

Perceived Benefits and Challenges of Grassroots Involvement in Forest Resource Management at Kalinzu Central Forest Reserve.

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ABSTRACT

Grassroots involvement in forest resource management is widely recognised as essential for ensuring sustainability, accountability, and equitable benefit sharing. This study focused on Kalinzu Central Forest Reserve (KCFR) in Uganda. The main aim of this paper is **to uncover the perceived benefits and challenges of grassroots involvement in forest resource management at KCFR**. The research adopted a qualitative cross-sectional case study design guided by narrative inquiry. Data was collected from 27 respondents, including community members, leaders, and National Forestry Authority (NFA) officials. The study revealed the main benefits as alternative livelihoods (beekeeping and ecotourism), strengthened community ownership (Mindset change), enhanced biodiversity conservation, and greater social equity yet significantly constrained by challenges such as unequal access to benefits, weak institutional support, communication gaps, poverty-driven resource pressure, human-wildlife conflicts, and bureaucratic inefficiencies.

Keywords: Grassroots, Forest Resources, Forest Resource Management, Collaborative Forest Resource Management, Central Forest Reserve.



Abbreviations.

B4R - Biodiversity for Conservation

CBD - Convention for Biological Diversity

CBFM - Community-Based Forest Management

CBNRM - Community-Based Natural Resource Management

CBO - Community-Based Organization

CFM - Collaborative Forest Management

DFO - District Forest Officer

DNRO - District Natural Resource Officer

IDI - In-depth Interviews

IKS - Indigenous Knowledge Systems

KCFR - Kalinzu Central Forest Reserve

KII - Key Informant Interviews

LC - Local Council

MoWE - Ministry of Water and Environment

NFA - National Forestry Authority

NFTPA - National Forestry and Tree Planting Act

NGO - Non-Government Organisation

QENP - Queen Elizabeth National Park

RDC - Resident District Commissioner

SDGs - Sustainable Development Goals

TEC - Traditional Ecological Knowledge

UPDF - Uganda People's Defense Forces

WWF – World Wide Fund for Nature

INTRODUCTION

Forest resource management has evolved over time from simple exploitation to more complex and sustainable approaches. Early civilizations in Mesopotamia, developed basic forest-use regulations to ensure the availability of timber and fuelwood (Farrell et al., 2000). In Europe, the Middle Ages saw the establishment of royal reserves, which laid foundations for the modern concept of forest protection (Holmes, 1975). With industrialization in the 18th and 19th centuries, deforestation accelerated, sparking the need for conservation movements that emerged strongly in the 20th century.

Across Africa, forest resource management has increasingly integrated community-based approaches to address the dual challenges of conservation and livelihood security. In countries like Tanzania, community-based forest management (CBFM) has emerged as a powerful paradigm, devolving authority to local communities to co-manage forests and share benefits (Wily, 2000; Mgaya, 2020). Zimbabwe's CAMPFIRE programme pioneered wildlife-centered benefit-sharing approaches in the 1980s, influencing natural resource management models continent-wide (Chabala, 2004). These approaches recognize that local participation not only reduces enforcement costs but also fosters ownership and stewardship. Recent African forest policies increasingly emphasize decentralization, participatory governance, and the incorporation of Indigenous Knowledge Systems (IKS) to promote long-term sustainability (Ogwu et al., 2023; Mawa et al., 2022).

In Uganda, forests are a cornerstone of both ecological sustainability and community livelihoods, providing timber, charcoal, non-timber forest products, and ecosystem services such as carbon sequestration (Somorin, 2010). Yet the country faces alarming rates of deforestation, driven largely by agricultural expansion, charcoal

production and fuelwood, and illegal logging (Nsita et al., 2017). The National Forestry Authority (NFA) estimates that forest cover declined from 39.5% to 29.8% in the last three decades (NFA, 2019).

This decline not only threatens biodiversity but also undermines the livelihoods of millions who depend on forest resources daily. National policies, including the National Forestry and Tree Planting Act and collaborative forest management agreements, have sought to decentralize management and involve local communities. However, challenges such as limited capacity, weak enforcement, and competing land-use pressures continue to impede progress (Achiso, 2020). The Kalinzu Central Forest Reserve (KCFR) located in Bushenyi and Rubirizi districts, is ecologically significant, hosting rich biodiversity, medicinal plants, and serving as a buffer for Queen Elizabeth National Park (Kazooru et al., 2020). The forest also sustains local communities who rely on it for firewood, herbal medicine, small-scale harvesting of non-timber products and Ecotourism (Vise, 2019). However, pressures from encroachment, illegal logging, and agricultural expansion have put KCFR at risk (NFA, 2019). Grassroots involvement is therefore critical, since local communities possess valuable ecological knowledge, proximity for monitoring, and a vested interest in balancing conservation with livelihood needs (Melubo, 2023).

Conceptual definitions.

Grassroots Involvement in forest resource management refers to the active participation of the local communities, indigenous peoples, and other stakeholders in the decision-making process regarding the management and conservation of forests (Haji et al., 2020).

Forest resources are tangible and intangible products and services derived from forests that support ecological balance, economic activities, and human well-being

Forest Resource Management refers to the sustainable planning, organization, and control of forest resources to achieve specific goals and objectives.

Forest Management entails maintaining ecosystem health and biodiversity, providing timber and other forest products, supporting recreation and ecotourism activities, protecting water and soil quality, ensuring social and economic benefits for forest-adjacent communities, and mitigating climate change (Haji et al., 2020).

