The Impact of Community-Based Resource Management on Climate Security in Laikipia County, Kenya

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ABSTRACT

This study assessed the impacts of community-based resource management (CBRM) on climate security in Laikipia County. It used the Common-Pool Resource theory as its theoretical framework and adopted a mixed-methods research design. In addition, the study relied exclusively on primary data gathered using questionnaires (involving 142 respondents) and key informant interviews consisting of 30 respondents. The gathered data were analyzed using content analysis. The study found that CBRM had benefits such as fostering social capital, strengthening local governance, promoting economic diversification, and integrating indigenous knowledge to enhance climate security in Laikipia County. Such benefits enable local stakeholders to develop adaptive and sustainable practices responsive to environmental changes and the region's unique conditions. However, the study also revealed that several challenges hinder the effectiveness of CBRM initiatives. They included resource constraints, policy and institutional barriers, and insufficient access to climate data. This study concludes that CBRM represents a promising strategy for enhancing climate security in Laikipia County. The county could harness the full potential of CBRM if the aforementioned challenges are addressed.

Keywords: community, resource management, climate security, Laikipia County, climate shocks.

INTRODUCTION

Climate security has become an urgent global concern, denoting climate change's direct and indirect effects on peace and security. This concept avers that climate-related change increases existing risks in society to the detriment of the security of humans, ecosystems, the economy, infrastructure, and societies. According to the Global Security Defense Index on Climate Change (GSDICC), approximately 70% of nations across the globe acknowledge that climate change is a national security concern (American Security Project, 2025).

In 2009, the UN Secretary General's report identified climate change as a significant threat multiplier that amplifies existing socio-economic and political tensions (United Nations General Assembly, 2009). Resource scarcity has been a major driver of conflicts worldwide. Several conflicts have been attributable to climate shocks' impacts on ecosystems and resources globally. For example, regions such as the Middle East have witnessed conflicts escalated by water scarcity (Gleick, 2019). Climate-driven resource stress has also resulted in conflicts like the China-India (Himalayan water disputes and border tensions) and India-Bangladesh (Ganges and Brahmaputra rivers disputes) in the South Asia region (Shaheen & Lafta, 2023; and Manhas & Yadav, 2024). Conflicts involving indigenous populations, governmental bodies, and corporations frequently play out within the Amazon rainforest in South America (van Solinge, 2020).

Africa remains at high risk from climate change, creating an expanding climate security problem throughout the continent. Despite the dependency of 60% of Africa's population on smallholder farming activities, rain-fed agriculture accounts for 95% of all agricultural practices in the continent (AUDA-NEPAD, 20222). Global climate shocks, including erratic rainfall and prolonged droughts, create an environment that makes Africa highly prone to conflicts. Resource scarcity resulting from climate change has increased conflicts, particularly in the Lake Chad basin of the Sahel region (Brottem, 2020; United Nations, n.d.) and the Horn of Africa (Solomon et al. 2018).

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Kenya also faces significant climate security risks. These climate risks are predominantly experienced in arid and semi-arid lands (ASALs), constituting over 80% of Kenya's landmass. Laikipia County is part of the ASALs. According to KNBS (2023), Laikipia County covers 9,532.2 square kilometers of surface area, comprising arable land (1,998.7), non-arable land (7,511.3), water mass (22.2), and urban area (234.3). From Figure 1 below, Laikipia County is bordered by Nyandarua and Nakuru counties to the southwest, Isiolo County to the northeast, Meru County to the east, Nyeri County to the south, Baringo County to the west, and Samburu County to the north.

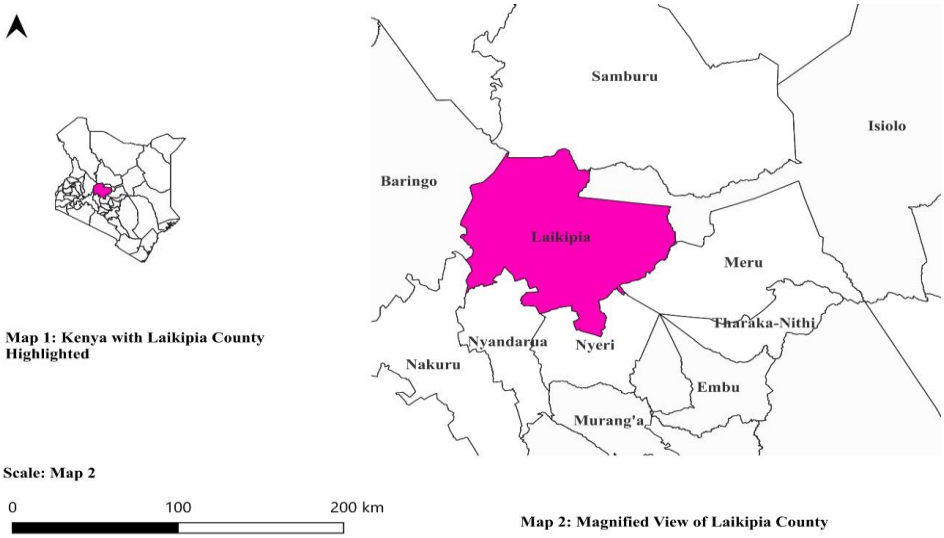

Figure 1: Map of Laikipia County

Source: Author (2025)

Laikipia County has a distinctive ecological and socio-economic environment. This creates conditions that make the area prone to climate-induced- and -exacerbated resource scarcity conflicts. The county is inhabited by pastoralists, commercial ranchers, smallholder farmers, and conservationists. These stakeholders compete to secure land and access to vital natural resources. Moshiri and Delaunay (2022) contend that climate-induced resource scarcity amid competing interests over land and resource control leads to ongoing conflict situations in Laikipia County.

