

Assessing the influence of government policies in mitigating climate change effects on tourism and rural livelihoods in Zambia's Chiawa Chiefdom in lower Zambezi

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ABSTRACT

This study examined the influence of government policies in mitigating the effects of climate change on tourism and rural livelihoods in Chiawa Chiefdom, Lower Zambezi, Zambia. A qualitative research design was employed with 30 semi-structured interviews with tourism operators, key tourism stakeholders, and local community members who are directly affected by climate variability and conservation policies from the five zones commonly known as village action groups (VAGS) which included Chisakila, Kambale, Chitende, Chiyaba and Mugulameno. This study was guided by Climate Vulnerability Theory. Interview data were transcribed verbatim, thematically analyzed, and processed using NVivo software. Study findings reveal that, although Zambia has established climate change and conservation policy frameworks, their effectiveness at the local level is constrained by low awareness, weak implementation, inadequate financial and technical support, and limited institutional coordination. Tourism operators demonstrated moderate knowledge of relevant policies due to regulatory engagement, whereas rural community members exhibited limited understanding and minimal participation in decision-making processes, reducing local ownership and resilience. Practical adaptation support, including climate-resilient infrastructure and risk management measures, was found to be insufficient, with communities often bearing the financial burden. Additionally, conservation policies sometimes created unintended livelihood challenges through restrictions on resource use, lack of compensation for wildlife-related losses, and limited alternative livelihood options. Institutional fragmentation and poor coordination among government agencies, Non-Governmental Organizations [NGOs], tourism operators, and community structures further weakened policy impact. The study concludes that adaptive capacity in Chiawa is constrained more by governance and implementation challenges than by the absence of policies. Strengthening resilience requires integrated, participatory, and well-resourced approaches that balance conservation objectives with community livelihoods, while promoting sustainable tourism development.

Keywords: Adaptive Capacity, Conservation, Climate Change, Government Policy, Rural Livelihoods, Tourism

I. INTRODUCTION

Climate change is an increasing threat to ecosystems and livelihoods globally, particularly in vulnerable regions such as Southern Africa. In Zambia, rising temperatures, erratic rainfall, droughts, and floods are disrupting tourism, agriculture, and wildlife sectors, threatening rural livelihoods and ecological sustainability Intergovernmental Panel on Climate Change (IPCC), 2023; Zambia Meteorological Department (2023). It has emerged as one of the most pressing global challenges, with significant implications for environmental sustainability, economic development, and human livelihoods. In Zambia, climate variability is increasingly evident through rising temperatures, erratic rainfall patterns, prolonged droughts, and fluctuating river levels, particularly in vulnerable regions such as the Lower Zambezi (Ngoma et al., 2024). These changes have profound effects on rural communities whose livelihoods depend on natural resources, agriculture, and tourism, a sector that is highly sensitive to environmental conditions (Mubita et al., 2023).

Chiawa, located adjacent to the Lower Zambezi National Park, is a key ecotourism and conservation area supporting livelihoods through agriculture, fishing, tourism, and wildlife-related activities. The area is renowned for safari tourism, canoeing, angling, and wildlife viewing, including the "Big Four" Lion, Leopard, Elephant, and Buffalo as well as over 400 bird species. Tourism significantly contributes to household incomes, employment, and local economic development (World Bank, 2023).

However, climate change is increasingly undermining these benefits. Delayed rainfall, prolonged dry spells, flooding, and declining water levels in the Zambezi River are affecting farming, fishing, wildlife habitats, and tourism operations (Zambia Meteorological Department, 2023). Reduced vegetation and water availability have intensified

human–wildlife conflict as animals move beyond protected areas in search of food and water, damaging crops and threatening rural livelihoods. Low river levels have also negatively affected water-based tourism activities such as fishing and canoeing, reducing tourist satisfaction and visitor numbers (United Nations Framework Convention on Climate Change [UNFCCC], 2023).

The tourism sector, which contributes over 7% to Zambia’s Gross Domestic Product (GDP), faces growing risks from climate-related environmental changes (World Bank, 2023). Reduced wildlife sightings, ecosystem degradation, and operational disruptions have led to declining tourist arrivals and income opportunities for local communities. Reports from Zambia’s Ministry of Tourism indicate a noticeable decline in visitor numbers in the Lower Zambezi, partly linked to climate-related challenges.

Globally and nationally, several policy frameworks have been introduced to address climate change impacts. Internationally, the United Nations Framework Convention on Climate Change and the Paris Agreement promote climate mitigation and adaptation measures United Nations Framework Convention on Climate Change (UNFCCC, 2023)

Zambia has also implemented policy frameworks to address these challenges and embed climate resilience into national development. The 2007 National Adaptation Programme of Action (NAPA) emphasizes community-driven adaptation strategies and risk identification (PMRC, 2017), while the 2010 National Climate Change Response Strategy (NCCRS) integrates resilience into sectoral and national planning. The 2016 National Policy on Climate Change (NPCC) strengthens cross-sector coordination United Nations Framework Convention on Climate Change (UNFCCC, 2023), complemented by policies addressing environmental sustainability, such as the 2007 National Policy on Environment, the 2014 National Forestry Policy, the REDD+ Strategy of 2015, and the Biodiversity Strategy of 2015. More recent frameworks, including the National Adaptation Plan (2023) and the Green Economy and Climate Change of 2024, aim to institutionalize climate funds, carbon market regulation, and governance mechanisms (Heffernan, 2026).