Collaborative Forest Management (CFM) is an approach where government responsible body, particularly the National Forestry Authority (NFA), partner with forest adjacent local communities and other stakeholders in managing forest resources under a legally signed agreement (NFTPA, 2024).

A **Central Forest Reserve** (CFR) is a legally protected forest area under Gazette, managed by the Ugandan government under the Ministry of Water and Environment (MoWE) through the Department of Forestry Management formerly National Forestry Authority (NFA) (NFTPA, 2024).

Framework relevance.

The study was grounded in the **Community-Based Natural Resource Management (CBNRM) Framework**. It posits that local communities, when empowered to actively participate in the management and decision-making processes of natural resources, they develop a stronger sense of ownership, responsibility, and stewardship, leading to more sustainable, equitable, and effective conservation outcomes (Wasonga et al., 2010; Senecah, 2024). CBNRM emphasizes the importance of devolving authority from central government to local users, integrating indigenous and traditional ecological knowledge, ensuring equitable benefit-sharing, and building inclusive governance structures. It argues that top-down approaches often fail due to lack of local support, while community-driven management enhances compliance, reduces enforcement costs, and improves long-term resource sustainability. In relation to Perceived Benefits and Challenges of Grassroots Involvement in Forest Resource Management at Kalinzu Central Forest Reserve, the CBNRM framework provides a relevant analytical lens to examine how institutional frameworks, governance structures, and community participation influence forest resource management at KCFR. It helps to explain why active grassroots involvement through Collaborative Forest Management (CFM) leads to benefits such as strengthened ownership, livelihood

diversification, and improved conservation outcomes, while also accounting for challenges like power imbalances, elite capture, inadequate benefit-sharing, and weak institutional support.

METHODOLOGY

The study employed qualitative design, underpinned by narrative inquiry, to explore the perceived benefits and challenges of grassroots involvement in forest resource management at Kalinzu Central Forest Reserve (KCFR). We facilitated in-depth understanding of stakeholders lived experiences (Cohen et al., 2017; Dehalwar, 2024). Guided by the principles of Community-Based Natural Resource Management (CBNRM), the design was particularly suited to capturing perceptions regarding benefit-sharing, stewardship, livelihood diversification, and barriers such as elite capture, human-wildlife conflict, and governance inefficiencies in the context of KCFR.

Study population

The study population comprised actors directly engaged with Kalinzu Central Forest Reserve (KCFR) in governance, use, or support roles. It included National Forestry Authority staff (Sector/Field Managers, supervisors, and patrol rangers); members of Collaborative Forest Management groups and related community-based organizations; forest-adjacent households with active use or stewardship roles; District Local Government officials involved in forestry (e.g., District Forestry and Natural Resources officers, sub-county leaders); relevant NGOs implementing conservation or livelihood projects; and administrators responsible for institutional policies affecting KCFR. Geographically, the population was drawn from Rutoto, Nyabubare, and Kyamuhunga sub-counties and nearby parishes in Bushenyi and Rubirizi. Eligibility focused on adults with active forest-related involvement within the past 12 months. The unit of analysis was the individual actor, with deliberate inclusion of women and youth to capture diverse participation experiences.

Sample size determination

Given the qualitative, narrative-inquiry design and the study's narrow aim (determinants of grassroots participation in KCFR), a small, information-rich sample was appropriate. A total of 27 respondents were ultimately engaged across multiple stakeholder categories, as detailed in *Table 1*. This sample size was determined through iterative purposive selection guided by the principle of information power, balancing depth of insight with practical constraints of access and saturation. Participants were drawn from three sub-counties (Rutoto, Nyabubare, and Kyamuhunga) and adjacent areas to capture maximum variation across the core governance interfaces of KCFR: state management (NFA staff), community users (CFM/CBO members), and decentralized oversight (district and local government officials), as well as supporting NGO actors. Depth of interviewing, role centrality of selected participants, and triangulation with documents and field notes provided sufficient information power for credible thematic inference, prioritising depth over breadth. Recruitment continued until accounts converged and no substantive new themes emerged during analysis, confirming adequacy of the sample.

Respondent type	Targeted	Number	Type of interview
NFA Sector Manager	01	01	KII
NFA forest supervisors	04	02	KII
NFA patrolmen	06	05	KII
LC 5	02	01	KII
DNRO	02	02	KII
DFO	02	02	KII
RDC	02	02	KII
CFM/ CBO Members	12	10	IDI
NGOs	03	02	KII
Total	34	27	

Table 1. Respondent categories.

Inclusion Criteria

To be eligible for participation in the study, individuals were required to meet the following inclusion criteria: they had to be actively involved in grassroots forest resource management within Kalinzu CFR, particularly in the surrounding regions of Bushenyi and Rubirizi Districts at the time of this research, and they had to demonstrate a willingness to participate in interview sessions. This criterion ensured that participants possessed firsthand experience and insights pertinent to forest resource management in the area, thereby enhancing the depth and relevance of the study's findings (Marques et al., 2020).

Community members neighboring Kalinzu CFR were included only if they were members of the Community-Based Organizations (CBOs) in the selected areas of Kyamuhunga, Nyabubare, Rutoto, and Ryeru sub-counties.

Exclusion criteria

Participants were excluded if they declined or withdrew consent; were under 18 years; lacked active engagement with KCFR activities in the previous 12 months (e.g., no involvement in CFM/CBOs, NFA operations, or district forestry roles); were unable to provide informed consent due to illness or cognitive impairment; could not participate in English or Runyankore without an interpreter; had a conflict of interest likely to inhibit open responses (such as direct supervisory authority over other participants); were unavailable within the data-collection window or missed scheduled interviews repeatedly; refused audio recording where required; or posed safety or security risks to themselves or the research team.