The resource-based conflicts in Laikipia County require progressive governance strategies to mitigate environmental risks and ensure sustainable development. Community-based resource management (CBRM) stands as a useful governance strategy. According to Villamayor-Tomas & García-López (2018), CBRM is a participatory approach that empowers local communities to take charge of their natural resources through sustainable governance, conservation initiatives, and conflict resolution mechanisms. Traditional knowledge becomes part of a bottom-up method known as CBRM which combines modern conservation approaches. Resource management decision-making processes under this system place communities in a central position (Villamayor-Tomas & García-López, 2018).

Laikipia County together with other ASAL regions in Kenya faces ongoing threats to climate security. Laikipia County persists with its conflicts stemming from scarce resources (supply-induced, demand-induced or structural). Climate policies together with actions are active throughout the local and national levels of Kenya. The existing resource management frameworks operate without successful community participation. Ineffective implementation together with continuing resource-based conflicts emerges from this situation. Research on climate security within Kenya mainly focuses on policies established by government institutions.

This research fills the existing gap through an investigation of how community-based resource management systems enhance climate security outcomes in Laikipia County. The recognition of this relationship by policymakers and conservationists and local communities enables them to develop grassroots strategies against climate insecurity.

Literature about community-based resource management (CBRM) now emphasizes uniting local tradition with broader policies to resolve climate security problems. The dynamics within Laikipia County receive context from comparative studies conducted in different African arid and semi-arid lands and also from international research examples. Research in northern Kenya together with studies from southern Ethiopia shows that effective localized resource management works through the combination of indigenous knowledge with present-day governance structures. A combination of ancestral practices supported by acceptable governmental policies generates greater resilience toward climate-related events according to scholarly evidence. Strengthening comparative analysis in this study potentially will create a better comprehension of the CBRM outcome determinants.

The changing policy structure of Kenya embodies key elements like the Kenya Climate Change Act (2016) and National Adaptation Plan (NAP) which support the understanding of local resource management approaches. The effectiveness of these policies stands inconsistent when implemented to adapt to climate-related problems across different sectors at the local level. The study should present a comprehensive analysis of how specialist frameworks from national entities affect the implementation connection with community insertion methods to display possible policy execution deficiencies or improvement points. Using research from secondary sources combined with multiple case examples that applied these policies elsewhere will enhance the study's ability to explain how national guidelines affect local climate adaptation programs. Research from Laikipia County is enriched through this discussion while also integrating into worldwide studies about adaptive governance and community resilience.

CRB initiatives receive essential support through external financial resources together with technical expertise which helps their development. Community-led water management projects in Latin America function best when combining both local initiative and international best practices similarly to eco-tourism initiatives in South Asia. The extended literature research demonstrates how external resources generate synergies with local information to validate the practice of combining traditional knowledge with advanced technical assistance. The incorporation of these findings will establish an enriched analytical methodology to understand the model potential of CBRM for climate security standards in Laikipia County and similar areas globally.

Theoretical Framework

This study uses Common-Pool Resource (CPR) theory as its theoretical framework. Elinor Ostrom developed the CPR theory and explains how communities can successfully manage shared natural resources without relying on government control or privatization. The theory challenges the traditional "Tragedy of the Commons" argument that individuals inevitably overexploit shared resources. Instead, Ostrom (1990) demonstrated that local communities can create effective governance systems based on collective action, trust, and locally enforced rules.

Ostrom (1990) avers that successful community resource management entails adherence to eight principles. These include i) clearly defined boundaries, ii) proportional equivalence between benefits and costs, iii) collective-choice arrangements to reflect the interests and knowledge of the community, iv) monitoring to track resource use and prevent overexploitation, v) graduated sanctions/ punishments that are context-sensitive, vi) conflict-resolution mechanisms that are accessible and low-cost vii) recognition of rights to organize (the community must have the legal and social autonomy to create and enforce its own rules without interference from higher authorities), and viii) nested enterprise-governance should be organized in multiple layers (local, regional, and national) in large or complex systems. These principles serve as a framework for sustainable self-governance and collective action. Applying these principles can help explain how local governance and sustainable practices contribute to climate security and resilience.