Despite these interventions, Chiawa Chiefdom continues to experience significant climate-related pressures affecting tourism development and rural livelihoods. Understanding the relationship between climate change, tourism, and local livelihoods is therefore critical for developing effective adaptation strategies and strengthening community resilience. This study examines the influence of government policies in mitigating climate change effects on tourism and rural livelihoods in Chiawa Chiefdom, Lower Zambezi, Zambia.

The core problem is that these policies have not sufficiently translated into effective adaptation practices, leaving communities and tourism operators vulnerable to climate shocks (Ngoma et al., 2024). (There is limited evidence on the real-world impact of government interventions, the perceptions of local stakeholders, and the barriers to policy effectiveness. This study aligns with sustainable development goals (SDG) - 13 (Climate Action), promoting resilience to climate hazards, and supporting sustainable livelihoods and tourism-based economic growth.

Understanding climate change impacts on rural livelihoods and tourism in Zambia requires a strong conceptual foundation rooted in vulnerability and resilience frameworks. Vulnerability is widely defined as a function of exposure, sensitivity, and adaptive capacity (IPCC, 2014), providing a lens to examine how rural communities and tourism-dependent populations respond to climatic shocks, such as prolonged droughts, erratic rainfall, and irregular weather patterns. These frameworks help explain why certain groups are disproportionately affected by climate variability and inform the design of adaptation and mitigation strategies.

1.1 Research Objectives

- i. To evaluate climate change policy literacy and identify awareness among stakeholders,
- ii. to assess adaptation subsidy structures and investigate infrastructure deficits
- iii. to examine conservation-livelihood frictions and resource management conflicts and
- iv. To analyze institutional schisms and execution gaps in multi-agency governance.

II. LITERATURE REVIEW

2.1 Theoretical framework

2.1.1 Climate Vulnerability Theory

This study adopted the Climate Vulnerability Theory, which was prominently formalized through the successive frameworks of the Intergovernmental Panel on Climate Change (2001, 2007, 2014) and further advanced by socio-ecological scholars such as Adger (2006) and Füssel (2007). The theory provides a comprehensive analytical framework for understanding how coupled human–environment systems become susceptible to, and constrained by, climate variability. Rather than viewing climate change solely as an external natural hazard, Climate Vulnerability Theory argues that climate-related crises emerge from the interaction between environmental stressors and pre-existing socio-economic inequalities. In its classical formulation, vulnerability is conceptualized through three interrelated dimensions: exposure, which refers to the extent and intensity of climatic variations experienced by a system; sensitivity, which

measures the degree to which the system is affected by such changes; and adaptive capacity, which reflects the ability of individuals or institutions to adjust, minimize damages, and develop coping strategies.

Contemporary scholarship identifies two complementary epistemological strands within Climate Vulnerability Theory: biophysical vulnerability and social vulnerability. The biophysical perspective conceptualizes vulnerability as the outcome of a risk-hazard process, emphasizing measurable environmental disturbances such as rainfall variability, temperature anomalies, and hydrological deficits that directly undermine ecological systems. In contrast, the social vulnerability perspective, advanced by political economists and scholars such as Ribot (2010), views vulnerability as a condition shaped by political and socio-economic structures. This perspective contends that institutional weaknesses, marginalization, and unequal access to resources determine the extent to which populations are likely to suffer from climatic hazards. Integrating these perspectives, advanced Climate Vulnerability Theory draws on Amartya Sen's concept of entitlement failures to explain how environmental shocks can disrupt local production and exchange systems, thereby trapping marginalized communities in persistent cycles of vulnerability while limiting their access to formal adaptation mechanisms.

Theoretical models such as Community-Based Natural Resource Management (CBNRM) further illustrate the intersection of conservation, community empowerment, and climate adaptation. In addition, analytical frameworks like the policy instrument policy target model, as developed by Zhu et al. (2023), offer insights into the design of effective rural tourism policies. These frameworks underscore the importance of integrating cultural-ecological knowledge, adaptive governance, capacity-building, and equitable benefit-sharing into climate change policy to enhance its effectiveness. They provide a foundation for understanding how policies can theoretically link climate adaptation, rural livelihoods, and tourism resilience in Zambia, even though their practical application remains underexplored.

2.2 Empirical Review

2.2.1 Empirical Perspectives on Climate Change Policy Literacy and Stakeholder Awareness

Empirical evidence highlights a significant disconnect between macro-level policy formulation and ground-level stakeholder awareness within Zambia's climate-vulnerable sectors. While the country has developed comprehensive environmental frameworks, local policy literacy remains uneven. Mubita et al. (2023) observe that although tourism and rural development are increasingly recognized in national climate change strategies, a profound execution gap persists due to limited alignment with local contexts and low stakeholder comprehension of these policy mechanisms. This lack of policy literacy prevents local communities and grass-roots operators from fully utilizing state-led climate initiatives.