These criteria safeguarded voluntary participation, data quality, and respondent safety, while ensuring that included participants had recent, substantive experience relevant to grassroots involvement in KCFR.

Sampling technique and participant recruitment

The study employed stratified purposive sampling to ensure representation of the principal actor categories interfacing with Kalinzu Central Forest Reserve, as reflected in *Table 1*. Strata were defined according to institutional role and proximity to the reserve: National Forestry Authority personnel (Sector/Field Manager, forest supervisors, and patrol rangers), Collaborative Forest Management (CFM) and Community-Based Organisation (CBO) members, District Local Government officials (including District Natural Resources Officers, District Forest Officers, Local Council 5, and Resident District Commissioners), and relevant Non-Governmental Organisation staff implementing conservation or livelihood projects in the area.

Within each stratum, participants were selected on the basis of active engagement with KCFR activities in the preceding 12 months, demonstrated knowledge of forest governance or use, and willingness to provide detailed narrative accounts. For the community stratum, snowball (peer-referral) techniques were additionally employed to identify the most knowledgeable and actively engaged CFM/CBO leaders and members, recognising that participation networks in rural settings are often informal and relational.

Initial mapping of stakeholders was facilitated through introductory meetings with NFA field staff, sub-county leaders, and existing CFM group executives, after which eligible individuals were approached. Recruitment involved face-to-face invitations, explanation of the study purpose and procedures in the preferred language (English or Runyankore) and obtaining written or verbal informed consent before scheduling interviews.

This process yielded the final sample of 27 participants (out of 34 targeted), comprising both Key Informant Interviews (KIIs) with institutional actors and In-depth Interviews (IDIs) with community members, thereby aligning the sampling procedure with the distribution reported in Table 1 while maximising information richness across governance, livelihood, and support roles.

Data analysis

Qualitative data were analysed using thematic analysis following the six-phase process outlined by Braun and Clarke (2006). All audio recordings were transcribed verbatim; Runyankore portions were translated into English by bilingual research assistants and subsequently verified by the research team for accuracy of meaning.

Transcripts were read repeatedly for familiarisation, during which initial analytic memos were recorded, inductive, line-by-line coding was undertaken in NVivo 10.

An iteratively refined codebook was developed, containing code labels, operational definitions, and explicit inclusion/exclusion rules to ensure consistency. Related codes were collated into candidate themes through constant comparison, candidate themes were reviewed against the entire data set and refined for internal homogeneity and external heterogeneity, themes were clearly defined, named, and illustrated with representative quotations selected for their illustrative power and diversity of voice. Sixth, the final thematic structure was mapped explicitly onto the study's dual objectives (perceived benefits and challenges) to organise the presentation of findings.

NVivo case classifications and matrix-coding queries facilitated systematic comparison across actor strata (NFA personnel, CFM/CBO members, district officials, and NGO staff). Documentary sources (CFM agreements, NFA reports, and field notes) were coded in a separate source folder to support methodological triangulation. Trustworthiness was enhanced through a comprehensive audit trail (analytic memos, successive codebook versions, and node summary reports), reflexive journaling of researcher positionality and assumptions, periodic peer debriefing sessions, deliberate searches for negative or discrepant cases, and independent verification of translations prior to coding.

Given the focused, information-rich sample and the attainment of thematic saturation, information power was judged sufficient for credible and transferable thematic inference.

Ethical considerations were rigorously observed, including approval from Mbarara University of Science and Technology's Research Ethics Committee, informed consent, voluntary participation, and confidentiality safeguards, in line with established standards for research involving human participants in natural resource governance.

FINDINGS AND DISCUSSIONS

Benefits of grassroots involvement in KCFR management.

Access to Alternative Livelihoods.

Grassroots involvement in the management of Kalinzu Central Forest Reserve (KCFR) is instrumental in

facilitating access to alternative livelihood opportunities, improving synergistic relationships between conservation imperatives and local economic resilience.

Through Collaborative Forest Management (CFM) frameworks and partnerships with NGOs such as B4R and WWF, community members have engaged in diversified income-generating activities including beekeeping, fish farming, craft-making, energy saving stoves and goat rearing. These initiatives help in generating supplemental household income hence strategically diminishing direct dependency on extractive forest resources, such as unregulated firewood collection and timber harvesting.

Participants consistently articulated that such engagements enhanced household welfare by providing stable revenue streams that buffer against seasonal agricultural vulnerabilities and market fluctuations, as it simultaneously reinforces conservation objectives. This alignment exemplifies the core tenets of Community-Based Natural Resource Management (CBNRM) framework, where empowered local stewardship translates into tangible incentives for sustainable resource use.

"Before the beekeeping project started, we often found ourselves relying on the forest for wood and other materials. This led to overharvesting, and we worried about losing our natural resources. Now, with the training and support we have received, I can manage my beehives and sell honey at the local market. It is not just a source of income; it makes me feel proud to contribute to the protection of our forests. We have learned that

by caring for these areas, we also care for our livelihoods, and that has made a real difference in our community." (IDI 002, Rutoto)

The efficacy of these alternative livelihood pathways extends beyond immediate economic gains to broader socio-ecological transformations within KCFR-adjacent communities. This reduces pressure on high-value species like *Warburgia ugandensis* and *Prunus africana*, as well as contributing to measurable improvements in forest regeneration, biodiversity conservation, and ecosystem service provision, including carbon sequestration and watershed protection.