The Common-Pool Resource theory applies to management of natural resources such as forests, water sources, fisheries, and grazing lands. It has been widely used to study how local institutions manage resources effectively through self-governance and decentralized decision-making. The theory provides a strong foundation for understanding how CBRM contributes to sustainable climate security in Laikipia County.

METHODOLOGY

This study adopts a mixed-methods research design that combines qualitative and quantitative approaches to assess the impact of CBRM on climate security in Laikipia County, a semi-arid region in central Kenya. The study's target population comprised representatives from the Ministry of Interior and National Administration; representatives from the State Department of ASALs and Regional Development; representatives from the Laikipia County Climate Change Committee; community members from Il Mamusi (Mukogodo), Il Ngwesi Conservancy, Kuri Kuri Group Ranch, Lekurruki, Loisaba, Makurian Group Ranch, Naibunga Central, Naibunga Lower, and Naibunga Upper; academia; area chiefs; traditional leaders, and local police officers. The study obtained a sample of 196 respondents from the target population above. The participants were selected through purposive sampling and stratified random sampling. Primary data was gathered using questionnaires (involving 166 respondents) and key informant interviews (KIIs) with 30 respondents (two respondents from each of the 15 categories of respondents). The gathered data were analyzed using content analysis to provide contextual insight into CBRM's role in climate security.

The methodological rigor needs improvement because researchers must explain their sampling strategies along with their data analysis methods and strategies for eliminating biases from the study. This study selected participants through purposeful and stratified random sampling techniques to capture diverse demographic groups that included both government workers and leaders from the community and representatives from pastoralist and rancher and small farm communities. The researchers selected participants based on their involvement with resource management through purposive sampling then used stratified random sampling to obtain data from commonly different sections of Laikipia County's socioeconomic setup. The methods require a better explanation because diverse stakeholder opinions play a crucial role in showing both strengths and weaknesses of CBRM initiatives.

Systematic content analysis served as the method for analyzing data derived from key informant interviews (KIIs). SGS conducted the interview transcription before conducting repeated coding sessions to establish and refine themes based on the data analysis process. The research team developed the coding system after examining the study questions and emerging patterns that naturally appeared in the collected data to keep analysis focused on direct participant accounts. The process of relatability between qualitative and quantitative data was reinforced by triangulation therefore improving the reliability along with validity of the research outcomes. The research addressed recall bias and non-response bias through multiple methods by verifying reported information with additional evidence whenever feasible.

The study achieves better transparency and offers future researchers a plan to replicate or extend analysis through its detailed methodological explanations. Discussing the sampling shortcomings alongside bias potentials during this paper creates opportunities for enhanced methodological development in following research projects. The comprehensive methodology enhances research credibility thus demonstrating how mixed-methods suit the study of complex climate security issues in resource management.

FINDINGS AND DISCUSSION

This study had a response rate of 88%. This section covers the findings obtained from 30 KIIs and 142 complete questionnaires. The 172 respondents included in the survey evaluated the statement: "The benefits of community-based resource management outweigh the challenges in addressing climate security," using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The data revealed a mean benefit score of 3.8 compared to a mean challenge score of 3.2. In essence, the finding reveals that the benefits outweigh the challenges of CBRM in addressing climate security in Laikipia County. Table 1 and Figure 2 below show the distribution of the responses obtained in the study.

Table 1: Benefits versus Challenges of CBRM in Laikipia County.

		Frequency	Percent
Valid	Strongly Agree (5)	55	32
	Agree (4)	62	36
	Neutral (3)	31	18
	Disagree (2)	16	9
	Strongly Disagree (1)	8	5
	Total	172	100.00

Source: Author (2025)