Furthermore, international comparisons emphasize the importance of context-specific awareness. In Finland, Kukkurainen and Sonneveld (2025) found that accelerated Arctic warming directly undermines Indigenous Sámi food security, demonstrating that effective adaptation hinges entirely on culturally responsive, place-based policy literacy and localization. Without ensuring that stakeholders possess deep, actionable awareness of policy instruments, the conceptual links between adaptation planning and community resilience remain weak and largely underexplored.

2.2.2 Adaptation Subsidy Structures and Infrastructure Deficits

The practical scalability of climate adaptation in Zambia is severely constrained by structural financial limitations and severe infrastructure deficits. At the community level, smallholder agricultural and tourism-dependent livelihoods suffer heavily from delayed planting, reduced yields, and heightened food security shocks. Ngoma et al. (2024) empirically demonstrated that approximately 76% of smallholder farmers remain highly vulnerable to climate shocks, while only 24% demonstrate measurable resilience a disparity driven heavily by unequal access to adaptation subsidies and protective infrastructure.

This deficit is mirrored in regional comparative literature. Examining Community-Based Natural Resource Management (CBNRM) in neighboring Namibia, Heffernan (2026) observed that while some conservancies successfully adopt green infrastructure, renewable energy, and water-saving technologies, their long-term scalability is chronically stifled by structural funding shortages and inadequate subsidy frameworks. In Zambia, these infrastructure gaps are exacerbated by the fact that emerging climate financing instruments such as carbon markets under the Green Economy and Climate Change Bill have yet to be practically evaluated or deployed to solve rural infrastructural deficits, leaving a critical empirical gap in how funding structures translate to tangible community protection.

2.2.3 Conservation-Livelihood Frictions and Resource Management Conflicts

Climate variability drastically intensifies the friction between conservation imperatives and rural livelihood security, generating complex resource management conflicts. As erratic weather patterns, unpredictable rainfall, and frequent droughts diminish traditional rural income streams, community reliance on natural resources escalates. Ngoma et al. (2024) highlighted acute spatial differences in exposure, noting that Zambia's Southern and Western provinces experience severe macroeconomic and income losses that force local communities to pivot toward survival strategies that often clash with formal conservation boundaries.

These livelihood-conservation frictions are highly visible in tourism-dependent zones where communities share ecosystems with wildlife and protected areas. Heffernan's (2026) analysis of Namibian conservancies underscores that governance imbalances and the historical exclusion of vulnerable groups, such as women and youth, from equitable benefit-sharing models generate deep-seated social conflicts over shared natural assets. When climate shocks degrade ecosystems, the absence of robust empirical frameworks linking local livelihood diversification to active biodiversity conservation leaves Zambian communities highly vulnerable to escalating resource-use conflicts.

2.2.4 Institutional Schisms and execution gaps in Multi-Agency Governance

The biggest barrier to effective climate action in Zambia is the lack of coordination and breakdown in teamwork among different government offices. Studies show that putting climate policies into action remains messy and split up across various ministries, departments, and local councils. Nyirenda et al. (2013) point out that local climate efforts are mostly ineffective because government roles are confusing, different departments rarely work together, and local communities lack the money and tools they need. This lack of teamwork directly weakens local early-warning systems and leads to isolated, uncoordinated projects that do not solve the bigger problem.

In contrast, international models suggest that institutional integration is achievable but highly demanding. Zhu et al. (2023) demonstrated that in China, the successful advancement of rural tourism and economic growth relied heavily on polycentric governance structures, targeted institutional capacity-building, and highly adaptive, integrated policy instruments. However, as noted by Mubita et al. (2023), Zambia's current framework is plagued by weak institutional capacity and fragmented agency mandates. The operational mechanisms required to bridge these multi-agency schisms remain underdeveloped, pointing to a vital need for empirical data on how to streamline polycentric climate governance within Zambia's specific socio-political landscape.

III. METHODOLOGY

3.1 Research Design

This study adopted a qualitative phenomenological design to assess the influence of government policies in mitigating climate change effects on tourism and rural livelihoods in Chiawa Chiefdom, Lower Zambezi, Zambia. Phenomenology was considered appropriate because it enabled an in-depth exploration of the lived experiences and perceptions of local communities, tourism operators and other stakeholders regarding climate change impacts and the effectiveness of government interventions and adaptation policies (Creswell, 2014; Moustakas, 1994). The design allowed participants to describe how climate variability affects tourism activities, conservation practices, and rural livelihoods, as well as how existing government policies and mitigation measures shape local resilience and adaptation strategies.

3.2 Study Area

The study was conducted in Chiawa Chiefdom, located in the Lower Zambezi region of Kafue District, Lusaka Province, Zambia. The Chiefdom lies adjacent to the Lower Zambezi National Park and is widely known for wildlife conservation and nature-based tourism activities such as safari tourism, fishing, canoeing, and game viewing. Chiawa was purposively selected due to its high vulnerability to climate-related challenges, including droughts, erratic rainfall, flooding, low river levels, and increased human-wildlife conflict, all of which threaten tourism activities and rural livelihoods.