However, the realization of these benefits is mediated by institutional enablers, including equitable access to CFM negotiated resources and sustained NGO-government collaboration, which mitigate risks of elite capture and ensure inclusive participation, particularly among the vulnerable groups (women and youth).

Evidence from KCFR emphasize that livelihood diversification is effectively linked to transparent benefit-sharing mechanisms where communities exhibit heightened stewardship, lower incidences of illegal logging, and strengthened social cohesion.

This not only advances sustainable forest resource management but also positions grassroots involvement as a critical lever for achieving Uganda's National forestry goals under the National Forestry and Tree Planting Act (2003) and the Sustainable Development Goals (SDGs), while offering a replicable model for reconciling conservation with poverty alleviation in tropical forest landscapes.



Plate1. A plate showing community Members showcasing products as gained through collaborative forest management.



Plate 2. A plate showing some of the bee hives that have been set up by CFMs in KCFR.

Strengthened Community Ownership and Stewardship.

Participation in Collaborative Forest Management (CFM) structures at Kalinzu Central Forest Reserve (KCFR) has demonstrably cultivated a profound sense of community ownership and stewardship among grassroots actors, transforming passive resource users into active custodians of the forest ecosystem.

Respondents emphasised that direct engagement in joint patrols, boundary demarcation, and participatory decision-making processes fosters a psychological and social shift, encapsulated in narratives such as *“being involved... makes us feel that the forest is ours, and we must protect it.”*

This heightened proprietary enhances intrinsic motivation for conservation and operationalizes collective responsibility through routine monitoring and peer enforcement mechanisms.

Embedding local communities in governance arrangements under the National Forestry and Tree Planting Act (2003), this involvement aligns with the foundational principles of Community-Based Natural Resource Management (CBNRM), wherein devolved authority and shared decision rights generate endogenous incentives for sustainable behavior.

The resultant stewardship manifests in improved compliance with harvesting regulations, proactive reporting of illegal activities, and voluntary contributions to restoration efforts, thereby reducing enforcement costs for the National Forestry Authority (NFA).

This strengthened ownership further yields benefits for governance legitimacy and long-term sustainability in KCFR. When communities perceive forests as common-pool resources under their co-management, social norms evolve to prioritize collective welfare over individualistic extraction, mitigating phenomena such as the “tragedy of the commons” through internalized accountability.

Accounts from KCFR reveal that this sense of stewardship correlates with reduced encroachment, enhanced conflict resolution at the local level, and greater integration of Traditional Ecological Knowledge (TEK) into formal management plans. However, the durability of these gains hinges on transparent benefit-sharing and consistent institutional support to prevent disillusionment arising from power asymmetries or unfulfilled expectations.



Plate 3. A plate showing CFM members after their monthly meeting.

Improved Social and Economic Well-Being.

Grassroots involvement in the management of Kalinzu Central Forest Reserve (KCFR) has significantly contributed to improved social and economic well-being among adjacent communities by linking conservation efforts to tangible enhancements in living standards and human capital development.

Participants frequently reported that collaborative initiatives, facilitated through partnerships with NGOs and government agencies, have delivered critical social infrastructure such as water harvesting tanks, classroom blocks, and energy-saving stoves.

These interventions directly alleviate household burdens related to water scarcity, education access, and fuelwood dependency, thereby elevating overall quality of life while reducing pressure on forest resources.

Engagement in ecotourism activities such as serving as local guides for visitors to KCFR has generated supplementary income streams and promoted skill acquisition in hospitality, guiding, and cultural interpretation.

"I truly enjoyed the experience of earning income as a research assistant for chimpanzee habituation. It not only provided me with financial stability but also enabled me to deepen my understanding of wildlife conservation. I believe this experience beautifully illustrates the close intertwining of economic support and educational empowerment. Being out in the field, watching the chimps and learning about their behaviors, made me realize how important our work is for both the animals and our planet. It was gratifying to contribute to such meaningful research while also strengthening my financial stability." (IDI 008, Kyamuhunga)

"Becoming a tour guide at the Kalinzu Ecotourism Centre opened my eyes to the forest's true value; every tree and animal is precious. Guiding tourists along the chimpanzee trails and performing in our drama group for campers brings me income and pride. The money we earn supports our village, motivating us to stop poaching and keep the Kalinzu Central Forest Reserve thriving. It is not just a job; it is our commitment to protect this forest for the future." (IDI 011, RYERU)

This diversification not only bolsters household economic resilience but also incentivizes the preservation of the forest as an asset for sustained tourism revenue. Such outcomes resonate strongly with the Community-Based Natural Resource Management (CBNRM), which suggests that integrating livelihood improvements with conservation fosters mutual reinforcement between community welfare and ecological integrity.

Beyond immediate material gains, there are tangible improvements in social and economic well-being which have reinforced broader processes of empowerment, social cohesion, and adaptive capacity within KCFR-adjacent communities.

The acquisition of transferable skills through ecotourism and related enterprises enhances long-term employability and entrepreneurial potential, positioning communities to navigate external shocks such as climate variability or market disruptions. The sustainability of these benefits depends on equitable benefit-sharing mechanisms, consistent funding, and effective market linkages to prevent elite capture and ensure wide-reaching impacts.



Plate 4. A plate showing community members aiding eco-tourists.

Enhanced Environmental Outcomes.

Community-led initiatives under grassroots involvement frameworks at Kalinzu Central Forest Reserve (KCFR) have yielded tangible and measurable enhancements to the ecological integrity of the reserve.