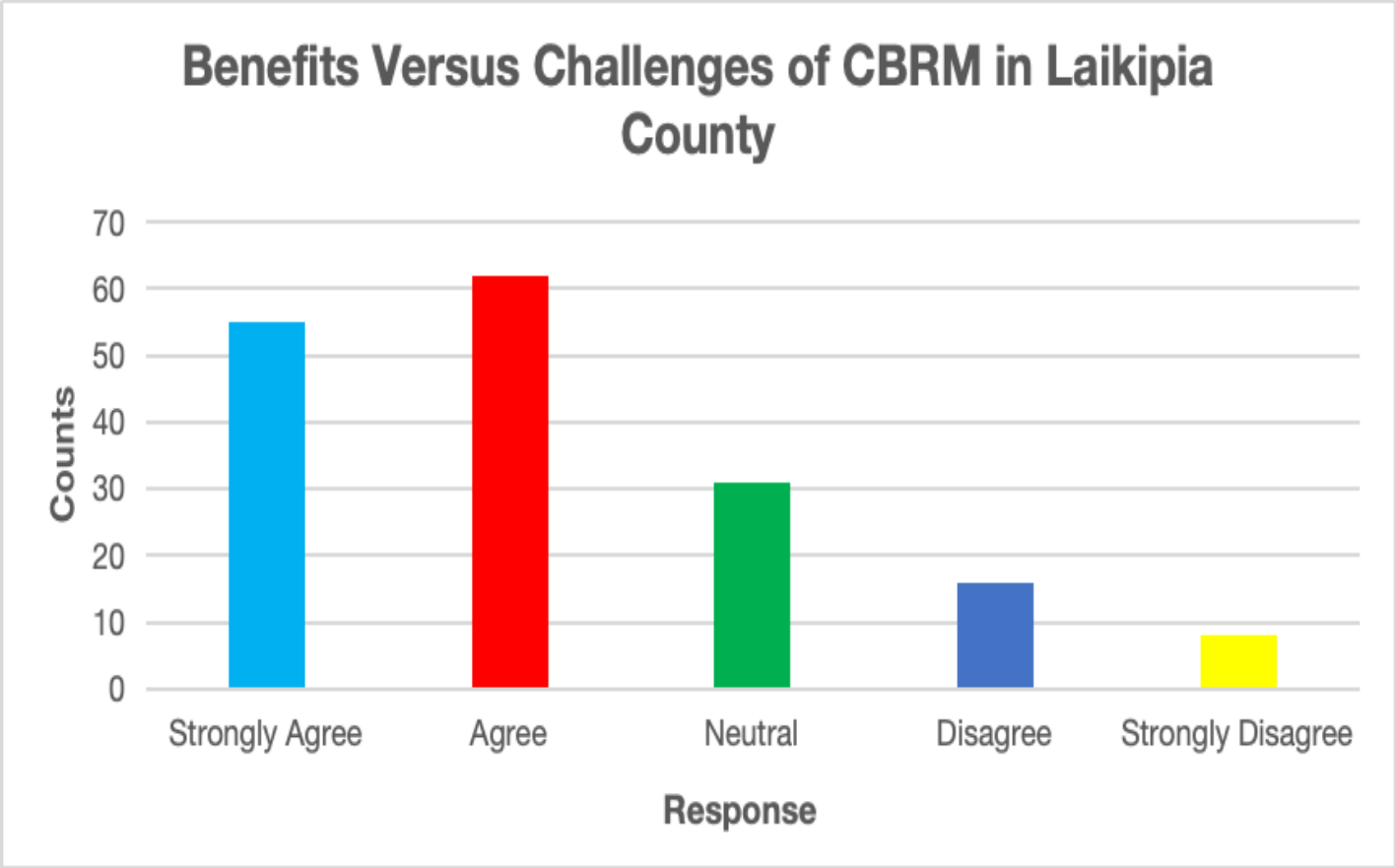

Figure 2: Benefits versus Challenges of CBRM in Laikipia County

Source: Author (2025)

From Table 1, 68% of participants rated the overall impact as favourable (4 or 5). Only 14% of the study's respondents perceived that the benefits of CBRM did not outweigh its challenges. These quantitative findings suggest that CBRM in Laikipia County is perceived as beneficial in enhancing climate security. The higher mean score for benefits indicates that local adaptive strategies and collaborative governance effectively contribute to resilience against climate variability. However, CBRM is not without its challenges. Therefore, CBRM's full potential in addressing climate insecurity in Laikipia County could be achieved only if the existing challenges are solved.

Benefits of CBRM

The study found that the benefits of CBRM in Laikipia County include enhanced social capital (32%), strengthened local governance (27%), economic diversification (25%), and integration of indigenous knowledge (16%) as shown in Table 2 below.

Table 2: Benefits of CBRM

		Frequency	Percent
Valid	Integration of Indigenous Knowledge	28	16
	Enhanced Social Capital	55	32
	Strengthened Local Governance	46	27
	Economic Diversification	43	25
	Total	172	100.00

Source: Author (2025)

