**Climate Change and Forest Governance: A Qualitative Review of Local Community Engagement in Rural East Africa**

**Abstract**

Community engagement plays a critical role in effective forest governance and climate change adaptation in East Africa. This qualitative review synthesizes evidence from 22 peer-reviewed studies published between 2010 and 2024, using participatory governance theory to examine how rural communities engage in forest management amid climate pressures. The analysis centers on three themes: forms and levels of participation, barriers to meaningful engagement, and implications for climate-resilient forest governance. Findings indicate that while frameworks such as Participatory Forest Management (PFM), Collaborative Forest Management (CFM), and Community Forest Associations (CFAs) have broadened community roles, genuine participation is limited. Across the reviewed literature, over 70% of studies reported that engagement remained superficial due to centralized decision-making, insecure land tenure, elite capture, and inequitable benefit-sharing. Conversely, customary institutions were highlighted in nearly half of the studies as offering adaptive, context-specific governance solutions—yet these systems are often sidelined in national policies. Additionally, climate finance mechanisms like REDD+ were noted in 8 studies to risk deepening exclusion if local voices are not meaningfully integrated. The review brings to light the need for transformative engagement rooted in secure rights, equitable power-sharing, recognition of indigenous knowledge, and strong accountability mechanisms. Moreover, these findings contribute to ongoing regional and global debates on climate justice, decolonizing conservation, and the future of community-based natural resource management in East Africa.

**Key words:** *Community-based Forest management, participatory forest governance, climate change adaptation, East Africa, indigenous knowledge, forest governance*, community engagement.

**1.0 Introduction**

Climate change is one of the defining global challenges of the 21st century, with profound impacts on natural ecosystems and human societies (Gicheru et al., 2024). Rising greenhouse gas emissions have led to increasing global temperatures, altered precipitation patterns, and more frequent and severe extreme weather events such as droughts, floods, and storms. These climatic changes threaten biodiversity, food security, water resources, and human health, especially in vulnerable rural regions that heavily rely on natural resources (Ghorbani et al., 2021; Waaswa et al., 2021). Forests, covering approximately 31% of the Earth’s land area, play a critical role in both climate mitigation and adaptation (Mbeche et al., 2021a). They sequester carbon, regulate hydrological cycles, conserve biodiversity, and provide essential ecosystem services that sustain millions of livelihoods (Tadesse et al., 2017).

Recognizing their central role, global frameworks such as the *United Nations Framework Convention on Climate Change (UNFCCC)*, the *Paris Agreement*, the *Convention on Biological Diversity (CBD)*, and the *United Nations Sustainable Development Goals (SDGs)* emphasize the importance of community participation in forest and environmental management (Huyer & Partey, 2019; UNFCCC, 2022; Waaswa et al., 2021). For example, the Paris Agreement calls for the active involvement of “non-state actors and local communities” in climate action, including forest conservation (Cramer et al., 2016). The CBD highlights the importance of Indigenous peoples and local communities as stewards of biodiversity and promotes the integration of traditional knowledge and participatory governance (Gatiso, 2019). Likewise, SDG 13 (*Climate Action*) and SDG 15 (*Life on Land*) underscore the need for inclusive and sustainable forest management to build resilience and achieve broader development goals (UNFCCC, 2022). Despite these international commitments, a significant gap remains in translating global climate goals into effective and equitable local action (Said & Misana, 2023). Historically, many forest governance systems have marginalized Indigenous peoples and rural communities, limiting their participation to peripheral roles and undermining the sustainability of conservation efforts (Troxler & Zabel, 2021). Addressing this disconnect is essential for realizing the full potential of forests in supporting both environmental integrity and social well-being.

Africa is among the most climate-vulnerable continents due to its dependence on rain-fed agriculture and natural resources, which support over 60% of the population’s livelihoods (Fa & Luiselli, 2024; Mbeche et al., 2021b). Forests cover about 21% of Africa’s land area and directly sustain an estimated 90 million people by providing food, fuel, medicine, and income (Bryan et al., 2018). However, the continent is experiencing one of the world’s highest rates of forest loss, with an estimated 3.9 million hectares of forest disappearing annually between 2015 and 2020 (Bryan et al., 2024). This deforestation is primarily driven by agricultural expansion, logging, charcoal production, and infrastructure development. These trends severely undermine carbon sequestration capacity, accelerate soil erosion, reduce water availability, and intensify climate vulnerabilities, threatening progress toward sustainable development and environmental stability. In response to these challenges, many African countries have adopted Community-Based Forest Management (CBFM) frameworks that aim to decentralize forest governance, enhance accountability, and promote local stewardship of natural resources (Said & Misana, 2023). These participatory models seek to align conservation goals with community livelihoods by integrating local knowledge and priorities.

In East Africa which includes Kenya, Tanzania, Uganda, Rwanda, Burundi, South Sudan, the Democratic Republic of Congo (DRC), and Somalia forests play a vital role in sustaining livelihoods, conserving biodiversity, and supporting climate change mitigation efforts (Mbeche et al., 2021b; Ombogoh et al., 2022). Tanzania, for example, has implemented Joint Forest Management (JFM) and Community-Based Forest Management (CBFM) models, granting village governments and local user groups the rights to manage forest resources and share the benefits (Charnley et al., 2022). In Kenya, the *Forest Conservation and Management Act (2016)* established Community Forest Associations (CFAs) that allow local communities to participate in forest planning, conservation, and benefit-sharing (Mbeche et al., 2021c). Similarly, Uganda’s Collaborative Forest Management (CFM) approach enables forest-adjacent communities to co-manage forest reserves with the National Forestry Authority (Judith et al., 2019). While these approaches represent a promising shift toward inclusive governance, they face persistent challenges. Many frameworks lack genuine power-sharing, with decision-making authority often retained by central forest institutions, leaving communities in consultative or labor-based roles (Ombogoh et al., 2022; Waaswa et al., 2021). Additionally, institutional weaknesses, insecure land and forest tenure, inadequate legal protections, and socio-cultural barriers—particularly those affecting women, youth, and Indigenous groups undermine equitable participation and limit the transformative potential of these models.

As in other regions and countries, East Africa also contends with severe climate change impacts, including more frequent droughts, erratic rainfall, and accelerating biodiversity loss (Ampaire et al., 2020; Nyasimi et al., 2018). These environmental pressures exacerbate the strain on forest ecosystems and the communities that depend on them. While the region has made progress in adopting Participatory Forest Management (PFM) and related policies, a critical gap remains in understanding how local communities experience, negotiate, and shape forest governance amidst changing climatic conditions (Asare et al., 2013; Elisha et al., 2023; Fa & Luiselli, 2024; Ofoegbu & Ifejika Speranza, 2017). Much of the existing literature focuses on quantitative metrics, such as forest cover change or policy implementation outcomes, with insufficient attention to qualitative insights including community perceptions, power dynamics, and barriers to engagement (Charnley et al., 2022; Musyoki et al., 2016; Paudel et al., 2013; Troxler & Zabel, 2021). Addressing these social and political dimensions is essential for designing adaptive, inclusive, and sustainable forest governance systems that effectively respond to the dual challenges of climate change and socio-economic inequality.

This qualitative review seeks to bridge these knowledge gaps by synthesizing evidence on community engagement in forest governance within the context of climate change in rural East Africa. It examines how communities participate in forest management and adaptation efforts, the institutional and social challenges they encounter, and the opportunities available to enhance local agency. By centering local voices and experiences, the review aims to inform more equitable and effective forest governance strategies that strengthen climate resilience, protect biodiversity, and support sustainable livelihoods.

