. Bashwira, M. R., & van der Haar, G. (2022). Necessity or choice: women's migration to artisanal mining regions in eastern DRC. In *The (In) Visibility of Women and Mining* (pp. 78-98). Routledge.
2. Ddamulira, R. (2021). *The Co-Existence of Sustainable Forest Management amidst Oil Development-Analyzing Resource Policy Options for Uganda-East Africa*. University of Delaware.
3. Fahad, S., & Wang, J. (2020). *Climate change, vulnerability, and its impacts in rural Pakistan: a review*. *Environmental Science and Pollution Research*, 27, 1334-1338.
4. Fellmann, T. (2012). The assessment of Climate change-related vulnerability in the agricultural sector: reviewing conceptual frameworks. *Building resilience for adaptation to climate change in the agriculture sector*, 23, 37.
5. Hamududu, B. H., & Ngoma, H. (2020). Impacts of climate change on water resources availability in Zambia: implications for irrigation development. *Environment, Development and Sustainability*, 22(4), 2817-2838.
6. Joshi, M., Goraya, H., Joshi, A., & Bartter, T. (2020). *Climate change and respiratory diseases: a 2020 perspective*. *Current opinion in pulmonary medicine*.
7. Katati, C. (2022). *An investigation into adoption of mitigative and adaptive strategies to climate change: a case of construction materials manufacturing business enterprises in Lusaka province* (Doctoral dissertation, The University of Zambia).
8. Lee, K., Gjersoe, N., O'Neill, S., & Barnett, J. (2020). *Youth perceptions of climate change: A narrative synthesis*. *Wiley Interdisciplinary Reviews: Climate Change*, 11(3), e641.
9. Malla, F. A., Mushtaq, A., Bandh, S. A., Qayoom, I., & Hoang, A. T. (2022). Understanding climate change: scientific opinion and public perspective. In *Climate Change: The Social and Scientific Construct* (pp. 1-20). Cham: Springer International Publishing.
10. McClure, A., Patel, Z., Ziervogel, G., & Hardman, J. (2023). *Exploring the role of transdisciplinary learning for navigating climate risks in African cities: The case of Lusaka, Zambia*. *Environmental Science & Policy*, 149, 103571.

11. Mlambo, C. (2022). *Politics and the natural resource curse: Evidence from selected African states*. Cogent Social Sciences, 8(1), 2035911.
12. Mwanza, E., Mubanga, K. H., & Sichimwa, C. (2023). Effectiveness of Climate Change Awareness among Youths in Luanshya District, Zambia. *European Journal of Development Studies*, 3(2), 38-47.
13. Mubanga, K. H., Mazyopa, K., Chirwa, B., Musonda-Mubanga, A., & Kayumba, R. (2022). Trained Climate Change Educators: Are Secondary School Pupils Getting Quality Climate Change Education? Views from Teachers and Pupils in Lusaka, Zambia. *European Journal of Development Studies*, 2(4), 14-23.
14. Mulungu, K., Tembo, G., Bett, H., & Ngoma, H. (2021). *Climate change and crop yields in Zambia: historical effects and future projections*. Environment, Development and Sustainability, 23, 11859-11880.
15. Ngoma, H., Lupiya, P., Kabisa, M., & Hartley, F. (2021). *Impacts of climate change on agriculture and household welfare in Zambia: an economy-wide analysis*. Climatic Change, 167(3-4), 55.
16. Ningelgen, L. (2018). *The depiction of climate change as a threat multiplier and how it hinders action*. E-International Relations, 11
17. Ombara, I. (2021). *Cross Border Natural Resource Management and Sustainable Peace in Eastern Africa Region: A Case Study of Kenya* (Doctoral dissertation, University of Nairobi).
18. Rosen, J. G., Mulenga, D., Phiri, L., Okpara, N., Brander, C., Chelwa, N., & Mbizvo, M. T. (2021). *Burnt by the scorching sun: climate-induced livelihood transformations, reproductive health, and fertility trajectories in drought-affected communities of Zambia*. BMC public health, 21(1), 1-14.
19. Siatwiinda, S. M., Supit, I., van Hove, B., Yerokun, O., Ros, G. H., & de Vries, W. (2021). *Climate change impacts on rainfed maize yields in Zambia under conventional and optimized crop management*. Climatic Change, 167, 1-23.
20. Weimer, D., & Vining, A. (2017). *Policy analysis: Concepts and practice*. Routledge.