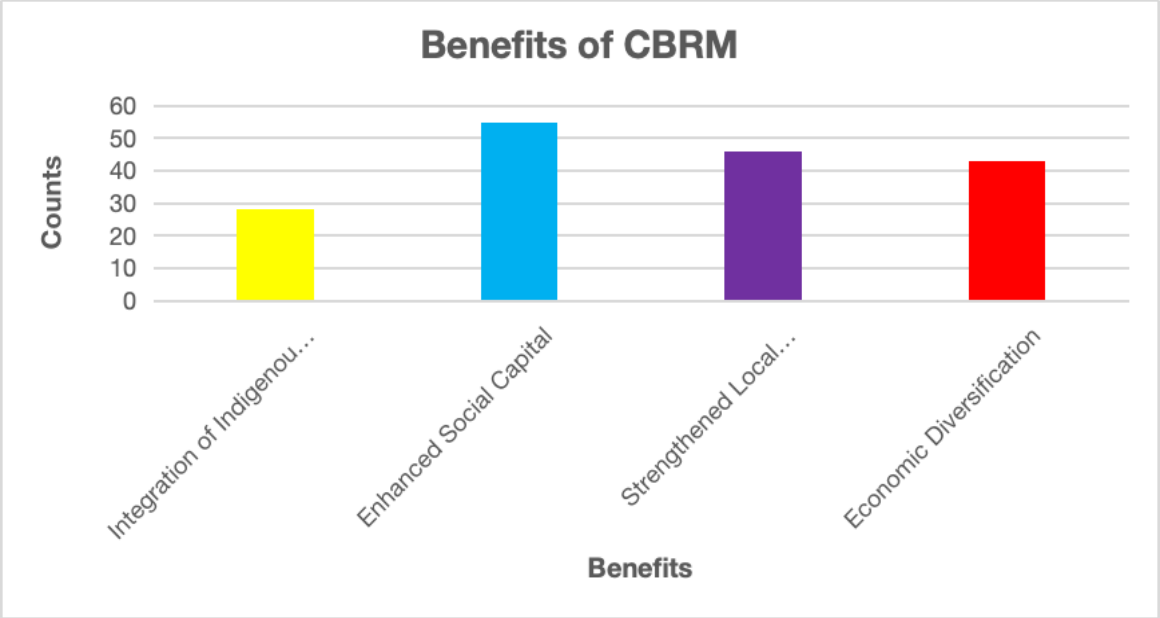

Figure 3: Benefits of CBRM

Source: Author (2025)

Policy Analysis

A broader analysis of policy frameworks would reveal all the institutional factors that impact Community-Based Risk Management programs in Laikipia County. The research scope can expand by conducting a critical assessment of policy structures that include the Kenya Climate Change Act (2016) and the National Adaptation Plan (NAP). These guidelines exist for leading national climate adaptation plans yet local success depends on resolving two main implementation barriers which include government bureaucracy issues and failed inter-agency coordination.

Because National Environment Management Authority (NEMA) leads regional support efforts for communities they experience difficulties due to duplicate authority functions combined with communication problems between NEMA and Laikipia Climate Change Committee. The policy analysis needs to study institutional implementation barriers extensively to show how this inconsistent execution triggers delays in adaptive measure deployments. In addition to studying top-down policy structure one must analyze their potential negative impact on local participation since this undermines Community-Based Risk Management's fundamental principles. The study will present an elaborate explanation regarding the impact of specific policy instruments through its assessment of secondary literature and policy documents on community-based initiatives.

The research requires an expanded view, which includes a detailed assessment of funding structures and regulatory frameworks that affect resource management operations. The research should verify if the present resource distribution matches stakeholder needs and investigate necessary policy transformations to link

official documents to ground-level activities. The implementation of localized CBRM initiatives through delegated power to county governments would boost their performance by matching policies to regional needs. The evaluation examines policy dimensions, resulting in a better understanding of present institutional frameworks and creating actionable suggestions for uniting national policies with local environments.

Gender and Equity Perspective

The study requires an essential addition that examines gender equality and equity issues in analyzing CBRM effects on climate security. The original study demonstrated community-wide advantages, yet it failed to show how these advantages are allocated between various social groups. Resource management practices within various communities create diverse effects among women, youth, and Indigenous populations. They frequently experience obstacles in obtaining essential information and holding decision authority while lacking sufficient financial support.

Household water and food security responsibilities mainly rest with women although these women receive little representation in formal governance institutions. Communities with such discrepancies develop misbalanced power relationships because important voices about climate change remain unheard. Such valuable information becomes available when programs incorporate gender-sensitive indicators and gender-based participation rate analyses to demonstrate inclusivity. Youth populations and native groups sometimes face discrimination in conventional decision-making frameworks, thus deepening current social imbalances. The research analyzes these distinct characteristics to provide better insights into resource disputes regarding adaptive abilities between different population segments.

The analysis should add measures of socio-economic elements that contribute to these inequalities. Lack of educational and training opportunities reduces the capability of minority groups to participate in resource management practices. Implementing suitable policies must establish equal opportunities for everyone to obtain climate information and technical support. To bring about change, government entities must implement programs to build capabilities while creating local governance systems that welcome everyone and use participatory methods to obtain input from these groups. Efforts to resolve these issues of fairness will create conditions for CBRM initiatives to boost overall climate security and support social equality and unified communities.

Advanced Analytical Approaches

Advanced statistical and spatial analytical techniques need adoption for future research to increase analytical depth. The analysis of survey data in this research employs descriptive statistics to present findings. At the same time, including inferential approaches would establish a more sophisticated understanding of the relationships between resource distribution and community involvement with climate security effectiveness. Regression analysis can show the extent and significance of relationships between three main independent factors—technical support level and climate data access and institutional coordination—and two primary dependent outcomes concerning resource management effectiveness and community resilience levels.

Research teams can use Geographic Information Systems (GIS) to create geographic visualizations of both climate risks and resource conflicts in Laikipia County. This research method would discover invisible spatial clusters through its spatial pattern analysis to enable more strategic intervention efforts. The research utilizes NVivo and other sophisticated qualitative analysis programs to strengthen thematic analysis through systematized data organization and classification from interviews with key informants. Through automated software processing, researchers discover faint patterns they would otherwise miss, making the analysis both strong and complete.

This paper demonstrates an exact future research plan through its proposed analytical methods while underscoring why resource management needs multiple analytical approaches to understand climate security's intricate nature. Including these analysis methods would improve the accuracy and reliability of study findings to provide policymakers with detailed research evidence for implementing efficient CBRM interventions.