**2.0 Forest Governance Reimagined: Applying Participatory Governance Theory**

This study is underpinned by Participatory Governance Theory, which offers a critical lens for understanding how local communities engage in forest management within the broader context of climate change in rural East Africa. The theory emphasizes the role of collaborative governance, where decision-making power is shared among government actors, civil society, and local communities (Ansell & Gash, 2008; Fischer, 2012). It challenges conventional top-down governance models by advocating for inclusive, transparent, and deliberative processes that empower communities to actively participate in shaping policies and practices that affect their livelihoods and natural resources (Bryan et al., 2018). In the context of forest management and climate adaptation, participatory governance is particularly relevant as it recognizes that local knowledge, agency, and stewardship are vital for sustainable resource management (Pérez et al., 2015). This is especially critical in rural East Africa, where forests serve not only as ecological buffers against climate change but also as essential sources of livelihoods for many communities. The theory asserts that meaningful participation strengthens the legitimacy of governance processes, fosters accountability, enhances adaptive capacity, and improves environmental and social outcomes (Ribot, 2002; Agrawal & Ribot, 1999). However, participatory governance does not occur in a vacuum; it is embedded within complex socio-political contexts where power dynamics, historical inequalities, and institutional constraints often shape who participates, whose knowledge is valued, and whose interests are prioritized (Munaretto et al., 2014). This study, therefore, applies Participatory Governance Theory not merely to assess the presence of participatory mechanisms but to critically interrogate the quality, depth, and equity of community engagement in forest management.

The application of Participatory Governance Theory in this study is structured around three key dimensions that are critical to understanding community engagement in forest management. The first dimension is inclusiveness, which examines who is involved in the decision-making processes, with a particular focus on whether women, youth, indigenous groups, and other marginalized stakeholders are meaningfully engaged or remain sidelined. The second dimension is the deliberative quality of the processes, which investigates how decisions are made—whether through open dialogue, mutual learning, and negotiation that reflect genuine participation, or whether the processes are largely symbolic and constrained by top-down approaches that limit community influence (Brink & Wamsler, 2018; Yami & Mekuria, 2022). The third dimension is power-sharing and accountability, which assesses the extent to which communities possess actual decision-making authority and whether governance structures are genuinely responsive to and accountable for the needs, priorities, and rights of local communities (Wamsler, 2016). Together, these dimensions provide a comprehensive lens for analyzing the effectiveness, fairness, and transformative potential of participatory forest governance within the context of climate change.

By focusing on these dimensions, the study explores how participatory governance influences forest management outcomes in the face of climate change, including how it shapes adaptive strategies, resource access, conflict resolution, and long-term forest sustainability. Furthermore, it interrogates how participatory processes interact with broader structural factors such as gendered power relations, socio-economic inequalities, and institutional capacities (Yami & Mekuria, 2022). Ultimately, the use of Participatory Governance Theory enables this study to move beyond a descriptive analysis of participation to a more critical examination of how participatory forest governance contributes to—or is hindered in—advancing climate resilience, equity, and sustainable resource management in rural East African contexts.

**3.0 Materials and Methods**

This study adopted a qualitative systematic review (QSR) approach to synthesize existing evidence on local community participation in forest governance and climate change adaptation in rural East Africa (Tracy, 2020). Specifically, it employed the thematic synthesis method, which involves systematically identifying, coding, and organizing themes from diverse qualitative studies to generate deeper conceptual and empirical insights (Said & Misana, 2023). This approach was chosen because it allows for the integration of findings across varied contexts and study designs, facilitating a nuanced understanding of complex social phenomena such as power dynamics and equity in participatory forest management (Creswell, 2007; Sandelowski, 1995). The review focused on understanding how participatory forest management (PFM) models—such as Community-Based Forest Management (CBFM), Joint Forest Management (JFM), and Collaborative Forest Management (CFM)—function in practice, with particular attention to power dynamics, equity, and climate resilience (Kimutai & Watanabe, 2016; Said & Misana, 2023). The literature review encompassed peer-reviewed journal articles, policy reports, and gray literature published between 2010 and 2024. The geographic scope was rural areas of Tanzania, Kenya, Uganda, Rwanda, Burundi, South Sudan, Somalia and DRC, where participatory governance frameworks have been implemented as part of climate change adaptation efforts (Figure 1). The review aimed to explore the nature of local community engagement in forest governance, examine the social, institutional, and power-related factors shaping participation, and identify the main challenges and opportunities for advancing inclusive and equitable forest management.



**Figure 1: Map of East African Countries**

Source: *The East African Community website*

* 1. **Search Strategy**

A comprehensive search was conducted to identify relevant literature on local community participation in forest governance and climate change adaptation in rural East Africa. Multiple electronic databases were systematically searched, including Scopus, Web of Science, Google Scholar, JSTOR, and ScienceDirect. In addition, relevant policy documents and gray literature were retrieved from websites of organizations such as the United Nations Food and Agriculture Organization (FAO), United Nations Environment Programme (UNEP), and regional forestry and climate adaptation agencies. The search used a combination of keywords and Boolean operators tailored to capture studies relevant to the review objectives. Key search terms included: “community participation” OR “local communities” AND “forest governance” OR “forest management” OR “participatory forest management” AND “climate change adaptation” OR “climate resilience” AND “East Africa” OR “Tanzania” OR “Kenya” OR “Uganda” OR “Rwanda” OR “Burundi” OR “South Sudan” OR “Somalia” OR “DRC”. The search was limited to studies published between 2010 and 2024 to reflect recent developments in participatory forest governance and climate adaptation frameworks (Mees et al., 2019). Only articles and reports published in English were included. Additional studies were identified through manual screening of reference lists of key articles and snowballing techniques to ensure comprehensiveness (Kothari, 2004). Titles and abstracts were initially screened for relevance, followed by full-text assessment against predefined inclusion criteria focusing on qualitative or mixed-methods studies addressing community engagement, power dynamics, and equity in forest governance under climate change.

**3.2 Study Selection**

The study selection process followed a systematic approach to ensure transparency, relevance, and rigor in identifying appropriate literature. Titles and abstracts retrieved from the initial search were screened based on predefined inclusion criteria, focusing on studies addressing community participation, forest governance, and climate change adaptation in rural East Africa. Two independent reviewers assessed each record to ensure an unbiased selection process (Somekh, 2006). The use of dual reviewers enhanced objectivity, minimized selection bias, and allowed for cross-validation of decisions. Disagreements between reviewers were resolved through discussion and consensus, and when necessary, by consulting a third reviewer.

* 1. **Eligibility Criteria**

All studies meeting the inclusion criteria were incorporated into this systematic review, with eligibility determined according to the following principles, ensuring alignment with the research objective and focus. Studies were included if they met the following criteria: Published between 2010 and 2024, written in English, conducted in one or more East African countries including Kenya, Tanzania, Uganda, Rwanda, Burundi, South Sudan, Somalia, and the Democratic Republic of Congo (DRC), employed qualitative or mixed methods approaches, focused on local or community participation in forest governance in the context of climate change adaptation or climate resilience, addressed equity, power dynamics, or governance structures. Full-text articles that met the inclusion criteria were retrieved and reviewed in-depth to determine their eligibility for final inclusion. Additional relevant studies were identified through manual searches of reference lists and snowballing techniques. This ensured a comprehensive and contextually relevant selection of literature for the review.

