Stakeholder Perceptions of Community-Based Conservation and Natural Resource Sustainability in Mubambe Chiefdom Zambia

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ABSTRACT

Background: Community-based conservation seeks to connect local participation and livelihood interests with the sustainable management of natural resources. Its contribution depends on the social and institutional conditions under which conservation activities operate. Evidence on how stakeholders experience these conditions in Mubambe Chiefdom, Mufumbwe District, remains limited.

Objective: To explore stakeholders' perceptions of the contribution of community-based conservation initiatives to natural resource sustainability and the factors enabling or constraining their implementation in Mubambe Chiefdom.

Methods: A qualitative case study combined semi-structured interviews with 28 purposively selected stakeholders, direct observations in six programme areas and field notes. Six of eleven active programme areas were selected for accessibility, active conservation and sectoral coverage. Data were coded deductively and inductively using NVivo and analysed thematically.

Results: Participants described community forest monitoring, wildlife reporting and patrols, conservation farming and fisheries protection. Observations documented tree nurseries and recently planted trees. Accounts of regeneration and improved stewardship coexisted with reports of illegal harvesting, declining wildlife sightings in some locations, agricultural expansion and seasonal water scarcity. Livelihood dependence and monitoring gaps constrained implementation.

Conclusion: Stakeholders perceived community-based conservation as a useful foundation for local stewardship but described constraints that can weaken its implementation. The findings support meaningful participation, viable livelihood options and institutional capacity, alongside transparent conservation incentives. Interviews and qualitative observations establish implementation processes and perceived contributions, rather than measured changes in ecological condition.

Keywords: community-based conservation; community-based natural resource management; stakeholder perceptions; conservation governance; benefit-sharing; Mubambe Chiefdom; Zambia.

INTRODUCTION

Community-based conservation (CBC) places local people within efforts to manage and protect the natural resources on which they depend. It encompasses arrangements for participation, stewardship and the sharing of conservation benefits. Community-based natural resource management (CBNRM) is closely related, with particular emphasis on local resource governance and use. Although the terms overlap, the existence of a community organisation does not by itself establish that residents exercise meaningful authority or receive equitable benefits.

The development of community approaches partly reflects dissatisfaction with conservation systems that restricted local access and offered limited influence over management decisions. Across sub-Saharan Africa, the relationship between conservation and rural development has remained contested, particularly where the

benefits reaching households are small relative to livelihood needs and conservation costs (DeGeorges & Reilly, 2009). Participation therefore needs to be understood in relation to authority, accountability and the distribution of costs and opportunities.

Research distinguishes between favourable attitudes, changes in behaviour, economic benefits and ecological outcomes, which should not be assumed to follow automatically from one another (Brooks et al., 2013). An initiative may improve awareness without reducing resource extraction or generating revenue without distributing it fairly. Governance principles that recognize community agency, local institutions and equity provide a basis for examining these differences (Armitage et al., 2020).

Zambian experience also illustrates the importance of institutional arrangements. Research in the Kafue Flats links difficulties in community-based resource governance to the way decision-making and benefit distribution are devolved (Nkhata & Breen, 2010). These concerns make it necessary to investigate how conservation is experienced in particular local settings, rather than infer effectiveness from the adoption of a participatory model.

In Mubambe Chiefdom, Mufumbwe District, conservation activities described in this study concern forests, wildlife, fisheries, conservation agriculture and associated natural resources. Understanding stakeholders' accounts can identify practical obstacles to implementation and the conditions under which local participation is considered useful. Such accounts contribute evidence about conservation governance, while ecological monitoring is needed to determine changes in resource conditions.

Problem Statement and Study Objective

The presence of conservation initiatives does not establish how well they function or whether they meet local expectations. In Mubambe Chiefdom, there is a need to understand how stakeholders perceive the relationship between conservation activities, participation, livelihood dependence and institutional support. Without this understanding, responses may concentrate on awareness or enforcement while overlooking the constraints that participants regard as central to implementation.

This study explored stakeholders' perceptions of the contribution of CBC initiatives to natural resource sustainability in Mubambe Chiefdom. It examined the contributions participants attributed to these initiatives, the barriers they experienced and the implications for conservation governance. It did not seek to estimate ecological impacts or establish causal effects.

LITERATURE REVIEW

Participation and Decision Making

Participation can incorporate local knowledge and improve the responsiveness of development interventions, but its value depends on how people are involved and the influence they exercise (Mubita et al., 2017). Meeting attendance, involvement in activities and authority over decisions represent different forms of engagement. Conservation research similarly treats empowerment as multidimensional, extending beyond an individual sense of confidence to wider relationships of power (Petriello et al., 2024). This distinction matters when interpreting accounts of patrol participation and local ownership.