Strengthened Social Capital

From Table 2 and Figure 3, the majority of the study's respondents (32%) acknowledged that CBRM strengthens the social capital of Laikipia County. Social capital refers to the networks of relationships, trust, and norms of reciprocity that enable individuals and groups to work together for mutual benefit. A study by Aldrich (2017) has shown that social capital improves the resilience of communities and individuals. The present study also found that robust social capital brought about by CBRM in Laikipia County promotes adaptive and sustainable practices, as corroborated by the excerpts below;

"In the CBRMs, community members engage in monitoring natural resources, sharing Indigenous knowledge, and implementing locally tailored adaptation strategies to climate shocks in the region." (KII2,2025)

"The collective effort embodied in CBRMs facilitates the timely exchange of information regarding emerging climate threats. It also fosters joint problem-solving and innovation in resource utilization." (KII10, 2025).

"Strong social networks help bridge divisions among various social groups. This ensures that even marginalized voices are included in decision-making processes. Furthermore, this strengthened social capital facilitates community-led training initiatives and capacity-building programs that empower individuals with the necessary skills and knowledge to innovate adaptive strategies. Such initiatives also promote long-term sustainability and resilience for communities in Laikipia County." (KII5, 2025).

The three excerpts above demonstrate the role of CBRMs in the preparedness, adaptation, and empowerment of community members in addressing climate-related impacts on available resources. When community members actively participate in resource management, they build a foundation for collaborative decision-making and mutual support. Such collective actions and initiatives enhance resilience against climate-induced risks in Laikipia County.

Strengthened Local Governance

The study established that 27% of respondents acknowledged that CBRM initiatives strengthen local governance and participation in addressing climate security in Laikipia County. A key informant in the study pointed out that communities become stewards of their natural resources by actively involving residents in decision-making processes (KII22, 2025). Such inclusion of locals in decision-making processes ensures that management strategies are context-specific and sustainable. In addition, the approach enhances transparency, accountability, and responsiveness in addressing climate-related challenges. A key informant pointed out that;

"Moreover, enhanced local governance promotes the decentralization of decision-making. This empowers community-based organizations and local councils to implement timely and targeted responses to emerging climate threats in Laikipia County." (KII9, 2025).

From the excerpt above, the participatory processes in CBRM initiatives build stakeholder trust. This is consistent with the findings by Hill (2024) on the trust-building potential of participatory approaches in decision-making. The trust in this study context ensures that adaptation measures are widely accepted and effectively executed. In turn, this trust facilitates the mobilization of external support, such as technical assistance and climate finance, that further strengthens the capacity of the community to handle climate risks.

Economic Diversification

The study noted that 25% of respondents acknowledged that CBRM in Laikipia County promotes economic diversification. This is vital to enhancing climate security in the county. Traditionally, the local economy has heavily relied on climate-sensitive sectors such as pastoralism and rain-fed agriculture. According to KNBD (2023), these sectors are increasingly vulnerable to climate change effects like prolonged droughts and erratic rainfall. Consequently, communities in Laikipia County reduce their dependence on these high-risk activities and build resilience against climate-induced shocks by diversifying their livelihoods through CBRM initiatives.

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Diversification initiatives foster the development of alternative livelihoods that complement traditional practices. A key informant pointed out that;

"Through CBRM, communities in Laikipia County can invest in eco-tourism. These initiatives provide additional revenue streams and contribute to sustainable resource management and environmental conservation. (KII15, 2025).

From the excerpt above, CBRM's diversified economic activities alleviate pressure on natural resources, thereby promoting a balanced ecosystem. Other studies by scholars like Delgado-Serrano et al. (2018) have also shown that diversified income sources offer a financial cushion during adverse weather events. This enables the community members to invest in recovery and adaptation measures. According to Delgado-Serrano et al. (2018), this approach reduces vulnerability by spreading risk across multiple sectors. Consequently, households are less impacted by climate shocks. In essence, communities in Laikipia County are empowered to achieve long-term climate security and sustainable development through CBRM's diversified income streams and economic opportunities.

Integration of Indigenous Knowledge

The study revealed that 16% of the respondents recognized that CBRM's integration of indigenous knowledge is essential to addressing climate security in Laikipia County. Indigenous knowledge comprises the accumulated experiences, practices, and ecological insights developed over generations by local communities. A key informant noted that Indigenous knowledge is embedded in various aspects of resource management in Laikipia County, such as Indigenous conflict resolution through the Il-Laibon (Il-Laibon refers to a traditional spiritual leader or ritual expert within the Maasai community of Laikipia County. The term is deeply rooted in indigenous knowledge systems and plays a significant role in conflict resolution and resource management among the Maasai people.) ; sacred ecosystems; and pastoral grazing patterns and mobility (KII21, 2025). The excerpts below depict the main benefits of integrating indigenous knowledge in enhancing climate security in Laikipia County.