Participants highlighted that active participation in forest patrols and tree planting programs has substantially curtailed illegal logging while promoting reforestation efforts, resulting in improved forest cover and greater biodiversity conservation. These on-the-ground actions, often coordinated through Collaborative Forest Management (CFM) structures, leverage local proximity and knowledge to enable timely detection and deterrence of encroachments, thereby complementing the enforcement capacities of the Government responsible body.

"Previously, we believed the forest existed solely for our exploitation, gathering firewood, timber, and other resources. However, when World Bank provided us with 1000 beehives and demonstrated how to produce charcoal briquettes from waste, our perspective shifted completely. Currently, during bi-monthly joint patrols with the NFA, we report illegal activities, such as when we apprehend individuals harvesting timber. They relinquished their tools and were subject to fines, which made us feel acknowledged. In our awareness sessions, we articulate our concerns, and they consider them. This initiative has significantly improved our livelihoods; my bees generate income, and the forest has become a resource we are committed to safeguarding." (IDI 004, Nyabubare)

Local observations further documented secondary ecological benefits, including healthier forest stands, reduced soil erosion, stabilized watersheds, and enhanced protection for wildlife populations.

These environmental gains extend beyond localized improvements to support broader ecosystem services and long-term resilience in the face of anthropogenic and climatic pressures. Integrating indigenous ecological knowledge with formal monitoring protocols, community involvement has facilitated adaptive management responses such as targeted restoration of degraded areas and protection of keystone species that contribute to habitat connectivity with adjacent protected areas like Queen Elizabeth National Park (QENP).

The observed reductions in illegal activities and improvements in forest condition not only mitigate biodiversity loss but also boost carbon sequestration potential and regulatory compliance with national and international commitments, including the Convention of Biological Diversity (CBD).



Plate 5. A plate showing a degraded part of the forest 3 years ago (2022)



Plate 6. A plate showing the restored part of the previously degraded forest after 3 years (2025)

Social Equity and Inclusion.

Grassroots engagement in the management of Kalinzu Central Forest Reserve (KCFR) has played a pivotal role in advancing social equity and inclusion by creating structured opportunities for historically marginalized groups, particularly women and youth, to participate meaningfully in conservation and decision-making processes.

Through Collaborative Forest Management (CFM) platforms and associated livelihood initiatives, these groups have gained access to income-generating activities, leadership positions within community structures, and increased visibility in forest governance activities. This shift disrupts traditional male-dominated hierarchies, enabling women and youth to contribute their perspectives on resource use, benefit distribution, and local priorities. Such inclusion not only distributes the costs and benefits of conservation more equitably but also enriches management outcomes by incorporating diverse knowledge systems and needs.

This is consistent with broader CBNRM principles, which emphasize that meaningful participation of underrepresented voices strengthens the legitimacy, relevance, and long-term viability of natural resource governance arrangements.

The empowerment fostered through these processes has generated wider ripple effects on social cohesion, gender relations, and community resilience in KCFR-adjacent areas by providing avenues for skill development, income independence, and public leadership, grassroots involvement has enhanced the agency of women and youth, enabling them to negotiate better terms within household and community spheres while advocating for gender-sensitive conservation strategies.

These changes help mitigate intra-community inequities that often undermine collective action in forest management. However, the depth of inclusion remains contingent upon deliberate institutional measures such as quotas in CFM committees, targeted capacity-building, and monitoring of participation barriers to prevent tokenistic engagement.

DISCUSSIONS

The findings indicate that grassroots involvement in KCFR management produces significant socio-economic, environmental, and governance benefits. Access to alternative livelihoods reduces reliance on forest resources, aligning household welfare with conservation goals. Active participation in CFM structures enhances community ownership and accountability, motivating adherence to regulations.

Engagement in projects and ecotourism initiatives improves social and economic well-being, while community-led environmental programs strengthen forest health and biodiversity. Moreover, inclusive participation ensures that marginalized groups, including women and youth, benefit from decision-making and resource access, promoting social cohesion. Areas with active CFM groups and robust NGO or governmental support experienced the most pronounced benefits, illustrating the importance of institutional facilitation.

These results are consistent with the Community-Based Natural Resource Management (CBNRM) framework, which posits that community participation yields both ecological and socio-economic gains (Wasonga et al., 2010). Livelihood diversification through beekeeping, fish farming, and other activities reduces forest dependency, echoing Essoungong et al. (2019), who emphasise that income diversification is critical for sustainable forest management across African and Asian community forestry contexts.

In the Ugandan setting, Mawa et al. (2022) documented improved livelihood outcomes following two decades of co-management in a state forest, while Kabonesa et al. (2021) observed that when communities perceive forests as shared assets, they are more likely to engage in conservation practices that closely mirror KCFR respondents' emphasis on stewardship and compliance. Parallel experiences from Tanzania's community-based forest management (CBFM) programmes demonstrate that devolved authority and benefit-sharing similarly foster local ownership and reduce enforcement costs (Wily, 2000; Mgaya, 2020).

Grassroots involvement also improves social infrastructure and well-being, supporting Dawson et al. (2021), who argue that linking conservation with tangible community benefits enhances both motivation and commitment. Environmental benefits, such as increased forest cover and reduced illegal logging, align with Haji et al. (2020) and with broader evidence from sub-Saharan Africa that community-led monitoring and tree-planting interventions improve ecological outcomes (Duguma et al., 2018).

Comparable gains in forest condition have been reported under collaborative arrangements in Nepal and other developing-country settings (Devkota, 2019; Adhikari et al., 2020), reinforcing the transferability of these positive effects when institutional support is present. Social equity and inclusion emerged as key benefits, with women and youth gaining roles previously inaccessible to them.