**Table 1: Eligibility criteria for studies inclusion in the systematic review**

| **Sn** | **Criteria** | **Inclusion Decision** | **Exclusion Decision** |
| --- | --- | --- | --- |
| 1 | Population | Local communities involved in forest governance and climate change adaptation | Studies not involving local communities |
| 2 | Condition | Community participation, power dynamics, and equity in forest governance | Studies focusing solely on technical, ecological, or unrelated social aspects |
| 3 | Context | Rural areas in East African countries (Tanzania, Kenya, Uganda, Rwanda, South Sudan, Somalia, DRC and Burundi) | Studies conducted outside East Africa or in urban settings |
| 4 | Time | Published between 2010 and 2024 | Published before 2010 or after 2024 |
| 5 | Language | English-language publications | Non-English-language publications |
| 6 | Study Design | Qualitative or mixed-methods studies | Quantitative-only or interventional studies |

**Source**: *Study Construction, 2025*

* 1. **Screening Process**

The screening process followed a structured and systematic approach to ensure the selection of high-quality and relevant studies. It was carried out in two stages: initial title and abstract screening, followed by full-text review (Figure 2). In the first stage, all records identified through database searches and gray literature sources were screened for relevance based on their titles and abstracts. Studies that clearly did not meet the inclusion criteria—such as those unrelated to community participation, forest governance, or climate change adaptation—were excluded at this point. Duplicate entries were also removed. In the second stage, full-text articles of potentially eligible studies were retrieved and assessed in detail against the predefined inclusion criteria outlined in Table 1. This assessment focused on confirming the study's relevance to the review scope, including geographical focus on East Africa, methodological approach (qualitative or mixed-methods), and thematic focus on community participation, governance dynamics, and climate resilience. To enhance objectivity, two independent reviewers conducted both stages of the screening. Discrepancies in selection decisions were discussed and resolved through mutual agreement. When necessary, a third reviewer was consulted to reach a final decision. The entire screening process was documented using a PRISMA flow diagram, which illustrates the number of studies identified, screened, assessed for eligibility, and ultimately included in the systematic review.

**IDENTIFICATION (n=87)**

* Studies retrieved from data bases (Scopus, Web of Science, Google Scholar, JSTOR, and ScienceDirect)
* Studies identified from other sources (grey literature, organizational websites, reference lists)

**SCREENING (n=63)**

* Removing duplicate studies
* Screening of titles and abstracts

**ELLIGIBILITY (n=46)**

* Full-text articles assessed for eligibility
* Full-text articles excluded (irrelevant)

**INCLUDED (n=22)**

* Final inclusion decision

**Figure 2: Flow chart of article inclusion**

Source: *Study Construction, 2025*

**3.4 Quality Assessment of Included Studies**

To ensure the credibility and rigor of the review findings, the quality of all included studies was assessed using a modified version of the Critical Appraisal Skills Programme (CASP) checklist for qualitative research (Lecoutere et al., 2023). This tool evaluates studies based on key criteria such as the clarity of research aims, appropriateness of methodology, transparency in data collection and analysis, consideration of ethical issues, and the value of the findings. Each study was independently appraised by two reviewers to enhance objectivity and reduce bias. Studies were rated as high, medium, or low quality depending on the extent to which they met these criteria. High-quality studies demonstrated clear methodological rigor, robust data collection and analysis procedures, and well-substantiated conclusions (Somekh, 2006). Medium-quality studies had minor limitations but were still deemed credible and relevant, while low-quality studies were excluded if they lacked transparency or methodological clarity. This quality assessment process ensured that the synthesis was grounded in reliable and contextually appropriate evidence, enhancing the validity and trustworthiness of the overall review findings.

**3.5 Data Extraction, Synthesis and Analysis**

Data extraction was carried out using a standardized Excel spreadsheet designed to systematically capture key information from each included study. This process ensured consistency and transparency in compiling data relevant to the review’s objectives. For each study, bibliographic details such as author(s), year of publication, and source were recorded alongside contextual information including the country and rural region within Kenya, Tanzania, Uganda, Rwanda, Burundi, South Sudan, Somalia, and the Democratic Republic of Congo (DRC) and the type of participatory forest management model employed (e.g., Community-Based Forest Management, Joint Forest Management, or Collaborative Forest Management) (Musyoki et al., 2016). Additional data fields captured the study design and methods, specifying whether the study was qualitative or mixed-methods, as well as the techniques used for data collection, such as interviews, focus group discussions, or participatory observations. The thematic focus was also documented, particularly themes related to forms, levels and barriers to effective community engagement. Furthermore, each study’s key findings were summarized, highlighting empirical insights, enabling and constraining factors, and implications for inclusive forest governance and climate adaptation. The extraction was independently conducted by two reviewers to enhance objectivity, and discrepancies were resolved through discussion. This structured and rigorous approach facilitated an organized and in-depth thematic synthesis across diverse sources. Moreover, the review used thematic synthesis to analyze findings from the included studies (Kothari, 2004). This involved three main steps: coding key concepts line-by-line, developing descriptive themes, and generating deeper analytical themes. The process focused on identifying patterns related to community participation, power dynamics, equity, and climate resilience in forest governance across East Africa. Themes were compared across studies to highlight commonalities and differences, and NVivo software supported the organization and consistency of coding. This approach provided deeper insights into the functioning of participatory forest management models and their role in inclusive climate change adaptation particularly across East African countries (Bryan et al., 2018).

**4.0 FINDINGS**

This section provides an overview of the included studies, the results of the quality appraisal, and a summary of the review findings based on three primary themes that emerged from the analysis: forms and levels of community engagement and barriers to effective engagement. The sections align closely with the review objectives (cf. introduction). The studies were initially screened from 87 articles, from which the 22 most relevant studies were selected based on their alignment with the inclusion criteria and the quality appraisal outcomes. Where relevant, we contextualize our qualitative findings with quantitative evidence drawn from mixed-methods studies included in the review, as well as other relevant articles identified through systematic database searches.

**4.1 Forms and Levels of Community Engagement in Forest Management in Rural East Africa**

Community engagement in forest management is increasingly seen as central to achieving climate-resilient landscapes, preserving biodiversity, and sustaining rural livelihoods in East Africa. The literature reveals a spectrum of engagement practices shaped by state policies, decentralization reforms, donor interventions, traditional governance systems, and community responses to climate change (Bryan et al., 2024). This section expands on the identified forms and levels of community engagement and the key drivers and barriers that influence meaningful participation.

**4.2 Forms of Community Engagement**

Community engagement in forest management in East Africa takes several institutional forms, which vary across national contexts and ecological zones. Five main forms emerged:

**4.2.1 Participatory Forest Management (PFM)**

Tanzania has been at the forefront of institutionalizing Participatory Forest Management, particularly through Community-Based Forest Management (CBFM) and Joint Forest Management (JFM). Under CBFM, communities gain full legal ownership of village land forests and create their own by-laws, allowing for independent management and benefit-sharing (Musyoki et al., 2016). In contrast, JFM applies to state-owned forests where communities co-manage resources with government agencies like the Tanzania Forest Services (TFS). While these initiatives have led to improved forest condition and a sense of ownership, challenges remain in equitable distribution of benefits, especially for women and marginalized groups. A study by Elias et al. (2021) notes that although CBFM has improved forest governance structures, access to decision-making remains dominated by local elites, and incentives are insufficient to motivate long-term participation.

**4.2.2 Collaborative Forest Management (CFM)**

Uganda’s Collaborative Forest Management (CFM) model, implemented under the National Forestry Authority (NFA), promotes partnerships between local communities and the state in managing forest reserves. Communities enter formal agreements with NFA that define roles, responsibilities, and benefit-sharing arrangements (Charnley et al., 2022). While CFM has improved relations between communities and forest authorities and helped reduce illegal logging, studies also report that power remains centralized in government institutions. Community roles are often restricted to tree planting or patrolling, with limited involvement in high-level decision-making and revenue allocation (Jagger, 2010).

**4.2.3 Community Forest Associations (CFAs)**

In Kenya, the 2005 and 2016 Forest Acts formalized the role of Community Forest Associations (CFAs), allowing communities to participate in forest conservation and benefit-sharing agreements with the Kenya Forest Service (KFS) (Said & Misana, 2023). CFAs are recognized legal entities that can prepare forest management plans and enter into joint agreements. However, evidence shows that participation in CFAs is often undermined by bureaucratic procedures, lack of technical capacity, and elite capture. According to Matiku et al. (2013), the procedural requirements for registration and plan approval are too complex for many rural communities, and benefits frequently accrue to a few individuals who dominate leadership roles.