Governance and Conservation Benefits

Community conservation requires arrangements that connect local decision-making with wider institutions. Armitage et al. (2020) emphasise collaboration, equity, rights and legitimate local institutions. These concerns are relevant where traditional authorities, government agencies and community bodies share responsibilities. Collaboration may provide support but does not remove the need to clarify who makes decisions and who can be held accountable. Benefit-sharing also requires attention to procedures and expectations. In two Namibian conservancies, Mosimane and Silva (2015) found that unclear guidelines and inadequate distribution systems contributed to uncertainty about realistically deliverable benefits. Their findings emphasise transparency and

explicit attention to fairness. This suggests that dissatisfaction with conservation benefits may concern their size, distribution, communication or a combination of these issues.

Livelihoods and Evidence of Sustainability

Conservation expectations operate within households' economic circumstances. DeGeorges and Reilly (2009) question whether limited conservation income can compensate for broader livelihood pressures. Such concerns suggest that environmental awareness and dependence on extraction can coexist. They also caution against assuming that a livelihood intervention will reduce resource pressure without examining who can access it and whether it changes resource-use decisions.

Assessing sustainability requires separating governance processes from environmental outcomes. Brooks et al. (2013) examine multiple dimensions of CBC performance, rather than treating success as a single outcome. For this study, participation, awareness and coordination are potential contributions to resource governance. Whether those contributions lead to improved forest, wildlife or fisheries conditions remains a separate empirical question. The study addresses local governance through stakeholder accounts and qualitative observations of conservation implementation.

THEORETICAL AND CONCEPTUAL FRAMEWORK

The study draws on participatory development perspectives and Ostrom's (1990) account of common-pool resource governance. Participatory development directs attention to local influence, knowledge and ownership (Mubita et al., 2017). Ostrom's perspective helps explain how rules, monitoring and collective arrangements can enable resource users to manage shared resources. These perspectives are used to interpret the interview findings, rather than presented as theories formally tested by the study.

The framework does not assume that shared resources will inevitably deteriorate. Feeny et al. (1990) distinguish the challenges of common-property management from the assumption that resource users cannot organise access and use. This distinction is useful in Mubambe because reported difficulties with enforcement may reflect weaknesses in institutional arrangements rather than an inherent failure of community management.

Conceptually, the study links conservation activities to perceived stewardship through participation, awareness and coordination. Livelihood dependence, enforcement capacity and benefit-sharing are considered conditions that may support or interrupt that relationship. The framework therefore distinguishes three levels: conservation activities, the governance processes described by participants, and longer-term ecological outcomes. Interviews and qualitative field observations inform the first two levels; ecological trends require systematic environmental assessment.

METHODS

Study Design and Setting

A qualitative case study design was used to examine CBC initiatives in Mubambe Chiefdom, Mufumbwe District, Zambia. Programme areas were located within Kaminzekezeke, Mushima, Kamalondo and Lalafuta communities. Mushima provided an agricultural and community forestry context; Kaminzekezeke, near the Lufupa River, provided a fisheries and wetland context. Kamalondo and Lalafuta contributed perspectives on wildlife, forests and resource governance. These four communities are geographical settings within which the six programme areas were selected.

Selection of Programme Areas and Participants

The sampling frame comprised eleven active conservation programme areas identified through local conservation authorities. Six were purposively selected for accessibility, active implementation and coverage of major conservation sectors: one wildlife management area, two community forest management areas, two

agricultural conservation clusters and one fisheries management area. Accessibility facilitated fieldwork but may have limited representation of more remote locations.

Twenty-eight participants were purposively recruited for direct knowledge, experience or responsibility in conservation planning, implementation, monitoring or governance. The final occupational profile comprised seven village headmen, four forestry officers, three wildlife officers, six agriculture extension officers, three fisheries officers and five NGO representatives. The sample was intended to provide informed perspectives rather than statistical representation of all residents. Recruitment ended when further interviews were judged not to generate new themes or insights.

Data collection

Semi-structured interviews were conducted face-to-face at locations convenient to participants, including community offices, traditional courts and conservation programme sites. The guide covered conservation practices, governance, participation, enforcement, resource-use experiences and perceived environmental changes. Probing questions sought clarification and detail. Interviews were documented through written notes and, where participants permitted, audio recordings. Field notes were reviewed and expanded immediately after interviews.