This finding supports Nandigama (2020), who highlighted that inclusive engagement strengthens both governance and conservation effectiveness in participatory forest management in India, and resonates with gender-focused analyses of forest access in Zambia and elsewhere in southern Africa (Chabala, 2004). Overall, the KCFR experience confirms that benefits are maximised when institutional support through active CFM groups, NGOs, and sustained government facilitation is consistently available, a condition also identified as critical in reviews of collaborative forest management in Uganda (Blomley & Namara, 2020).

Challenges of grassroots involvement in KCFR management.

Unequal Access to Benefits and Participation.

A prominent challenge to effective grassroots involvement in Kalinzu Central Forest Reserve (KCFR) management is the unequal distribution of benefits and opportunities for participation, which undermines the inclusivity and overall legitimacy of Collaborative Forest Management (CFM) initiatives. Respondents repeatedly observed that resources such as training programs, beehives, seedlings, and other livelihood support are disproportionately channeled to individuals and households formally affiliated with CFM groups, leaving non-affiliated community members systematically excluded.

This selective access creates a two-tiered system of engagement, where proximity to formal structures determines one's ability to derive economic or material gains from forest-related programs. Such disparities not only exacerbate existing socio-economic inequalities but also generate resentment among excluded segments, eroding the broader community buy-in essential for collective stewardship.

"It is deeply frustrating that only those in CFM groups get access to beehives, seedlings, or any training around the Kalinzu Central Forest Reserve. For those of us outside these groups, we are left with nothing, no alternative livelihoods, no support to move away from charcoal burning or other unsustainable practices. This exclusion creates a divide in our community, where some thrive with new opportunities while others, like me, are stuck relying on the forest in ways that harm it. The NFA needs to bridge this gap and ensure everyone, not just CFM members, gets a fair chance to benefit from conservation programs and build a sustainable future," (IDI 006, Nyabubare)

The resulting fragmentation weakens the potential of grassroots involvement to deliver widespread conservation and development outcomes. Feelings of marginalization reduce the willingness of non-CFM members to support enforcement efforts or adhere to sustainable harvesting norms, thereby diminishing the overall effectiveness of community-based monitoring and increasing the risk of leakage where conservation pressures are simply displaced to less-organized areas.

This challenge is compounded by limited awareness and bureaucratic hurdles that restrict entry into CFM groups, further entrenching exclusion along lines of gender, wealth, social networks, or geographic proximity to the reserve.



Plate 7. A plate showing apprehended members of the community undertaking illegal activities.

Inadequate Access to Information and Communication Gaps.

Inadequate access to timely and accessible information represents a significant structural barrier to meaningful grassroots involvement in the management of Kalinzu Central Forest Reserve (KCFR). Participants frequently reported that many community members remain unaware of key forest regulations, their rights and responsibilities under Collaborative Forest Management (CFM) agreements, and the procedural steps required to join formal community structures.

"It is incredibly disheartening that so many in our community, especially here in Kayanga Village, are left in the dark about sustainable harvesting guidelines and our user rights for the Kalinzu Central Forest Reserve. People are cutting down trees not out of malice, but because they genuinely do not know the regulations or what is allowed. This ignorance leads to unintentional violations, like when some locals were caught and fined, which only breeds tension and mistrust with the NFA. The lack of clear, consistent communication and education from the authorities is failing us; it is pushing good people into conflict with the forest they want to protect. We need regular, accessible training and information to empower everyone, not just a few, to conserve Kalinzu properly."
(IDI 007, Kyamuhunga)

This information deficit often leads to unintentional violations of harvesting rules and protected area boundaries, exposing residents to sanctions hence promoting a climate of confusion and apprehension. The communication gap is exacerbated by irregular or top-down dissemination channels that fail to reach remote parishes or accommodate varying literacy levels and preferred local languages.

This irregularity in knowledge undermines the foundational trust between the National Forestry Authority (NFA) and forest-adjacent communities, transforming potential partners into reluctant or disengaged actors and weakening the collaborative ethics that CFM seeks to cultivate.

From a governance perspective, persistent information and communication gaps erode the legitimacy and effectiveness of participatory forest management by limiting informed consent, reducing the quality of community input into decision-making, and constraining the ability of grassroots actors to hold institutions accountable.

When local populations lack clear understanding of benefit eligibility, grievance mechanisms, or adaptive management updates, their capacity to exercise agency is curtailed, reinforcing perceptions of exclusion and top-down control.



Plate 8. A plate showing community members adjacent to KCFR having a meeting with NFA stakeholders to bridge the issue of communication.

Limited Institutional Support and Inconsistent Funding.

Limited institutional support and inconsistent funding constitute a critical operational constraint that undermines the continuity and effectiveness of grassroots involvement in Kalinzu Central Forest Reserve (KCFR) management. Participants highlighted that many conservation and livelihood initiatives are heavily dependent on short-term external donor funding, resulting in abrupt termination of projects once grants expire.

"It is disheartening to see our community clashing with the NFA over the Kalinzu Central Forest Reserve because of our traditional beliefs. We grew up believing the forest is for everyone, a gift from our ancestors, not something to be fenced off by rules. However, when people graze livestock or take extra wood, thinking it is their right, they face heavy fines, which feel like an attack on our heritage. Many people are unaware of the regulations, so they inadvertently break them, which creates tension with the authorities. It is frustrating because we want to care for the forest, but the lack of clear education and strict enforcement makes us feel like outsiders in our land. The NFA needs to meet us halfway, teach us sustainable ways, and respect our traditions so we can protect Kalinzu together without losing our connection to it." (IDI 003, Rutoto)

This boom-and-bust cycle leaves community groups without essential resources, ongoing technical guidance, or follow-up support, eroding the momentum built during active implementation phases. The insufficiency of basic operational material such as patrol equipment, protective gear, transport, and monitoring tools further hampers the ability of CFM members to perform expected roles effectively.