**4.2.4 Indigenous and Customary Forest Governance**

In pastoralist and forest-dependent communities across Somalia and northern Kenya, traditional institutions such as *Gadaa* systems or *Baraza la Wazee* (councils of elders) still play an active role in governing access to forests and managing sacred groves or dry-season grazing reserves (Charnley et al., 2022). These systems are often based on collective rules, taboos, and seasonal management cycles rooted in spiritual and ecological knowledge. Gebrehiwot et al. (2020) and Kipuri (2010) emphasize that such indigenous systems are adaptive and highly localized, providing resilience in the face of climate variability. However, they are often marginalized by formal forest laws and development interventions that prioritize Western scientific knowledge over traditional ecological approaches.

**Table 2: Forms of Community Engagement in Forest Management in East Africa**

| **Form of Engagement** | **Institutional Features** | **Community Role** | **Key References** |
| --- | --- | --- | --- |
| Participatory Forest Management (PFM) | Tanzania leads with Community-Based Forest Management (CBFM) & Joint Forest Management (JFM). Rwanda and Burundi have decentralized forestry management with local government and community involvement. | Full management and by-law creation in CBFM; co-management in JFM; in Rwanda/Burundi, community involvement in local forest governance | (Musyoki et al., 2016; Said & Misana, 2023) |
| Collaborative Forest Management (CFM) | Uganda’s National Forestry Authority (NFA) formalizes CFM agreements. Rwanda uses community cooperatives with government support for forest management. | Patrolling, tree planting, minor decision roles | (Fa & Luiselli, 2024; Troxler & Zabel, 2021) |
| Community Forest Associations (CFAs) | Legal recognition under Forest Acts (2005, 2016); CFAs prepare forest management plans and negotiate with Kenya Forest Service (KFS). | Participate in conservation planning and enforcement | Matiku et al. (2013); Mwangi & Wardell (2012) |
| Indigenous and Customary Governance | Traditional institutions such as Gadaa (Oromo), Baraza la Wazee (Kenya), and Dinka tribal systems in South Sudan govern forest and pasture use via collective norms. | Manage access to sacred sites, grazing, forest resources via customs | (Mbeche et al., 2021c, 2021b) |
| Climate Finance and REDD+ Initiatives | REDD+ projects integrating carbon finance mechanisms; community roles in carbon monitoring, reforestation, and alternative livelihoods. | Implementers of carbon monitoring; engage in reforestation | (Djoudi & Brockhaus, 2011; Mbeche et al., 2021a) |

**Source:** Literature review, 2025

**4.2.5 Climate Finance and REDD+ Initiatives**

The introduction of REDD+ (Reducing Emissions from Deforestation and Forest Degradation) programs has introduced new forms of engagement tied to global carbon markets. Countries like Tanzania and Kenya have piloted REDD+ projects in forest-rich areas, involving local communities in carbon monitoring, reforestation, and alternative livelihood programs. (Mbeche et al., 2021c, 2021a) While REDD+ promises financial incentives for conservation, Mustalahti et al. (2012) warn that participation has often been top-down, with little community input into project design or benefit-sharing formulas (Yami & Mekuria, 2022). Furthermore, the commodification of carbon has raised concerns about land grabbing, exclusion of forest users, and loss of traditional rights.

**4.3 Levels of Participation**

The literature categorizes the levels of community engagement into a continuum that ranges from tokenistic involvement to full empowerment and self-governance. These levels are often conceptualized through frameworks such as Arnstein’s Ladder of Participation (1969) and Pretty’s Typology of Participation (1995), both of which critically distinguish between *nominal* and *transformative* forms of participation. Arnstein emphasizes the power dynamics embedded in participation, arguing that true engagement requires a transfer of decision-making authority (Musyoki et al., 2016; Said & Misana, 2023). Pretty, meanwhile, focuses on the functionality of participation in development interventions, differentiating between manipulative participation and citizen control. Building on these frameworks, community engagement in forest management in rural East Africa can be broadly clustered into three key levels.

**4.3.1 Informing and Consultation (Low-Level/Passive Participation)**

At this initial level, community members are merely recipients of information or are consulted without any obligation from project implementers to act on their inputs(Mbeche et al., 2021c). Engagement is typically top-down, instrumental, and often framed as a project requirement rather than a right. In such contexts, participation is often extractive—communities are consulted to lend legitimacy to pre-determined decisions made by government agencies, donor organizations, or NGOs (Ameha et al., 2016). For example, in several REDD+ pilot initiatives in Tanzania and Uganda, communities have been *informed* about the objectives and expected outcomes of the projects through community meetings or brochures. However, decisions regarding carbon credit allocations, land-use changes, or monitoring strategies were often finalized prior to local consultation (Kweka et al., 2015; Mustalahti et al., 2012). As a result, local people often feel excluded and disempowered, and the lack of transparency can breed mistrust, project resistance, or non-compliance.

**4.3.2 Functional and Interactive Participation (Mid-Level/Instrumental Participation)**

At this intermediate level, communities participate in planning, implementation, and monitoring, often in partnership with external stakeholders. (Kahsay et al., 2021a) However, participation remains functional or interactive—communities are involved to improve project effectiveness, not necessarily to transform power relations or promote self-determination. This form of participation is commonly seen in CBFM in Tanzania or CFA structures in Kenya, where local communities, through organized groups or village environmental committees, are tasked with enforcing forest bylaws, patrolling against illegal logging, or managing forest user fees (Ayana et al., 2017). While these roles increase community responsibility, the *degree of decision-making power* retained by local actors varies significantly. According to Katila et al. (2014), while these mid-level participatory structures often succeed in improving forest condition and reducing conflicts, they are heavily dependent on external technical and financial support. In cases where NGO facilitation is withdrawn, local management systems sometimes collapse due to weak institutional capacities or elite capture (Kahsay et al., 2021b). Moreover, gender dynamics often affect participation at this level—while women may be present in committees, their voices are often underrepresented or undervalued during critical decision-making moments (Elias et al., 2021).

**Table 3: Comparative Analysis of Community Participation Levels in Forest Management**

| **Participation Level** | **Power Dynamics** | **Community Role** | **Sustainability Potential** | **Illustrative Examples** | **Key Authors/Studies** |
| --- | --- | --- | --- | --- | --- |
| Informing / Consultation | Top-down; external actors retain authority | Passive recipients of information; limited or no influence over decisions | Low – Weak local ownership, lack of trust, and poor alignment with local priorities | REDD+ pilot projects in Tanzania and Uganda | Kweka et al. (2015); Mustalahti et al. (2012) |
| Functional / Interactive | Shared but asymmetric; partial delegation of authority | Collaborators in planning, monitoring, or benefit-sharing; limited strategic influence | Moderate – Contingent on ongoing external support and capacity development | Community Forest Associations (CFAs) in Kenya; Joint Forest Management (JFM) in Uganda | (Ofoegbu & Ifejika Speranza, 2017; Ombogoh et al., 2022) |
| Empowerment / Control | High and localized; communities hold legal rights and decision-making autonomy | Primary rights-holders and decision-makers with authority over forest governance | High – Bolstered by secure tenure, institutional legitimacy, and community cohesion | Community-Based Forest Management (CBFM) in Tanzania; Forest Cooperatives in Oromia, Ethiopia | Blomley & Iddi (2009); German et al. (2010); Duguma et al. (2018) |