3.3 Target Population

The target population for this study comprised lodge owners, General/lodge managers, tour guides, conservation officers, traditional leaders, farmers, fishermen, and local community members within Chiawa Chiefdom. Participants were further drawn from five geographical zones or village Action Groups (VAGs) which includes Chisakila, Kambale, Chitende, Chiyaba and Mugurameno. These areas were selected because of their dependence on tourism, wildlife resources, agriculture, and fishing activities.

Table 1*Targeted Population Groups*

Target Group	Number of Participants
Safari Lodge Owners/General Managers/Managers	10
Conservation Lower Zambezi (CLZ)	1
Community Resource Boards (CRBs)	2
Department of National Parks & Wildlife (DNPW)	2
Tour Guides (affiliated)	2
Biocarbon Partners (BCP)/Forestry	1
Zambia Wildlife Trust (ZWT)	1
Chiyaba Royal Establishment	1
Chisakila (Zone stakeholders)	2
Kambale Zone (Zone stakeholders)	2
Chitende Zone (Zone stakeholders)	2
Chiyaba Zone (Zone stakeholders)	2
Mugulameno Zone (Zone stakeholders)	2
Total	30

3.4 Sampling Techniques and Sample Size

The study used purposive sampling to select participants with direct, relevant knowledge of climate change impacts on local tourism and livelihoods. Out of a larger target population in the region, a sample of exactly 30 participants was chosen, including lodge managers, professional tour guides, community leaders, and local residents. This sample size was determined by data saturation, meaning recruitment stopped at 30 because the final interviews yielded no new themes or insights, confirming informational redundancy (Guest et al., 2006).

3.5 Data Collection Tools and Procedures

Primary data were collected through semi-structured interviews and field observations. Interviews lasted between 30 and 45 minutes and were audio-recorded with participants' consent. An interview guide with open-ended questions was used to gather information on climate change impacts, tourism challenges, livelihood experiences, and adaptation measures. Field observations supplemented interview data by capturing environmental conditions and tourism-related activities within the study area. The use of multiple methods enhanced data triangulation and credibility.

3.6 Data Analysis

Interviews were transcribed verbatim and analyzed thematically using Braun and Clarke's (2006) framework which were operationalized using NVIVO software. The analysis involved coding the data, identifying recurring themes, and interpreting patterns related to climate change impacts, tourism sustainability, livelihood vulnerabilities, and adaptation strategies. Observational notes were also incorporated to strengthen interpretation of findings.

3.7 Ethical Considerations

Ethical clearance was obtained from the University of Zambia Ethics Committee and the Department of National Parks and Wildlife. Participation was voluntary, and informed consent was obtained from all participants. Confidentiality and anonymity were maintained by excluding personal identifiers from transcripts and reports. The researcher further obtained permission from the Department of National Parks and Wildlife (DNPW) to conduct research in the area. The study also adhered to academic integrity through proper referencing and ethical handling of research data (Leedy & Ormrod, 2005; Gummesson, 2000).

IV. FINDINGS & DISCUSSION**4.1 Findings****4.1.1 Thematic Framework of Climate Governance, Adaptation Barriers, and Livelihood Frictions**

Data was analyzed using NVIVO from which sub themes emerged from the main theme and coding descriptors. This has been presented in table 2 below;

Table 2*Thematic Framework of Climate Governance, Adaptation Barriers, and Livelihood Frictions*

Theme	Sub-theme	Coding Descriptors
1. Policy Literacy & Awareness Asymmetry	1.1 Commercial Regulatory Literacy 1.2 Grassroots Democratic Exclusion	<i>National Climate Change Policy, guidelines on paper, hear during meetings, not fully involved, don't know what policies exist.</i>
2. Adaptation Subsidy & Infrastructure Deficits	2.1 Capital & Incentive Scarcity 2.2 Emergency Response Inertia	<i>Financial incentives limited, minimal support, invest on our own, no direct subsidy, floods damage roads, takes time.</i>
3. Conservation-Livelihood Friction	3.1 Compensatory Inadequacy 3.2 Resource Enclosure & Coping Constraints	<i>Protect wildlife for tourism, compensation slow, focus more on conservation, access controlled, fishing is backup.</i>
4. Institutional Schisms & Execution Gaps	4.1 Horizontal Inter-Agency Silos 4.2 Vertical Consultative Disconnect	<i>Lack of coordination, tourism authorities, climate agencies, good on paper, weak monitoring, decisions already made.</i>

Theme 1: Policy Literacy and Awareness Asymmetry

NVivo text-search and matrix queries establish a stratified gradient of policy comprehension across the chiefdom. The sub theme "Commercial Regulatory Literacy" codes highly among tourism elites (lodge managers and operators) who possess a transactional, compliance-driven awareness of the *National Climate Change Policy*. Conversely, the sub theme "Grassroots Democratic Exclusion" captures an acute information vacuum among rural residents. The coding demonstrates that community members are reduced to passive recipients of top-down directives from state park officers, experiencing policy not as an empowering framework, but as a distant mechanism from which they are democratically decoupled.