Such unpredictability not only discourages sustained volunteerism but also diminishes community confidence in the reliability of formal partnerships with the National Forestry Authority (NFA), local government, and NGOs.

This funding volatility and institutional inconsistency perpetuate a cycle of fragile participation that limits the long-term impact of community-based approaches.

When programs collapse after initial investments, the anticipated gains in livelihood diversification, environmental stewardship, and social capital quickly dissipate, reinforcing skepticism toward future collaborative efforts.

Without predictable core funding streams, capacity-building investments, and adaptive institutional arrangements, grassroots structures remain auxiliary rather than central to forest governance.

Economic Constraints and Poverty.

Economic constraints and widespread poverty remain a fundamental underlying challenge to effective grassroots involvement in Kalinzu Central Forest Reserve (KCFR) management. Respondents identified acute livelihood pressures as a primary driver compelling household to engage in unsustainable forest activities, including charcoal production, excessive firewood collection, and illegal timber sales. For many community members,

these extractive practices represent immediate survival strategies rather than deliberate violations, particularly in the absence of viable alternative income sources.

This structural reality severely limits the capacity of households to prioritize long-term conservation goals over short-term economic needs, even when they express strong support for forest protection in principle.

The persistence of poverty thus creates a direct tension between daily subsistence requirements and adherence to regulated forest use, weakening the potential impact of CFM agreements and community stewardship initiatives.

The relationship between poverty and resource dependence highlights a core limitation of participatory forest management models when they are not systematically coupled with robust economic empowerment measures.

Without sufficient and accessible alternative livelihoods, conservation regulations risk being perceived as punitive rather than protective, potentially fueling resentment and non-compliance.

The KCFR findings echo broader CBNRM scholarship that underscores the necessity of addressing material conditions as a precondition for genuine community buy-in and behavioral change.

Conflicts with Wildlife and Enforcement Practices.

Human-wildlife conflicts and overly stringent enforcement practices emerge as significant disincentives to sustained grassroots participation in the management of Kalinzu Central Forest Reserve (KCFR).

Respondents frequently described the frustration of investing time and effort in forest protection only to suffer crop losses from wildlife, particularly baboons, monkeys and other primates (Vermin), without adequate compensation or mitigation support. The absence of functional grievance redress or insurance-like mechanisms for damage leaves communities bearing disproportionate costs of conservation, fostering resentment and a sense of injustice.

Compounding this are reports of heavy-handed enforcement by the National Forestry Authority (NFA) and the Uganda People's Defence Force (UPDF), often perceived as punitive and lacking community consultation. Such approaches alienate potential local allies, framing conservation as an external imposition rather than a shared endeavor and thereby diminishing voluntary cooperation in patrols and monitoring activities.

These intertwined challenges reveal deeper tensions in the socio-institutional architecture of protected area management. While strict enforcement may yield short-term compliance, it risks undermining the social license necessary for long-term collaborative governance.

The KCFR experience aligns with wider literature on CBNRM and protected area management, which consistently shows that unaddressed human-wildlife conflict and top-down policing erode trust, reduce reporting of illegal activities, and weaken community stewardship. These issues require hybrid strategies that combine improved conflict mitigation (e.g., buffer zone management, compensation schemes, or insurance programs) with more transparent, proportionate, and community-sensitive enforcement protocols.

Bureaucratic Delays and Governance Inefficiencies

Bureaucratic delays and governance inefficiencies represent a pervasive institutional barrier that significantly hampers grassroots involvement in Kalinzu Central Forest Reserve (KCFR) management.

Participants repeatedly cited prolonged administrative processing times for essential procedures, including requests for regulated resource access, resolution of disputes, and renewal of Collaborative Forest Management (CFM) agreements.

What should be routine interactions often stretch into months, creating uncertainty, frustration, and opportunity costs for community members who depend on timely decisions for livelihood planning and conflict management.

Such delays not only discourage active participation but also signal to communities that their inputs and needs are accorded low priority within the broader governance system weakening the motivation to invest time in joint activities hence eroding confidence in the responsiveness and fairness of the National Forestry Authority (NFA) and associated local government structures.

At a deeper level, these procedural bottlenecks reflect systemic governance challenges that undermine the foundational principles of participatory and decentralized forest management. When communities experience slow feedback loops and opaque decision-making, the promised benefits of co-management voice, accountability, and shared ownership remain largely unrealized fostering disillusionment and a shift toward passive or opportunistic engagement rather than committed stewardship.

DISCUSSIONS

The findings reveal that grassroots involvement in KCFR management faces multiple structural, socio-economic, and cultural challenges. Unequal access to benefits discourages participation from non-affiliated community members. Poor information dissemination leads to unintentional violations and weakens trust. Limited institutional support, inconsistent funding, and poverty-driven reliance on forest exploitation hinder sustainable engagement. Conflicts with wildlife, coupled with strict enforcement practices, reduce motivation. Bureaucratic delays and governance inefficiencies further undermine confidence and participation.