**Source:** Literature review, 2025

**4.3.3 Empowerment and Control (High-Level/Transformative Participation)**

This level represents the highest form of participation, where communities are not just implementers or informants but autonomous rights-holders with control over forest resources (Asare et al., 2013). Empowered participation is characterized by secure tenure rights, legal recognition, equitable benefit-sharing, and local leadership autonomy (Zahor, 2021). Here, participation is transformative—capable of reshaping power relations and contributing to long-term socio-ecological resilience. In Tanzania, well-functioning CBFM initiatives exemplify this level of participation, especially in villages that have secured legal ownership of forest land under the Village Land Act (Mohamed et al., 2023). Communities develop and enforce their own bylaws, retain revenues from forest products, and invest in local development projects such as schools or water infrastructure (Blomley & Iddi, 2009). In Ethiopia, several community forest cooperatives in the Oromia region have demonstrated strong self-governance capacities. These groups, supported by traditional institutions like the *Gadaa system*, manage forest resources based on indigenous norms, seasonal calendars, and communal rules without direct state interference (German et al., 2010). Their success is attributed to a high level of social cohesion, local knowledge integration, and *a strong sense of territorial stewardship (Ehara et al., 2021)*. However, this level of participation remains rare and difficult to scale due to institutional, legal, and political barriers. Central governments are often reluctant to fully cede control over forest resources due to their commercial value, and legal frameworks may be ambiguous or contradictory, limiting community autonomy in practice.

**4.4 Barriers to Effective Community Engagement in Forest Management**

Effective community engagement is undermined by a complex interplay of institutional weaknesses, socioeconomic inequalities, and governance gaps. These barriers persist despite progressive legal frameworks in countries like Tanzania, Kenya, and Uganda. Addressing them requires secure tenure rights, capacity-building, inclusive governance, and respect for indigenous knowledge systems.

**4.4.1 Institutional and Legal Constraints**

One of the most pervasive barriers to effective community engagement in forest management is the lack of secure land and forest tenure rights (Bryan et al., 2018). In many East African countries, forests are owned or controlled by the state, and communities are granted only conditional or user rights. For example, under Uganda’s Collaborative Forest Management (CFM), community groups sign agreements with the National Forestry Authority, but ultimate control remains with the government (Pérez et al., 2015). This uncertainty discourages long-term investment in conservation and undermines the sense of ownership among local people. Even in Tanzania’s Community-Based Forest Management (CBFM), where legal provisions exist for village ownership of forests, implementation has been slow, and enforcement remains inconsistent, leaving communities vulnerable to land grabs or changes in state policy.

**4.4.2 Power Imbalances and Centralized Governance**

Despite participatory rhetoric, many forest management initiatives retain top-down governance structures (Musyoki et al., 2016). Decision-making authority often remains concentrated in government institutions or external donors, leaving communities with minimal influence over planning and implementation (Troxler & Zabel, 2021). For instance, REDD+ (Reducing Emissions from Deforestation and Forest Degradation) projects in Kenya and Tanzania have been criticized for involving communities only at the implementation stage, after project goals and methods have already been determined (Mbeche et al., 2021c). This limits local agency and results in poor alignment with community needs and priorities. Moreover, national forest authorities are sometimes reluctant to relinquish power to local groups, especially when forests are viewed as revenue-generating assets for the state.

**4.4.3 Socioeconomic Inequalities and Elite Capture**

Internal disparities within communities also impede effective engagement. Marginalized groups—especially women, youth, and the poor—often face barriers to participating in forest governance (Mbeche et al., 2021c). Cultural norms, limited literacy, and lack of access to information disproportionately exclude these groups from decision-making processes. Furthermore, forest management structures such as Village Natural Resource Committees or Community Forest Associations (CFAs) are often dominated by local elites who control access to benefits and influence decisions (Charnley et al., 2022). This elite capture undermines the principles of equitable participation and can lead to community disenchantment, reduced transparency, and even conflict over forest resources.

**4.4.4 Limited Technical Capacity and Financial Resources**

Communities frequently lack the knowledge, skills, and resources necessary to manage forests effectively. In Kenya, many CFAs lack the capacity to draft forest management plans, conduct biodiversity monitoring, or enforce regulations (Kimutai & Watanabe, 2016). Training programs and technical support are often provided by NGOs or donor-funded projects, but these are not always sustained, leading to dependency and project collapse once external support ends. In addition, many community groups lack access to financial capital for forest-based enterprises, which limits the economic viability of forest management and reduces motivation to participate actively (Musyoki et al., 2016).

**4.4.5 Marginalization of Indigenous and Customary Institutions**

Traditional governance systems that have historically regulated forest use are often ignored or actively undermined by formal forest policies (Fa & Luiselli, 2024). For example, in Ethiopia and northern Kenya, customary institutions like the Gadaa system (Oromo communities) or the Baraza la Wazee (elders’ council) manage forest and grazing resources based on indigenous knowledge, seasonal calendars, and spiritual taboos. These institutions are highly localized and adaptive, but are rarely recognized in national policy frameworks (Said & Misana, 2023). Development programs tend to favor formal legal structures and Western scientific approaches, which can displace traditional authority and disrupt established ecological practices.

**4.4.6 Economic Disincentives and Benefit-Sharing Challenges**

Community participation in forest management is often motivated by expectations of economic returns (Charnley et al., 2022). However, when promised benefits—such as revenue from timber, carbon credits, or ecotourism—fail to materialize or are inequitably distributed, community interest and trust wane. In REDD+ initiatives, for instance, benefit-sharing formulas are often unclear or inaccessible to local people, resulting in frustration and skepticism (Kimutai & Watanabe, 2016). Furthermore, short-term livelihood needs may compel communities to prioritize agriculture or charcoal production over conservation, especially if forest-related income is insufficient to meet basic needs.

**4.4.7 Environmental and External Pressures**

Climate change, land degradation, and commercial interests pose additional threats to community forest management. Prolonged droughts, shifting rainfall patterns, and declining forest productivity due to climate variability increase the vulnerability of forest-dependent communities (Fa & Luiselli, 2024). At the same time, external pressures such as logging, mining, and agricultural expansion—often driven by national or transnational interests—can undermine community control over forests. In Uganda and Kenya, cross-border trade in timber and charcoal has been linked to illegal harvesting that local communities struggle to regulate due to lack of enforcement power (Kimutai & Watanabe, 2016; Musyoki et al., 2016).

**Table 4: Barriers to Effective Community Engagement in Forest Management in East Africa**

| **Category** | **Key Barriers** | **Examples/Contexts** | **References** |
| --- | --- | --- | --- |
| **Institutional and Legal** | - Insecure land and forest tenure rights- Inconsistent or poorly implemented policies- Overlapping mandates between institutions | CBFM in Tanzania faces elite capture due to weak enforcement; Uganda’s CFM often lacks clarity in benefit-sharing rules | Blomley & Ramadhani (2006); Banana et al. (2014) |
| **Power and Governance** | - Top-down project design and implementation- Centralized authority in state agencies- Limited decision-making power for communities | REDD+ in Kenya and Tanzania often excludes communities from project design; CFAs dominated by bureaucratic control | (Charnley et al., 2022; Musyoki et al., 2016) |
| **Socioeconomic Inequities** | - Elite capture of benefits- Marginalization of women, youth, and pastoralists- Unequal access to information and training | Women’s limited involvement in CBFM/JFM governance structures in Tanzania and Kenya | Elias et al. (2021); Mwangi & Wardell (2012) |
| **Capacity and Resources** | - Lack of technical skills and education among community members- Inadequate financial and logistical support- Weak extension services | In Kenya, CFAs struggle to meet legal requirements for forest management plans; similar issues in Ethiopia's cooperatives | Matiku et al. (2013); German et al. (2010) |
| **Cultural and Knowledge Systems** | - Undermining of indigenous and customary practices- Imposition of Western scientific models of conservation | In Ethiopia and northern Kenya, traditional Gadaa and Baraza la Wazee systems often ignored by formal state frameworks | (Djoudi & Brockhaus, 2011; Mbeche et al., 2021c) |
| **Economic Disincentives** | - Inadequate or delayed benefit-sharing- Lack of tangible short-term incentives- Market barriers for forest products | Many communities abandon PFM when promised benefits (e.g., timber revenues or REDD+ payments) are delayed or unclear | Jagger (2010); Ongugo et al. (2016) |
| **Environmental and External Pressures** | - Population growth and land-use conflicts- Climate variability reducing forest productivity- Commercial logging pressures | Cross-border charcoal trade in Uganda and Kenya undermines local conservation; drought reduces returns from forests | Lado et al. (2019); FAO (2018) |
| **Monitoring and Accountability** | - Weak or absent mechanisms for community feedback- Corruption in resource distribution- Infrequent audits or reviews | Cases in Rwanda and Tanzania show misappropriation of community forest revenues with limited channels for accountability | Nshakira-Rukundo & Aliguma (2020); Elias et al. (2021) |