"...We are aware of the National Climate Change Policy... but implementation at local level is still weak."
(Lodge Manager, Age 46, 22 October, 2025)

"Some of us don't even know what specific policies exist; we just follow what the park officers tell us."
(Female Resident, Age 35, 22 October, 2025)

Theme 2: Adaptation Subsidy and Infrastructure Deficits

Cross-tabulation reveals that while state actors establish eco-friendly mandates, they fail to provide the financial architecture required to operationalize them. Coded under "Capital & Incentive Scarcity," data tracks an operational landscape where private operators must independently finance self-adaptation technologies (solar systems, water storage infrastructure) due to a complete lack of state subsidies.

Simultaneously, the node "Emergency Response Inertia" codes for the state's failure to maintain climate-resilient physical infrastructure, as slow public response times to climate-induced disasters (flooding of critical access roads) directly penalizes local economic continuity.

"We invest in water storage and solar systems on our own. There is no direct subsidy to cushion climate-related losses." (Lodge Owner, Age 49. 25 October, 2025)

"When floods damage roads, it takes time for authorities to respond, and this affects our business."
(Tourism Stakeholder, Age 30.27 October, 2025)

Theme 3: Conservation-Livelihood Friction and resource management conflict

This theme cluster exposes how state environmental protections structurally undermine community climate resilience. Under the sub theme "Compensatory Inadequacy," coding highlights severe friction where rural farmers are legally obligated to preserve wildlife to safeguard elite tourism assets, yet receive delayed, minor, or non-existent compensation when those same animals destroy community crops. Furthermore, the sub theme "Resource Enclosure & Coping Constraints" reveals that conservation policies actively prohibit or restrict community access to natural buffers (such as fallback fishing grounds), stripping local residents of traditional coping mechanisms precisely when their tourism-derived income streams collapse.

"We are told to protect wildlife for tourism, but when animals destroy crops, there is no compensation"
(Farmer, Age 47. 4 November, 2025)

"Access to fishing areas is controlled, yet fishing is our backup when tourism income drops." (Female Community Member, Age 40. 5 November, 2025)

Theme 4: Institutional Schisms and Execution Gaps

The final parent theme addresses the operational breakdown of governance. The sub theme "Horizontal Inter-Agency Silos" identifies a critical institutional failure: a lack of horizontal integration and communication between tourism regulatory bodies and climate-response agencies. This is compounded by the sub theme "Vertical Consultative

Disconnect," which captures the performative nature of local community engagement. Local elders express that community stakeholder meetings are structurally hollow, serving merely to validate policy decisions that have already been finalized at higher centralized levels.

"There is a lack of coordination between tourism authorities and climate agencies." (Lodge Administrator, Age 44. 28 October, 2025)

"We are consulted, but decisions are already made before meetings." (Community Elder, Age 62. 14 November, 2025)

4.2 Discussion

This section discusses the findings in relation to existing empirical and theoretical literature presented in the study in the along with study objectives. It links vulnerability and resilience frameworks (IPCC, 2014; Adger et al., 2005), and studies on climate governance and tourism adaptation in Zambia and Sub-Saharan Africa. The discussion is anchored in the understanding that vulnerability is shaped by the interaction between exposure, sensitivity, and adaptive capacity (IPCC, 2001; IPCC, 2007; IPCC, 2014), while resilience is determined by the ability of individuals, communities, institutions, and ecosystems to absorb, adapt, and transform in response to climate-related disturbances (Adger, 2006; Adger et al., 2005). The findings reveal that although Zambia has developed a relatively comprehensive climate policy framework, significant implementation challenges persist at the local level, limiting the effectiveness of adaptation measures within tourism-dependent communities such as Chiawa Chiefdom.

4.2.1 Climate Change Policy Literacy and Awareness among Stakeholders

The findings indicate considerable disparities in climate change policy awareness among stakeholders. Tourism operators, conservation practitioners, and institutional representatives demonstrated relatively higher levels of awareness regarding climate policies and adaptation strategies compared to ordinary community members, many of whom reported limited understanding of existing climate-related policies and minimal involvement in policy implementation processes.

The Lodge Manager's observation that climate policies exist but their implementation remains weak at the local level reflects a challenge frequently identified in climate governance literature. According to the IPCC (2014), climate adaptation policies often experience implementation deficits because policy development tends to occur at national levels without corresponding investments in local institutional capacity, stakeholder engagement, and knowledge dissemination. Similar concerns have been reported across Sub-Saharan Africa, where climate policies frequently exhibit strong legislative foundations but weak operationalization due to inadequate coordination, insufficient funding, and limited community outreach (UNFCCC, 2023; Mubita et al., 2023).

The finding that community members often hear about climate policies during meetings but lack detailed understanding of their content or practical implications suggests the existence of what may be described as a policy literacy gap. This finding aligns with Ribot's (2010) argument that vulnerability is often reinforced by unequal access to information and decision-making processes. Climate adaptation policies may therefore fail to achieve their intended outcomes when intended beneficiaries lack sufficient knowledge to understand, influence, or utilize available adaptation opportunities. From a theoretical perspective, this finding strongly supports Climate Vulnerability Theory. The theory posits that adaptive capacity is influenced not only by material resources but also by access to knowledge, information, and institutional support systems (Adger, 2006). The limited awareness observed among local communities therefore represents a constraint on adaptive capacity and increases susceptibility to climate-related shocks affecting tourism and livelihoods.