Direct observations were undertaken in all six programme areas using a checklist addressing forest protection, wildlife management, conservation agriculture, fisheries practices and visible environmental conditions. Detailed field notes recorded site context, activities and reflections; photographs supplemented observations where permission was granted. These observations were qualitative descriptions of implementation and visible conditions, rather than standardised ecological measurements.

Data Analysis and Trustworthiness

Audio-recorded interviews were transcribed verbatim, and handwritten notes were typed and expanded. Interview, observation and field-note material was organised by site and source and imported into NVivo for coding, retrieval and theme development. Analysis involved repeated reading, initial coding, grouping related codes, reviewing themes and interpreting their relationship to the research questions. Deductive codes were informed by the objectives and literature; inductive codes were developed from participants' accounts and field observations.

The researcher examined each programme area before comparing recurring patterns and differences across areas. Interview accounts were compared with observations and field notes, and discrepancies were considered in their local context. Documentation of sampling, coding decisions and analytical notes supported transparency. For this article, the presentation brings together sector-specific practices and resource conditions with the cross-cutting influences of participation, livelihoods and institutional support. It does not assign thematic frequencies or imply that all participants held the same views.

Ethical Considerations

Ethical approval was obtained from the University Research Ethics Committee, with administrative permission from Mufumbwe District Council and relevant traditional authorities. Participants were informed of the study purpose, voluntary participation, their right to withdraw and their right to decline questions. For participants with limited literacy, the study was explained in their preferred language with an independent witness, and consent was documented through a thumbprint or recorded verbal agreement. Community leaders were absent from individual interviews unless requested by the participant.

Identifiers were removed or generalised, and electronic data were encrypted and password protected, with access restricted to the researcher. The academic purpose of the study and its independence from enforcement agencies were explained to participants. Questions about sensitive resource-use practices were handled without requiring admission of illegal activity. Quotations are attributed to stakeholder roles to protect individual identities.

Results

Participant Characteristics

The sample comprised 19 men and nine women. Seventeen participants had more than ten years of conservation experience. Participants were distributed across Kaminzekezeke (7), Mushima (9), Kamalondo (5) and Lalafuta (7). The occupational categories were village headmen (7), forestry officers (4), wildlife officers (3), agriculture extension officers (6), fisheries officers (3) and NGO representatives (5). These characteristics describe the sample interviewed, not the wider population.

Conservation activities and contrasting resource conditions

Four resource domains structured participants' accounts: forests, wildlife, agricultural land and fisheries or water resources. Accounts of conservation activity and perceived improvement coexisted with descriptions of continuing pressures. Table 1 summarises this variation; the entries are qualitative findings and do not estimate the prevalence or magnitude of change.

Table 1 Reported conservation practices and continuing resource pressures

Resource domain	Reported practices and continuing pressures
Forests	Monitoring, tree planting and perceived regeneration in protected areas; continuing logging and charcoal production in some locations
Wildlife	Reporting, patrols and perceived reductions in poaching; fewer sightings in some areas and disturbance near settlements
Agricultural land	Planting basins, rotation, mulching and perceived soil benefits; soil exhaustion and expansion into forest areas
Fisheries and water	Fishing controls, breeding-area protection and reporting; livelihood pressures, dry-season scarcity and sedimentation

Source: Study interviews. Field observations are distinguished in the narrative below.

Forest Monitoring and Restoration Activity

Participants described forest monitoring, harvesting controls and tree planting through community groups, schools and partner organisations. A village headman explained the local oversight of charcoal production:

"People are now required to seek permission before cutting trees for charcoal production." (Village headman)

Field observations documented tree nurseries and recently planted trees in some communities, supporting the reported presence of restoration activity. Participants also described recovery in protected forest areas:

"In protected forest areas, we are seeing gradual regeneration of trees because illegal cutting has reduced." (Forestry officer)

These accounts were qualified by reports of continuing extraction elsewhere:

"Despite regulations, some illegal tree cutting still happens especially in remote areas," (Forestry officer)

The contrast suggests uneven experiences of forest protection. Nurseries and planting demonstrate implementation, but the study did not measure tree survival, forest-cover change or the extent of illegal harvesting. The accounts therefore support local perceptions of recovery alongside continuing pressure.

Wildlife Reporting and Uneven Perceived Recovery

Participants described community reporting and joint patrols as mechanisms linking local knowledge with formal wildlife protection.