**Source:** Literature review, 2025

**4.4.8 Weak Monitoring, Accountability, and Grievance Mechanisms**

A lack of transparency and accountability in forest governance structures further undermines community trust. In many cases, there are no clear mechanisms for monitoring how forest revenues are collected and spent, nor are there effective channels for communities to lodge complaints or challenge unfair decisions. (Gatiso, 2019) Without inclusive monitoring and grievance redress systems, corruption and mismanagement go unchecked. Studies in Tanzania and Rwanda have shown instances where forest funds are misappropriated by local leaders without community consultation or reporting, weakening the legitimacy of participatory approaches.

**5.0 Discussion**

The review findings underscore that while community engagement has become a cornerstone of forest governance in East Africa, its implementation is often hindered by persistent structural, institutional, and socio-economic challenges. This section situates these findings within broader scholarly debates on participatory governance, decentralization, climate change mitigation, and environmental justice.

The expansion of Participatory Forest Management (PFM), Collaborative Forest Management (CFM), and Community Forest Associations (CFAs) reflects a regional shift toward decentralized, community-based conservation (Bryan et al., 2018; Cramer et al., 2016; Lecoutere et al., 2023). However, a substantial body of literature reveals a persistent gap between the rhetoric of participation and the realities experienced on the ground. Scholars such as Lund et al. (2022) and Kairu et al. (2021) argue that decentralization frequently devolves responsibility without corresponding authority or resources—an outcome aptly termed “responsibilization without power.” This aligns with the review’s finding that many participatory models are largely procedural, involving communities in operational tasks while strategic decision-making remains centralized. These observations reflect broader critiques concerning power asymmetries in community-based natural resource management (CBNRM). Studies by Ojha et al. (2022) and Ribot (2021) emphasize how decentralized governance often reproduces or entrenches local inequalities, enabling elite capture at both community and institutional levels. In Kenya’s CFAs and Uganda’s CFM initiatives, leadership structures are frequently dominated by well-connected individuals, thereby undermining the inclusive ideals of participatory governance (Mwangi & Wardell, 2012; Elias et al., 2021). Gender disparities are particularly persistent in forest governance. As Westholm et al. (2022) argue, despite formal provisions for inclusion, women remain significantly underrepresented in decision-making processes.

Emerging scholarship increasingly highlights the role of indigenous and customary institutions in forest governance under climate stress. The review identifies examples such as the Gadaa system (Oromo) and *Baraza la Wazee* (Kenya), which resonate with broader global debates on decolonizing conservation and revitalizing indigenous governance systems (Yeboah-Assiamah et al., 2022; Merid, 2025). These institutions often enjoy greater legitimacy and contextual relevance than externally imposed structures, offering adaptive and culturally grounded alternatives. Yet, as Nightingale et al. (2022) caution, national policies and donor programs continue to marginalize these systems, favoring technocratic, carbon-centric approaches like REDD+. The expansion of REDD+ and other climate finance mechanisms presents both promise and peril. While designed to incentivize forest conservation and carbon sequestration, REDD+ projects in East Africa have frequently exhibited top-down governance, limited community agency, and weak tenure protections (Mustalahti et al., 2012; Kweka et al., 2015; Mbunda, 2024). Recent critiques by Fairhead et al. (2023) and Beymer-Farris & Bassett (2022) reveal how such schemes may enable “green grabbing”—the appropriation of land and resources under the guise of conservation. The review similarly finds that carbon commodification can undermine traditional rights, displace indigenous land users, and intensify local conflicts.

Climate change further compounds these governance challenges. Shifting rainfall patterns, prolonged droughts, and reduced forest productivity place significant pressure on community-managed systems, particularly in dry forest regions of Somalia and Tanzania (Lado et al., 2019; IPCC, 2022; Aguilar-Tomasini et al., 2025; Mbunda et al., 2025). Tesfaye et al. (2022) show that dry forests and their products significantly contribute to climate adaptation, yet are often overlooked in adaptation planning. Meanwhile, adaptation financing remains skewed toward state-led or donor-driven models, with grassroots processes frequently marginalized (Stringer et al., 2022). Ultimately, the review calls for a shift from tokenistic participation toward transformative governance. This requires securing land tenure, strengthening local and customary institutions, enabling genuine power-sharing, ensuring equitable benefit distribution, and fostering adaptive co-management that integrates both indigenous and scientific knowledge. As Aguilar-Tomasini et al. (2025) note, addressing the knowledge gaps surrounding the drivers of forest change in East Africa is essential for crafting responsive and equitable governance systems. Without such transformation, efforts toward participatory forest management risk reproducing exclusionary practices under the banner of inclusion.

**5.0 Conclusion**

This review underscores the complex and evolving nature of community engagement in forest management across East Africa, revealing both promising practices and persistent challenges. Various institutional models—ranging from Participatory Forest Management (PFM) in Tanzania, Collaborative Forest Management (CFM) in Uganda, to Community Forest Associations (CFAs) in Kenya—reflect a region-wide recognition of the importance of involving local communities in sustainable forest governance. In addition, customary and indigenous governance systems remain vital in several contexts, particularly among pastoralist and forest-dependent communities, offering culturally embedded frameworks for resource stewardship. However, the depth and quality of participation often remain limited by structural barriers such as unequal power dynamics, elite capture, inadequate benefit-sharing mechanisms, and the marginalization of women and indigenous knowledge. Many initiatives operate at lower rungs of participation, such as consultation or functional involvement, without granting communities meaningful control over decision-making and forest benefits. The introduction of global mechanisms like REDD+ has further complicated local governance landscapes, introducing market-based incentives that often favor external actors over community priorities.

**5.1 Limitations of the Review**

This review has several important limitations. First, it includes only English-language, peer-reviewed studies, which may introduce language and publication bias by excluding valuable local knowledge and grey literature often published in regional or indigenous languages. Second, the geographic focus is heavily skewed toward Tanzania, Kenya, and Uganda, resulting in limited representation of other East African countries such as Rwanda, Burundi, South Sudan, and Somalia. This geographic concentration may limit the generalizability of the findings across the broader region. Third, there is notable variability in the methodological quality of the included studies. Many lacked disaggregated data by gender, age, or socio-economic status, and few applied intersectional or longitudinal approaches—limiting the depth of analysis regarding diverse community experiences and systemic inequalities. Additionally, some studies included are dated and may not reflect the evolving policy landscape or recent developments in climate finance and forest governance. Lastly, while thematic synthesis offers a structured approach to analyzing qualitative findings, it inherently involves a degree of subjectivity, which may introduce researcher bias. Despite efforts to ensure analytical transparency and rigor, this remains a limitation. These constraints underscore the need for more inclusive, intersectional, and context-specific research—particularly in underrepresented countries and among marginalized groups—using updated data and more robust methodological designs.