Furthermore, the findings corroborate Adger et al (2005) proposition that adaptive governance requires meaningful participation by local actors. The reported exclusion of community members from decision-making processes suggests that adaptation initiatives remain largely top-down. Such governance arrangements often undermine local ownership and reduce the likelihood that adaptation interventions will be socially acceptable, culturally appropriate, and sustainable over time.

The implications of these findings are substantial. First, low levels of policy literacy may weaken community preparedness and reduce the effectiveness of adaptation interventions. Second, limited participation may foster perceptions that climate policies are externally imposed rather than locally relevant. Third, the exclusion of local knowledge from policy processes may result in adaptation strategies that fail to address context-specific vulnerabilities. Consequently, enhancing climate resilience in Chiawa will require deliberate investments in community education, policy awareness campaigns, participatory planning structures, and local capacity-building programs. Such interventions would strengthen adaptive capacity while simultaneously improving policy legitimacy and implementation effectiveness.

4.2.2 Government Support for Tourism Adaptation and Resilience Building

The findings demonstrate that although stakeholders acknowledge government efforts to establish climate and conservation policies, support for practical adaptation remains limited. Participants consistently reported inadequate financial incentives, insufficient technical assistance, weak emergency response mechanisms, and delayed infrastructure maintenance.

The finding that tourism operators independently finance investments in solar energy systems, water storage facilities, and other adaptation measures reflects broader trends identified in tourism adaptation literature. Becken and Hay (2007) and Scott et al. (2012) argue that tourism businesses in developing countries frequently undertake adaptation independently due to limited public-sector support. This places considerable financial pressure on operators, particularly small and medium-sized enterprises with constrained resources. The limited adaptation support described by participants further reinforces the IPCC's (2014) conclusion that adaptive capacity is heavily influenced by access to institutional support, financial resources, and technological innovation. In the absence of such support, tourism enterprises become increasingly vulnerable to climate-related disruptions, including droughts, flooding, wildlife migration, ecosystem degradation, and infrastructure damage.

The findings also reveal that infrastructure challenges constitute a critical barrier to climate resilience. Reports of delayed road rehabilitation following flooding indicate weaknesses in climate-responsive infrastructure management. Similar observations have been documented by the World Bank (2023), which identifies transportation infrastructure as a key determinant of tourism competitiveness and resilience in climate-sensitive destinations. From a resilience perspective, these findings suggest that adaptation within Chiawa remains largely reactive rather than proactive. Adaptive governance literature emphasizes that resilience requires anticipatory planning, risk reduction strategies, and coordinated institutional responses rather than post-disaster interventions alone (Folke et al., 2005). The findings therefore indicate a significant gap between policy aspirations and operational realities.

The implications are both economic and developmental. Inadequate adaptation support may increase operating costs, reduce tourism profitability, discourage investment, and ultimately diminish employment opportunities within local communities. Since tourism constitutes an important livelihood source in Chiawa, reduced sectoral resilience may generate cascading socio-economic consequences for households dependent on tourism-related income. These findings therefore underscore the need for climate adaptation financing mechanisms, tourism resilience funds, tax incentives for green investments, and climate-resilient infrastructure development. Such interventions would not only strengthen the tourism sector but also contribute to broader community resilience and sustainable economic development.

4.2.3 Conservation Policies, Livelihood Protection, and Rural Vulnerability

The field findings collected from Chiawa Chieftdom reveal a deep operational clash between state-enforced environmental protection and the daily survival needs of local residents. While the gathered interview data shows that community members conceptually support wildlife conservation, the enforcement of strict regulations cuts off access to vital natural fallback assets without offering any viable economic alternatives.

These field realities strongly back up the work of Nyirenda et al. (2013), who argued that extensive wildlife crop-raiding causes severe food insecurity, leaving poor farmers to absorb devastating financial losses entirely alone. Furthermore, the lack of a fair, functioning benefits-distribution system in Chiawa mirrors the systemic imbalances identified by Bandyopadhyay and Tembo (2010), who proved that the economic windfalls of living near protected game areas are highly unequal and easily wiped out by human-wildlife conflict. Rather than generating shared growth, top-down resource enclosures trap vulnerable villagers with all the localized costs of animal preservation while the commercial profits of tourism go elsewhere.

The reported restrictions on fishing activities further illustrate the challenges associated with balancing environmental sustainability and livelihood security. According to Adger et al. (2005), livelihood diversification constitutes a critical component of adaptive capacity because it reduces dependence on a single climate-sensitive livelihood source. Policies that constrain access to alternative livelihood activities without providing viable substitutes may therefore increase rather than reduce vulnerability. These findings support social vulnerability perspectives within Climate Vulnerability Theory, which emphasize that vulnerability is not determined solely by environmental conditions but also by political, economic, and institutional arrangements that influence access to resources and opportunities (Füssel, 2007; Ribot, 2010). The findings suggest that some conservation interventions may unintentionally reproduce existing inequalities by limiting access to livelihood assets while failing to provide sufficient adaptive support.