"Indigenous knowledge provides a comprehension of our region's unique environmental conditions. For example, the drought patterns and the behavior of native flora and fauna. Such insights are essential in designing locally adapted climate strategies. Such strategies are more responsive to our local needs than externally imposed measures." (KII3, 2025).

"Including indigenous knowledge also reinforces community ownership of resource management initiatives. Valuing local practices encourages active engagement in conservation efforts and fosters a sense of responsibility. As communities adopt these practices, they build a resilient foundation that supports adaptive management strategies." (KII20, 2025).

"Integrating indigenous knowledge cultivates an adaptive management culture that evolves with local environmental changes. This enables communities to refine their approaches and effectively respond to emerging climate challenges." (KII30, 2025).

From the excerpts above, CBRM's integration of Indigenous knowledge enhances climate security in Laikipia County through i) providing context-specific environmental insights, ii) fostering community ownership, and iii) promoting adaptive management strategies. Consequently, a locally driven approach builds Laikipia County communities' resilience and adaptive capacity to withstand the adverse impacts of climate change on the available resources.

Challenges of CBRM

This study identified three main challenges in implementing CBRM to enhance climate security in Laikipia County. These challenges include resource constraints (48%), insufficient access to climate data (32%), and policy and institutional barriers (20%), as shown in Table 3 and Figure 4 below.

Table 3: Challenges of CBRM

		Frequency	Percent
Valid	Resource Constraints	83	48
	Insufficient Access to Climate Data	54	32
	Policy and Institutional Barriers	35	20
	Total	172	100.00

Source: Author (2025)

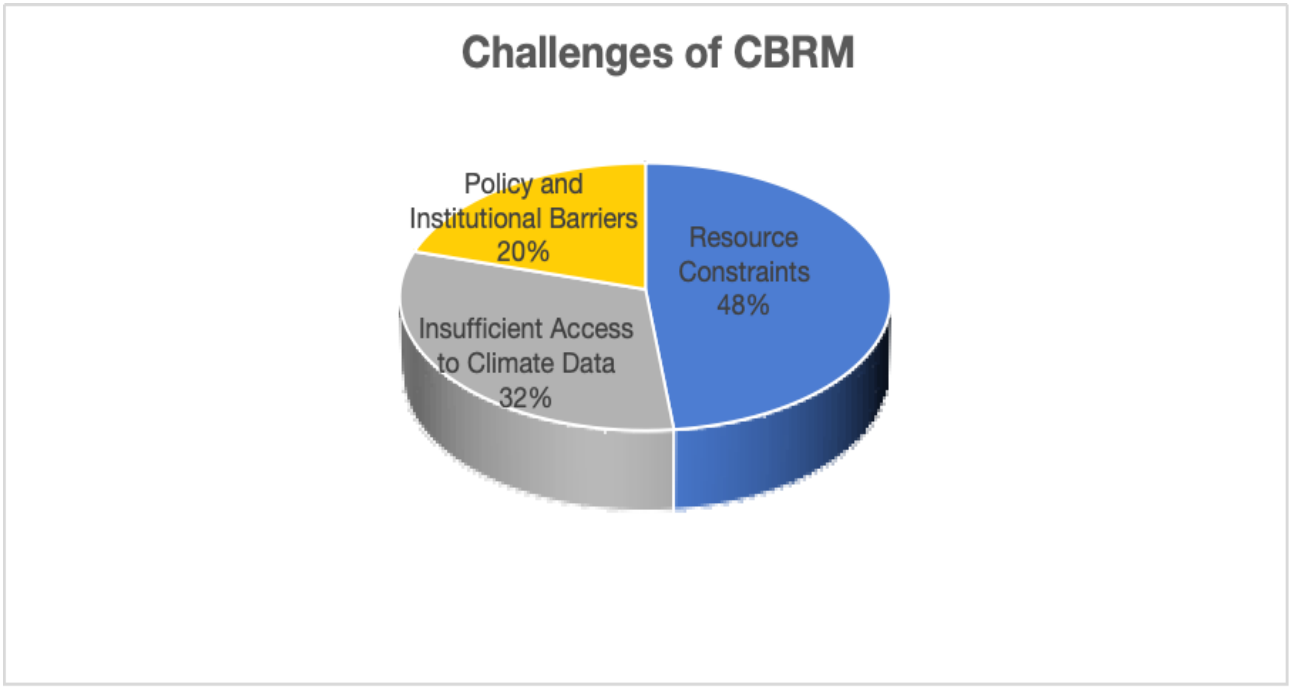

Figure 4: Challenges of CBRM

Source: Author (2025)

Resource Constraints

Most of the study's respondents (48%) acknowledged that resource constraints were challenging for CBRM in addressing climate security in Laikipia County. Limited access to financial resources restricts the ability of local communities to invest in essential infrastructure, technology, and capacity-building initiatives (KII7, 2025; KII13, 2025; and KII17, 2025). With insufficient funding, implementing adaptive measures is either delayed or executed at a suboptimal scale.