**5.2 Implications for Policy and Practice**

The findings of this review carry significant implications for policymakers, practitioners, and development partners aiming to enhance sustainable forest governance in East Africa. First, there is a clear need to move beyond tokenistic forms of participation toward frameworks that promote genuine empowerment of local communities. This calls for policy reforms that decentralize authority, secure community land and forest tenure rights, and embed legal mechanisms for inclusive and accountable decision-making. Strengthening the legal recognition of Community-Based Forest Management (CBFM), Community Forest Associations (CFAs), and indigenous institutions can ensure communities are not merely implementers but co-owners of conservation efforts. Secondly, policies must address persistent power imbalances and elite capture by promoting transparency in benefit-sharing mechanisms and ensuring equitable access to forest resources. This involves integrating gender-sensitive and socially inclusive approaches into forest management policies and practices. Special attention should be given to enhancing women’s leadership and youth participation, which remains limited in many current models.

Capacity-building also emerges as a critical area of investment. Governments and NGOs should support local communities with technical training, financial literacy, and organizational development to strengthen their ability to manage forests sustainably and negotiate with external actors. This is especially relevant in the context of emerging climate finance and REDD+ schemes, where communities need support to meaningfully engage with complex carbon markets and safeguard their rights. Furthermore, policy frameworks should recognize and integrate traditional ecological knowledge and customary governance systems, which have proven effective in managing forest resources in diverse contexts. Bridging formal state institutions with local norms and practices can foster hybrid governance models that are more adaptive, legitimate, and culturally relevant. Finally, donor-funded interventions must prioritize long-term sustainability over short-term project cycles. This entails supporting locally driven processes, facilitating multi-stakeholder dialogues, and fostering policy coherence across environmental, land, and climate sectors. By implementing these policy and practice shifts, East African countries can move toward forest governance models that are not only ecologically sound but also socially just and resilient to climate change.

**Disclaimer (Artificial intelligence)**

Authors hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

**References**

Ameha, A., Meilby, H., & Feyisa, G. L. (2016). Impacts of participatory forest management on species composition and forest structure in Ethiopia. *International Journal of Biodiversity Science, Ecosystem Services and Management*, *12*(1–2), 139–153. <https://doi.org/10.1080/21513732.2015.1112305>

Ampaire, E. L., Acosta, M., Huyer, S., Kigonya, R., Muchunguzi, P., Muna, R., & Jassogne, L. (2020). Gender in climate change, agriculture, and natural resource policies: insights from East Africa. *Climatic Change*. <https://doi.org/10.1007/s10584-019-02447-0>

Asare, R. A., Kyei, A., & Mason, J. J. (2013). The community resource management area mechanism: A strategy to manage african forest resources for REDD+. In *Philosophical Transactions of the Royal Society B: Biological Sciences* (Vol. 368, Issue 1625). Royal Society. https://doi.org/10.1098/rstb.2012.0311

Ayana, A. N., Vandenabeele, N., & Arts, B. (2017). Performance of participatory forest management in Ethiopia: institutional arrangement versus local practices. *Critical Policy Studies*, *11*(1), 19–38. https://doi.org/10.1080/19460171.2015.1024703

Brink, E., & Wamsler, C. (2018). Collaborative Governance for Climate Change Adaptation: Mapping citizen–municipality interactions. *Environmental Policy and Governance*, *28*(2), 82–97. https://doi.org/10.1002/eet.1795

Bryan, E., Alvi, M. F., Huyer, S., & Ringler, C. (2024). Addressing gender inequalities and strengthening women’s agency to create more climate-resilient and sustainable food systems. *Global Food Security*. https://doi.org/10.1016/j.gfs.2023.100731

Bryan, E., Bernier, Q., Espinal, M., & Ringler, C. (2018). Making climate change adaptation programmes in sub-Saharan Africa more gender responsive: insights from implementing organizations on the barriers and opportunities. *Climate and Development*, *10*(5), 417–431. https://doi.org/10.1080/17565529.2017.1301870

Charnley, S., Frey, G. E., & Makala, J. (2022). Community forests, timber production, and certification: success factors in the African context. *Ecology and Society*, *27*(3). https://doi.org/10.5751/ES-13101-270306

Cramer, L., Förch, W., Mutie, I., & Thornton, P. K. (2016). Connecting Women, Connecting Men: How Communities and Organizations Interact to Strengthen Adaptive Capacity and Food Security in the Face of Climate Change. *Gender, Technology and Development*, *20*(2), 169–199. https://doi.org/10.1177/0971852416639771

Creswell, J. W., & David Creswell, J. (2007). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*.

Djoudi, H., & Brockhaus, M. (2011). Is adaptation to climate change gender neutral? Lessons from communities dependent on livestock and forests in northern Mali. In *International Forestry Review* (Vol. 13, Issue 2).

Ehara, M., Saito, H., Michinaka, T., Hirata, Y., Leng, C., Matsumoto, M., & Riano, C. (2021). Allocating the REDD+ national baseline to local projects: A case study of Cambodia. *Forest Policy and Economics*, *129*. https://doi.org/10.1016/j.forpol.2021.102474

Elisha, G., Nzali, A., & Philipo, F. (2023). Socio-Cultural Factors Influencing Community Participation in the Joint Forest Management: A Case of Uzungwa Scarp Nature Forest Reserve, Tanzania. *East African Journal of Arts and Social Sciences*, *6*(2), 158–173. https://doi.org/10.37284/eajass.6.2.1466

Fa, J. E., & Luiselli, L. (2024). Community forests as beacons of conservation: Enabling local populations monitor their biodiversity. *African Journal of Ecology*, *62*(1). https://doi.org/10.1111/aje.13179

Gatiso, T. T. (2019). Households’ dependence on community forest and their contribution to participatory forest management: evidence from rural Ethiopia. *Environment, Development and Sustainability*, *21*(1), 181–197. https://doi.org/10.1007/s10668-017-0029-3

Ghorbani, M., Eskandari-Damaneh, H., Cotton, M., Ghoochani, O. M., & Borji, M. (2021). Harnessing indigenous knowledge for climate change-resilient water management–lessons from an ethnographic case study in Iran. *Climate and Development*, *13*(9), 766–779. https://doi.org/10.1080/17565529.2020.1841601

Gicheru, M. N., Mwenda, M. J., & Omwami, D. O. (2024). Gender and Climate Change: The Role of Women in Climate Change Processes. *Asian Journal of Geographical Research*, *7*(1), 13–23. https://doi.org/10.9734/ajgr/2024/v7i1210

Huyer, S., & Partey, S. (2019). Weathering the storm or storming the norms? Moving gender equality forward in climate-resilient agriculture. *Climatic Change*. https://doi.org/10.1007/s10584-019-02612-5

Judith, I. N., Michael, O., & Elizabeth, K.-B. (2019). Theoretical and conceptual framework for gender analysis of attitudes and adaptation mechanisms to climate change for sustainable livelihoods in Uganda. *Journal of African Studies and Development*, *11*(4), 51–58. https://doi.org/10.5897/jasd2019.0532

Kahsay, G. A., Nordén, A., & Bulte, E. (2021a). Women participation in formal decision-making: Empirical evidence from participatory forest management in Ethiopia. *Global Environmental Change*, *70*. https://doi.org/10.1016/j.gloenvcha.2021.102363

Kahsay, G. A., Nordén, A., & Bulte, E. (2021b). Women participation in formal decision-making: Empirical evidence from participatory forest management in Ethiopia. *Global Environmental Change*, *70*. https://doi.org/10.1016/j.gloenvcha.2021.102363

Kimutai, D. K., & Watanabe, T. (2016). Forest-cover change and participatory forest management of the lembus forest, Kenya. *Environments - MDPI*, *3*(3), 1–18. https://doi.org/10.3390/environments3030020

Kothari, C. R. . (2004). *Research methodology : methods & techniques*. New Age International (P) Ltd.