The implications are particularly significant for long-term sustainability. If local communities perceive conservation policies as undermining their livelihoods, support for conservation initiatives may weaken, reducing compliance and threatening biodiversity objectives. Furthermore, reduced livelihood diversification may increase household exposure to climate-related shocks, particularly during periods of drought, flooding, or declining tourism activity. These findings therefore suggest that climate adaptation and conservation policies should be integrated within a broader livelihood resilience framework. Policymakers should strengthen compensation mechanisms, expand livelihood diversification programs, improve access to climate-resilient income-generating activities, and ensure

equitable benefit-sharing from tourism and conservation revenues. Such measures would help reconcile conservation goals with socio-economic development objectives while enhancing community resilience.

4.2.4 Institutional Coordination, Governance Effectiveness, and Policy Implementation

The findings reveal widespread concerns regarding institutional fragmentation, weak coordination among government agencies, inadequate monitoring systems, and limited stakeholder participation. Participants consistently identified implementation challenges rather than policy absence as the primary obstacle to effective climate governance. The finding that tourism, conservation, and climate-related institutions operate with limited coordination is consistent with existing climate governance literature. According to the IPCC (2014) and UNFCCC (2023), fragmented governance structures often lead to duplication of efforts, inefficient resource allocation, policy inconsistencies, and delayed responses to emerging climate risks. Similar observations have been reported in Zambia, where climate adaptation responsibilities are frequently distributed across multiple institutions with overlapping mandates and limited coordination mechanisms (Namasani & Mubanga, 2023).

The concerns regarding weak monitoring and evaluation systems further highlight challenges in translating policy commitments into measurable outcomes. Effective adaptation requires continuous assessment, learning, and adjustment based on changing climatic conditions and implementation experiences (Folke et al., 2005). The absence of robust monitoring systems therefore constrains institutional learning and limits opportunities for adaptive management. Participants' perceptions that consultations occur only after decisions have been made suggest the persistence of tokenistic participation practices. Arnstein's (1969) Ladder of Citizen Participation argues that genuine participation occurs only when stakeholders possess meaningful influence over decisions rather than merely being informed or consulted. The findings therefore indicate a governance deficit characterized by limited downward accountability and weak community representation within decision-making structures.

From a theoretical perspective, these findings reinforce the adaptive governance literature, which emphasizes collaboration, learning, stakeholder inclusion, and institutional flexibility as essential components of resilience (Folke et al., 2005). The observed institutional weaknesses suggest that existing governance arrangements may be insufficient to address increasingly complex climate-related challenges affecting tourism and livelihoods. The implications are profound. Weak coordination and fragmented governance may reduce the effectiveness of adaptation investments, delay responses to climate emergencies, and undermine stakeholder confidence in public institutions. Moreover, limited participation may weaken policy legitimacy and reduce community willingness to support adaptation initiatives. Addressing these challenges will require strengthened inter-agency coordination mechanisms, institutionalized stakeholder participation platforms, enhanced monitoring and evaluation systems, and improved accountability structures.

Therefore, the findings suggest that the primary challenge facing climate governance in Chiawa is not the absence of policy frameworks but the limited capacity to operationalize them effectively. Strengthening implementation capacity, institutional integration, and participatory governance will therefore be essential for achieving climate-resilient tourism development and sustainable rural livelihoods in the Lower Zambezi region.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study examined how government policies influence the mitigation of climate change impacts on tourism and rural livelihoods in Chiawa. Although Zambia has climate and conservation policy frameworks, their effectiveness locally is limited by low awareness, weak implementation, inadequate financial and technical support, and poor institutional coordination. Tourism operators have moderate policy awareness, but rural communities have limited knowledge and minimal participation in decision-making, reducing local ownership and resilience. Practical support for adaptation is insufficient, with communities and operators often bearing the cost of climate-resilient infrastructure and limited access to climate-risk insurance or emergency response systems.

Conservation policies can also constrain livelihoods. Fishing restrictions, lack of compensation for wildlife damage, and limited livelihood diversification create tensions between environmental protection and survival needs, undermining trust and long-term conservation goals. Institutional fragmentation further weakens policy impact due to poor coordination and inadequate monitoring and participatory governance. Overall, adaptive capacity in Chiawa is limited more by governance and implementation challenges than by policy absence. Strengthening resilience requires integrated, participatory, and well-resourced approaches

5.2 Recommendations

Zambia's climate and conservation frameworks are hindered locally by weak implementation, institutional fragmentation, and community exclusion from decision-making. Conservation restrictions further strain rural livelihoods through delayed compensation and limited economic alternatives. To build resilience, local communities

must be integrated into adaptation planning through targeted sensitization, fostering ownership and stewardship. Concurrently, the government and development partners should provide financial and technical support including adaptation funds, subsidies, and climate-risk insurance while investing in solar energy, boreholes, and dams to mitigate human-wildlife conflict. Conservation policies must balance ecological goals with livelihood security by accelerating funding to Community Resource Boards and lowering operational fees. Finally, strengthening decentralized governance, upgrading tourism infrastructure, and establishing continuous research and monitoring are essential to ensure coordinated, data-driven climate interventions.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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REFERENCES