Cleaver (2017) explains that inadequate funding blocks the long-term success of CBRM programs. Financial limitations worsen because local communities face a persistent shortage of technical experts. The people living in Laikipia County lack the advanced scientific and technical knowledge required to create climate intervention designs and monitor changes or adjust implementations (KII28, 2025). Local communities may choose external projects without regard for their traditional practices or actual local needs when these two systems remain mismatched. An informant pointed out how such externally driven projects failed to achieve their goals due to lacking community engagement (KII19, 2025).

Resource limitations identified above combine to slow down efficient CBRM deployment and its scalability across Laikipia County. Piggott-McKellar et al. (2019) explain that the discrepancy between necessary resources and adaptation measure requirements generates increased vulnerability. Therefore, Laikipia County communities will remain vulnerable to climate variability effects unless these vulnerabilities receive proper attention.

Insufficient Access to Climate Data

The study noted that 32% of respondents recognized that insufficient access to climate data had hindered CBRM's effectiveness in enhancing climate security in Laikipia County. Accurate, timely, and locally relevant climate information is essential for effective planning, risk assessment, and adaptation. However, communities in Laikipia often face difficulties in accessing updated climate data. A key informant pointed out that this shortfall was mainly due to limited technological infrastructure, inadequate funding, and a lack of integration with formal meteorological agencies (KII1, 2025). The limited access to climate data was a significant hindrance to the climate preparedness face as depicted in the excepts below;

"Without precise and localized climate information, community members and local leaders are forced to rely on generalized forecasts that do not accurately capture microclimatic conditions. This results in ineffective or misdirected adaptation efforts." (KII9, 2025).

"The scarcity of reliable climate data hampers the community's ability to plan proactively. It limits early warning capabilities and the capacity to implement timely interventions to mitigate adverse weather events such as droughts, heavy rains, or unseasonal temperature fluctuations." (KII13, 2025)

From the two excerpts above, the lack of access to climate data sets the efforts of climate adaptation and mitigation in resource management on the wrong pedestal. Consequently, the effectiveness of community-based initiatives is compromised since critical decisions regarding resource allocation, land-use planning, and emergency preparedness are based on incomplete information.

Policy and Institutional Barriers

Out of the study sample, 20% of respondents acknowledged that policy and institutional barriers had curtailed CBRM's effectiveness in enhancing climate security in Laikipia County. A key informant noted that local, regional, and national institutional frameworks fail to address local communities' unique needs and priorities in Laikipia County (KII18, 2025). Another respondent corroborated this by noting that;

"Regulatory policies governing land use, water rights, and resource allocation in Laikipia County are frequently developed without sufficient input from those most directly affected by climate variability. In other instances, their views are peripheral. This results in approaches that fail to reflect local realities." (KII27, 2025).

This disconnect depicted in the excerpt above can lead to adopting policies ill-suited to the region's environmental and socio-economic conditions. This mismatch impedes the development of adaptive strategies that address the needs and concerns of the communities in Laikipia County.

Bureaucratic inefficiencies combined with agency mandate conflicts make it more difficult for CBRM programs to improve climate security performance in Laikipia County. Such inefficient governmental processes led to implementation delays regarding climate adaptation projects (KII10, 2025; KII3, 2025). In addition, centralized decision-making processes prioritize top-down interventions over community-driven approaches. Such approaches limit the flexibility and responsiveness of localized efforts, as per Ostrom (1990).

CONCLUSION

This study assessed the impact of CBRM in enhancing climate security in Laikipia County. The study has demonstrated that fostering social capital, strengthening local governance, promoting economic diversification, and integrating indigenous knowledge are key benefits that empower communities to address climate challenges. Such approaches enable local stakeholders to develop adaptive and sustainable practices responsive to environmental changes and the region's unique conditions. However, the study also reveals several critical challenges that hinder the effectiveness of CBRM initiatives. These challenges include resource constraints, policy and institutional barriers, and insufficient access to climate data. This study concludes that

CBRM is a promising strategy for enhancing climate security in Laikipia County. The county could harness the full potential of CBRM if the challenges stated above are addressed.

RECOMMENDATIONS

This study proposes the following;

1. The County Government of Laikipia should assist the CBRM entities in mobilizing financial and technical support for those utilizing CBRM.
2. The County Government of Laikipia should ensure targeted investments to enhance access to climate data within the county.
3. The National Assembly should enact legislative measures that recognize, anchor, and support (financially and technically) CBRM.

ABRIDGED BIOGRAPGHY

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An International Relations consultant specializing in diplomacy and climate change. Currently pursuing her Ph.D. at the University of Nairobi's Faculty of Arts and Social Sciences, Department of Diplomacy and International Studies, she combines academic rigor with practical expertise. Passionate about global governance and sustainable development, Joyce's work focuses on addressing climate challenges through diplomatic solutions. Her research and professional contributions aim to bridge policy gaps and foster international cooperation for a more resilient and equitable world.

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Consultant in environmental and energy matters. At the community level, I participate in environmental sustainability matters.

I dream of a world where humans live in harmony with Mother Nature.

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