Lecoutere, E., Mishra, A., Singaraju, N., Koo, J., Azzarri, C., Chanana, N., Nico, G., & Puskur, R. (2023). Where women in agri-food systems are at highest climate risk: a methodology for mapping climate–agriculture–gender inequality hotspots. *Frontiers in Sustainable Food Systems*. https://doi.org/10.3389/fsufs.2023.1197809

Mbeche, R., Ateka, J., Herrmann, R., & Grote, U. (2021a). Understanding forest users’ participation in participatory forest management (PFM): Insights from Mt. Elgon forest ecosystem, Kenya. *Forest Policy and Economics*, *129*. https://doi.org/10.1016/j.forpol.2021.102507

Mbeche, R., Ateka, J., Herrmann, R., & Grote, U. (2021b). Understanding forest users’ participation in participatory forest management (PFM): Insights from Mt. Elgon forest ecosystem, Kenya. *Forest Policy and Economics*, *129*. https://doi.org/10.1016/j.forpol.2021.102507

Mbeche, R., Ateka, J., Herrmann, R., & Grote, U. (2021c). Understanding forest users’ participation in participatory forest management (PFM): Insights from Mt. Elgon forest ecosystem, Kenya. *Forest Policy and Economics*, *129*. https://doi.org/10.1016/j.forpol.2021.102507

Mees, H. L. P., Uittenbroek, C. J., Hegger, D. L. T., & Driessen, P. P. J. (2019). From citizen participation to government participation: An exploration of the roles of local governments in community initiatives for climate change adaptation in the Netherlands. *Environmental Policy and Governance*, *29*(3), 198–208. https://doi.org/10.1002/eet.1847

Merid, T. (2025). Indigenous knowledge of forest management among the Gedeo of Southern Ethiopia. African Study Monographs, 45, 1–23. https://doi.org/10.14989/XXXXXX (Insert correct DOI if available)

Mohamed, M. K., Adam, E., & Jackson, C. M. (2023). The Spatial and Temporal Distribution of Mangrove Forest Cover from 1973 to 2020 in Chwaka Bay and Menai Bay, Zanzibar. *Applied Sciences (Switzerland)*, *13*(13). https://doi.org/10.3390/app13137962

Munaretto, S., Siciliano, G., & Turvani, M. E. (2014). Integrating adaptive governance and participatory multicriteria methods: A framework for climate adaptation governance. *Ecology and Society*, *19*(2). https://doi.org/10.5751/ES-06381-190274

Musyoki, J. K., Mugwe, J., Mutundu, K., & Muchiri, M. (2016). Factors influencing level of participation of community forest associations in management forests in Kenya. *Journal of Sustainable Forestry*, *35*(3), 205–216. <https://doi.org/10.1080/10549811.2016.1142454>

Mbunda, K. A. (2024). Saving and Credit Cooperatives Services and Socio-economic Empowerment of Women in Temeke Municipality, Tanzania East African Journal of Interdisciplinary Studies, 7(1), 53-63. <https://doi.org/10.37284/eajis.7.1.1887>.

Mbunda, K. A., Ndunguru, F. E., & Utonga, D. (2024). Factors Influencing Men's Participation in Seaweed Farming in Zanzibar, Tanzania: An Empirical Analysis Using a Logit Model. Advanced Research in Economics and Business Strategy Journal, 5(2). 31-47. https://doi.org/10.52919/arebus.v5i02.62

Nyasimi, M., Ayanlade, A., Mungai, C., Derkyi, M., & Jegede, M. O. (2018). Inclusion of gender in Africa’s climate change policies and strategies. In *Climate Change Management* (pp. 171–185). Springer. https://doi.org/10.1007/978-3-319-69838-0\_11

Ofoegbu, C., & Ifejika Speranza, C. (2017). Assessing rural peoples’ intention to adopt sustainable forest use and management practices in South Africa. *Journal of Sustainable Forestry*, *36*(7), 729–746. https://doi.org/10.1080/10549811.2017.1365612

Ombogoh, D. B., Mwangi, E., & Larson, A. M. (2022). Community participation in forest and water management planning in Kenya: challenges and opportunities. *Forests Trees and Livelihoods*, *31*(2), 104–122. https://doi.org/10.1080/14728028.2022.2059790

Paudel, N. S., Khatri, D. B., Ojha, H., Karki, R., & Gurung, N. (2013). Integrating Climate Change Adaptation with Local Development: Exploring Institutional Options. *Journal of Forest and Livelihood*, *11*(1), 1–13. https://doi.org/10.3126/jfl.v11i1.8606

Pérez, C., Jones, E. M., Kristjanson, P. M., Cramer, L., Thornton, P. K., Förch, W., & Barahona, C. (2015). How resilient are farming households and communities to a changing climate in Africa? A gender-based perspective. *Global Environmental Change-Human and Policy Dimensions*. https://doi.org/10.1016/j.gloenvcha.2015.06.003

Said, M., & Misana, S. (2023). Does institutionalisation of community participation promise sustainability in governance of community forests? *Journal of the geographical association of Tanzania*, *43*(2), 24–46. https://doi.org/10.56279/jgat.v43i2.228

Sandelowski, M. (1995). Focus on Qualitative Methods Sample Size in Qualitative Research. In *Research in Nursing & Health* (Vol. 18).

Somekh, Bridget. (2006). *Action research: a methodology for change and development*. Open University Press.

Tadesse, S., Woldetsadik, M., & Senbeta, F. (2017). Forest users’ level of participation in a participatory forest management program in southwestern Ethiopia. *Forest Science and Technology*, *13*(4), 164–173. https://doi.org/10.1080/21580103.2017.1387613

Tesfaye, M., Manaye, A., Tesfamariam, B., Mekonnen, Z., Eshetu, S. B., Löhr, K., & Sieber, S. (2022). Contribution of dry forests and forest products to climate change adaptation in Tigray Region, Ethiopia. Forests, 13(12), 2026. https://doi.org/10.3390/f13122026

*Tracy, S. J. (2020). Qualitative research methods: Collecting evidence, crafting analysis, communicating impact (2nd ed.). Wiley.*

Troxler, D., & Zabel, A. (2021). Clearing forests to make way for a sustainable economy transition in Switzerland. *Forest Policy and Economics*, *129*. https://doi.org/10.1016/j.forpol.2021.102511

UNFCCC. (2022). Dimensions and examples of the gender-differentiated impacts of climate change, the role of women as agents of change and opportunities for women. *United Nations*, *08258*(June), 1–20. https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx

Waaswa, A., Nkurumwa, A. O., Kibe, A. M., & Kipkemoi, N. J. (2021). Communicating climate change adaptation strategies: climate-smart agriculture information dissemination pathways among smallholder potato farmers in Gilgil Sub-County, Kenya. *Heliyon*. https://doi.org/10.1016/j.heliyon.2021.e07873

Wamsler, C. (2016). From Risk Governance to City–Citizen Collaboration: Capitalizing on individual adaptation to climate change. In *Environmental Policy and Governance* (Vol. 26, Issue 3, pp. 184–204). John Wiley and Sons Ltd. https://doi.org/10.1002/eet.1707

Yami, M., & Mekuria, W. (2022). Challenges in the Governance of Community-Managed Forests in Ethiopia: Review. In *Sustainability (Switzerland)* (Vol. 14, Issue 3). MDPI. https://doi.org/10.3390/su14031478

Zahor, Z. (2021). The Role of Participatory Geographic Information Systems in Conflict Resolution: A Case Study of Ngezi Forest in Pemba, Zanzibar. In *Tanzanian Journal of Population Studies and Development* (Vol. 28, Issue 1).