"Community members assist us in reporting cases of illegal hunting in the area." (Wildlife officer)

Accounts of improved protection coexisted with concerns about wildlife presence. One wildlife officer reported more wildlife in areas with active patrols, while another account indicated fewer animals in some locations:

"We still observe fewer animals in some areas compared to the past." (Wildlife officer)

The accounts do not establish whether these statements refer to the same places or periods. They indicate variation in perceived conditions, rather than a verified chiefdom-wide population trend. A village headman also associated wildlife movement away from settlements with human activity, bringing habitat disturbance into the discussion alongside poaching.

Conservation farming and pressure on agricultural land

Agriculture extension officers and other stakeholders described planting basins, crop rotation, diversification, mulching and soil conservation measures. One officer gave a concrete example of minimum tillage:

"Farmers are now using planting basins instead of ploughing the whole field." (Agriculture extension officer)

Participants associated these practices with moisture retention, fertility and yields. At the same time, they described cultivation pressure and expansion into forests:

"Some farmers are expanding fields into forest areas due to land pressure." (Village headman)

The accounts indicate that promotion of soil-conserving practices can coexist with agricultural expansion. They do not demonstrate uniform adoption of a complete conservation agriculture system or independently measured gains in soil fertility and productivity.

Fisheries Participation and Water Pressures

Fisheries accounts concerned controls on fishing methods, protection of breeding areas and community reporting. A fisheries officer described local involvement in routine monitoring:

"Community members help us monitor fishing activities daily." (Fisheries officer)

A village headman described reporting rule violations to authorities, while officers described protecting river areas during breeding seasons. Participants also identified pressures affecting water availability and quality:

"During the dry season, water levels drop significantly in most streams." (Fisheries officer)

"Siltation from farming activities is affecting water quality in some areas." (NGO representative)

These findings distinguish fisheries governance activities from wider water-resource conditions. Community monitoring may support reporting, but it does not establish fish-stock recovery or resolve seasonal scarcity. Reported sedimentation also links aquatic concerns to land-use practices outside fishing itself.

Livelihood Dependence and Institutional Constraints

Across resource domains, participants link implementation difficulties to livelihood dependence and gaps in monitoring. A village headman explained:

"People cut trees because they have no other source of income." (Village headman)

A fisheries officer similarly attributed some use of illegal methods to a lack of alternatives. Remote areas were described as particularly difficult to monitor:

"Some remote areas are difficult to monitor effectively." (Forestry officer)

Participants also described cooperation between traditional leaders, sector officers and NGOs, including joint inspections, awareness activities and technical training. These accounts indicate that community involvement can complement institutional support, while limited reach and economic pressures continue to constrain implementation.

DISCUSSION

Participation Under Livelihood Constraints

The Mubambe accounts identify a tension between willingness to conserve and the circumstances in which resource-use decisions are made. Participants described awareness activities, community reporting and patrols positively, while other accounts linked continued tree cutting and illegal fishing methods to a lack of income alternatives. Read together, these statements suggest that implementation difficulties cannot be understood solely as a lack of conservation knowledge. The accounts concern different roles and locations; they do not establish that the same individuals both participated in awareness activities and continued extraction.

Participatory development provides a useful lens for distinguishing involvement in activities from influence over their direction. Mubita et al. (2017) discuss both the value and limitations of participation, while Petriello et al. (2024) emphasise the different dimensions of empowerment. In Mubambe, involvement in decisions was valued, but the evidence does not establish who set priorities, whose preferences prevailed or how disagreements were resolved. Future inquiry should examine these processes directly, including experiences of residents outside formal conservation structures.

Rules and the capacity to Implement Them

The accounts of difficult monitoring in remote areas indicate a perceived gap between conservation responsibilities and implementation capacity. Ostrom's (1990) institutional perspective directs attention to how rules and monitoring work in practice. The implication for Mubambe is that participation requires support from workable arrangements for implementation; the presence of a rule or committee is insufficient evidence that those arrangements function consistently. This interpretation also avoids equating shared resource use with inevitable degradation, a concern addressed by Feeny et al. (1990).

Nkhata and Breen's (2010) Kafue Flats study provides a relevant Zambian comparison by emphasising the importance of devolved decision-making and benefit-distribution processes. The Mubambe interviews similarly bring institutional practice into focus, although they do not establish identical conditions in the two settings. Reported gaps in monitoring suggest a practical need to examine whether responsibilities assigned to community institutions are matched by the capacity to perform them.