These barriers collectively limit the effectiveness of grassroots involvement and highlight the need for targeted interventions. These results align closely with the broader literature on community-based natural resource management (CBNRM) and participatory forest management in Uganda and other developing countries. Elite capture or unequal benefit distribution is a widely reported challenge that undermines trust and engagement (Kusters et al., 2022; Essougong et al., 2019).

In Uganda specifically, Blomley and Namara (2020) and Mawa et al. (2022, 2023) have documented persistent inequities in the distribution of CFM benefits, with non-affiliated households often remaining excluded patterns that closely parallel the two-tiered system observed at KCFR.

Communication gaps and inadequate information flow similarly reduce community awareness and participation, consistent with Torres et al. (2020) and with earlier observations of weak information dissemination under collaborative arrangements in East Africa. Economic constraints and poverty-driven exploitation remain fundamental obstacles. Mawa et al. (2023) demonstrate that, without viable alternative livelihoods, forest-fringe communities in Uganda continue to prioritise immediate survival strategies over long-term conservation goals.

Comparable poverty resource pressures have been recorded across sub-Saharan African community forestry initiatives (Duguma et al., 2018; Asamoah et al., 2024). Social and cultural barriers, especially the exclusion of women and youth, align with Nandigama (2020) and with gender analyses from southern Africa (Chabala, 2004), underscoring the need for deliberately gender-sensitive and youth-inclusive governance designs.

Human–wildlife conflicts and overly strict enforcement practices further reduce participation. Begum and Alam (2023) highlight that negative interactions with wildlife or rigid top-down policing erode community goodwill and compliance findings that resonate with the frustration expressed by KCFR respondents regarding crop losses and heavy-handed measures involving the NFA and UPDF. Bureaucratic inefficiencies, including slow dispute resolution and delayed CFM agreement renewals, mirror governance bottlenecks reported in other developing-country contexts (van Woerkom, n.d.; Kusters et al., 2022). Collectively, these parallels position the KCFR experience firmly within the established scholarship: while collaborative models offer clear potential, their success remains contingent on addressing equity, communication, livelihood security, conflict mitigation, and institutional responsiveness.

CONCLUSIONS

This study concludes that grassroots involvement in the management of Kalinzu Central Forest Reserve (KCFR) yields substantial socio-economic, environmental, and governance benefits when effectively facilitated.

Engagement in alternative livelihood activities including beekeeping, fish farming, craft-making, and ecotourism has reduced household dependence on forest extraction, enhanced income security, and improved overall community welfare.

Active participation in joint patrols, tree planting, boundary demarcation, and decision-making processes has strengthened community ownership and environmental stewardship, contributing to improved forest cover, biodiversity conservation, and reduced illegal activities. Furthermore, inclusive approaches have empowered marginalized groups, particularly women and youth, by expanding access to income opportunities, leadership roles, and decision-making platforms, thereby promoting social equity and cohesion.

These positive outcomes are most evident in areas with functional Collaborative Forest Management (CFM) groups and consistent institutional and NGO support, demonstrating that well-structured grassroots participation can effectively reconcile conservation objectives with local development needs in line with Community-Based Natural Resource Management (CBNRM) principles.

None the less, significant challenges continue to constrain the depth and sustainability of community engagement. Unequal access to benefits, inadequate information flow, inconsistent institutional support and funding, persistent poverty, human-wildlife conflicts, overly rigid enforcement practices, and bureaucratic inefficiencies collectively undermine motivation, trust, and broad-based participation.

These barriers limit equitable benefit-sharing, reduce compliance with regulations, and risk perpetuating a cycle of marginalization and unsustainable resource use. The findings affirm that while grassroots involvement holds considerable promise for sustainable forest resource management at KCFR, realizing its full potential requires deliberate and sustained efforts to address structural, economic, and institutional obstacles. Strengthening policy implementation, enhancing transparency, expanding inclusive livelihood programs, and improving multi-stakeholder coordination will be essential for fostering more robust, equitable, and resilient community participation in Uganda's Central Forest Reserves.

RECOMMENDATIONS

To maximize the socio-economic, environmental, and governance benefits of grassroots participation in Kalinzu Central Forest Reserve (KCFR) management, targeted interventions are required to strengthen and scale successful elements of the current Collaborative Forest Management (CFM) framework. Alternative livelihood programs such as beekeeping, fish farming, ecotourism, craft-making, and small-scale livestock enterprises should be systematically expanded and made accessible to a broader segment of forest-adjacent communities through formalized government-NGO partnerships and clear eligibility criteria that prioritize inclusivity.

Community-led environmental initiatives, including tree planting, joint patrols, and biodiversity monitoring, should receive sustained logistical, technical, and financial incentives.

Furthermore, periodic participatory monitoring and evaluation mechanisms should be institutionalized to maintain community motivation, document impacts, and enable adaptive adjustments, thereby optimizing the long-term contributions of grassroots involvement to both conservation and livelihood outcomes.

To overcome the identified challenges limiting effective participation, deliberate actions must address structural, informational, and institutional barriers. Access to CFM benefits and resources should be extended beyond formal group members through outreach programs targeting non-affiliated households, thereby reducing exclusion and associated resentment. Intensified, contextually appropriate information dissemination campaigns utilizing local languages, community radio, and mobile platforms are needed to enhance awareness of forest regulations, rights, responsibilities, and participation pathways.

Government agencies and NGO partners should commit to consistent multi-year funding, provision of essential materials (patrol equipment, protective gear), and ongoing capacity-building support. Gender-sensitive and youth-inclusive strategies must be mainstreamed to tackle social and cultural barriers, while practical human-

wildlife conflict mitigation measures including compensation schemes, buffer zone management, and early warning systems should be prioritized.

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