- Adger, W. N. (2006). Vulnerability. *Global Environmental Change*, 16(3), 268–281. <https://doi.org/10.1016/j.gloenvcha.2006.02.006>
- Adger, W. N., Arnell, N. W., & Tompkins, E. L. (2005). Successful adaptation to climate change across scales. *Global Environmental Change*, 15(2), 77–86. <https://doi.org/10.1016/j.gloenvcha.2004.12.005>
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216–224. <https://doi.org/10.1080/01944366908977225>
- Bandyopadhyay, S., & Tembo, G. (2010). Household consumption and natural resource management around national parks in Zambia. *Journal of Natural Resources Policy Research*, 2(1), 39–55. <https://doi.org/10.1080/19390450903350838>
- Becken, S., & Hay, J. E. (2007). *Tourism and climate change: Risks and opportunities*. Channel View Publications.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage.
- Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive governance of social-ecological systems. *Annual Review of Environment and Resources*, 30, 441–473. <https://doi.org/10.1146/annurev.energy.30.050504.144511>
- Füssel, H. M. (2007). Vulnerability: A generally applicable conceptual framework for climate change research. *Global Environmental Change*, 17(2), 155–167. <https://doi.org/10.1016/j.gloenvcha.2006.05.002>
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59–82. <https://doi.org/10.1177/1525822X05279903>
- Gummesson, E. (2000). *Qualitative methods in management research* (2nd ed.). Sage.
- Heffernan, A. (2026). A call for wildlife conservation policy evolution: Climate change and community-based natural resource management. *Climate and Development*, 18(1), 78–82. <https://doi.org/10.1080/17565529.2025.2491540>
- Intergovernmental Panel on Climate Change. (2001). *Climate change 2001: Impacts, adaptation, and vulnerability*. Cambridge University Press.
- Intergovernmental Panel on Climate Change. (2007). *Climate change 2007: Impacts, adaptation, and vulnerability*. Cambridge University Press.
- Intergovernmental Panel on Climate Change. (2014). *Climate change 2014: Impacts, adaptation, and vulnerability*. Cambridge University Press.
- Intergovernmental Panel on Climate Change. (2023). *Climate change 2023: Synthesis report*. IPCC.
- Kukkurainen, H. I., & Sonneveld, B. G. J. S. (2025). Assessment of Sámi food security in Finnish Lapland: Climate change impacts and policy effectiveness. *International Journal of Circumpolar Health*, 84(1). <https://doi.org/10.1080/22423982.2025.2516310>
- Leedy, P. D., & Ormrod, J. E. (2005). *Practical research: Planning and design* (8th ed.). Pearson Education.
- Moustakas, C. (1994). *Phenomenological research methods*. Sage. <https://doi.org/10.4135/9781412995658>
- Mubita, K., Milupi, I., Kalimaposo, K., & Monde, P. N. (2023). Responding to challenges in tourism in the era of climate change in Zambia. *International Journal of Education and Social Science Research*, 6(2), 129–139. <https://doi.org/10.37500/IJESSR.2023.6212>
- Namasani, M., & Mubanga, K. (2022). Linking local institutional coordination to climate change adaptation in the agriculture sector: Insights from Mkushi District, Zambia.



- Ngoma, H., Finn, A., & Kabisa, M. (2024). Climate shocks, vulnerability, resilience, and livelihoods in rural Zambia. *Climate and Development*, 16(6), 490–501. <https://doi.org/10.1080/17565529.2023.2246031>
- Nyirenda, V. R., Myburgh, W. J., Reilly, B. K., Phiri, A., & Harry, N. (2013). Wildlife crop damage valuation and conservation: Conflicting perceptions by local farmers in the Luangwa Valley, eastern Zambia. *International Journal of Biodiversity and Conservation*, 5, 741–750. <https://doi.org/10.5897/IJBC12.026>
- Policy Monitoring and Research Centre. (2017). *Climate change adaptation in Zambia: A review of the National Adaptation Programme of Action (NAPA) and policy implementation challenges*. Policy Monitoring and Research Centre.
- Ribot, J. C. (2010). Vulnerability does not fall from the sky: Toward multiscale, pro-poor climate policy. In R. Mearns & A. Norton (Eds.), *Social dimensions of climate change: Equity and vulnerability in a warming world* (pp. 47–74). World Bank.
- Scott, D., Hall, C. M., & Gössling, S. (2012). *Tourism and climate change: Impacts, adaptation, and mitigation*. Routledge. <https://doi.org/10.4324/9780203127490>
- United Nations Framework Convention on Climate Change. (2023). *The Paris Agreement*. United Nations Framework Convention on Climate Change.
- World Bank. (2023). *Climate-resilient transport and infrastructure for sustainable development*. World Bank Group.
- Zambia Meteorological Department. (2023). *Agro-meteorological bulletin and seasonal climate outlook for Zambia 2023/2024*. Ministry of Green Economy and Environment.
- Zhu, Y., Chai, S., Chen, J., & Phau, I. (2024). How was rural tourism developed in China? Examining the impact of China's evolving rural tourism policies. *Environment, Development and Sustainability*, 26, 28945–28969. <https://doi.org/10.1007/s10668-023-03850-5>