Conservation Benefits and Institutional Legitimacy

The livelihood accounts raise questions about the incentives available to households expected to limit resource use. They do not measure conservation revenue or document how specific benefits were allocated. Benefit-sharing is therefore considered here as a governance implication, rather than a verified finding of financial

inequity. Mosimane and Silva (2015) show why clear guidelines and realistic expectations matter when assessing conservation benefits. A review in Mubambe should distinguish inadequate returns, unequal access and limited communication, because these require different responses.

Reported cooperation between traditional leaders, sector officers and NGOs suggests that local institutions can help connect community action with technical and enforcement support. However, cooperation among organisations does not establish that all residents can influence decisions. Armitage et al. (2020) connect collaboration with equity and community agency. The implication is to examine both institutional coordination and opportunities for residents to question decisions or contest allocations.

Contribution to Understanding Sustainability

The contribution of this case lies in showing how reported conservation activity and continuing resource pressures coexist across different domains: forest planting alongside illegal cutting, wildlife reporting alongside locally declining sightings, and soil conservation alongside expansion into forests. These accounts suggest that positive views of participation can coexist with constraints on implementation. This relationship is useful for identifying what conservation programmes should investigate, without attributing ecological change to the initiatives.

The distinction between governance contributions and environmental outcomes remains essential. Following the multidimensional approach to conservation assessment discussed by Brooks et al. (2013), future evaluation in Mubambe should pair social and institutional evidence with resource-specific indicators. For example, forest conditions, wildlife observations or fisheries data could be assessed alongside participation and benefit-sharing records. The present study provides governance questions for such evaluation, rather than environmental baselines or estimates of impact.

STUDY LIMITATIONS

Purposive selection favoured accessible programme areas with active conservation initiatives. Perspectives from more remote locations, inactive initiatives or people disengaged from conservation may therefore be less visible. The sample emphasised knowledgeable stakeholders and should not be treated as representative of all households in Mubambe Chiefdom.

Interview accounts may be influenced by recall, institutional interests and the desire to present conservation activities favourably or critically. Qualitative observations and field notes provided contextual checks but were not standardized ecological assessments. Although the analysis compared programme areas and included several stakeholder categories, the article does not establish systematic differences by gender or quantify the prevalence of views. Quotations retain occupational attributions; recurrence of the same role does not necessarily indicate different speakers.

No independent ecological measurements, longitudinal comparisons or counterfactual evidence were included. The study therefore cannot establish changes in forest cover, wildlife populations, fish stocks or land condition, or attribute any such changes to CBC. The findings are best understood as situated evidence about stakeholder experiences and perceived implementation conditions.

RECOMMENDATIONS

CRBs and traditional leadership should review how residents influence conservation priorities and decisions. Meeting records should distinguish attendance from proposals raised, decisions taken and responses to community concerns. Accessible opportunities for women, young people and residents outside formal committees to contribute should form part of this review; the study did not measure their current representation.

CRBs, conservation partners and relevant authorities should review benefit-sharing arrangements with residents. The review should explain which benefits are available, eligibility criteria, allocation decisions and any limits on revenue. Public reporting and a clear process for raising concerns would help distinguish problems of inadequate returns from concerns about distribution or communication.

Relevant government departments and conservation partners should assess staffing, equipment and logistical needs against agreed monitoring responsibilities. Joint plans should clarify institutional roles and prioritise areas where participants reported enforcement difficulties. Monitoring records should be interpreted carefully: an increase in recorded incidents can reflect improved detection as well as increased non-compliance.

Livelihood support should be selected through an assessment of household needs, market access and feasibility. Beekeeping, conservation agriculture and other locally suitable enterprises could be considered, but their ability to reduce resource pressure should be tested rather than assumed. Programme review should track who participates, whether income is sustained and whether resource-use decisions change.

Future research should include residents who do not hold formal conservation roles and investigate differences across locations and stakeholder groups. Participatory monitoring should combine governance measures with appropriate ecological indicators over time. This would allow subsequent work to examine whether the perceived contributions identified here are accompanied by sustained changes in resource conditions.

CONCLUSION

Stakeholders in Mubambe Chiefdom perceived CBC initiatives as contributing to environmental awareness, participation and local coordination. They also described livelihood pressures, difficult monitoring in remote areas and continuing resource-use pressures despite conservation activity. Together, the accounts suggest that stewardship depends on the conditions under which people are expected to participate, including workable institutions and credible livelihood opportunities.

The study supports practical attention to participation, institutional responsibilities and transparent benefit-sharing. Its evidence concerns stakeholder experiences, reported resource conditions and qualitative observations of conservation implementation. Determining whether these contributions translate into natural resource sustainability requires ecological assessment alongside continued investigation of community experiences.

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