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# Unveiling disparities between planned and perceived equity arrangements in protected area co-governance: Evidence from the North Luangwa Ecosystem in Zambia

Rhoda Nthena Kachali [a,b,*], Jacqueline Loos [a,b]

[a] Institute of Ecology, Leuphana University Lüneburg, Universitätsallee 1, Lüneburg 21335, Germany
[b] Social-Ecological Systems Institute, Leuphana University Lüneburg, Universitätsallee 1, Lüneburg 21335, Germany

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ABSTRACT

Environmental equity discussions have increasingly influenced conservation policies at local, national, and international levels. Various community-based natural resource management interventions strive to incorporate equity within conservation practices, with a particular focus on resolving human-wildlife conflicts. Nevertheless, the challenge persists in ensuring that equity measures translate into both tangible and perceived fairness. This study examined and disaggregated perceptions of equity among representatives from government and non-government entities, and local community members residing within co-governance frameworks that honor traditional governance structures in three Game Management Areas adjacent to the North Luangwa National Park in Zambia. We conducted key informant interviews with 15 Government officials and 15 NGO representatives in conjunction with 20 focus group discussions with local community members from six Village Action Groups. The government and NGO actors reported efforts to enact both distributional and procedural equity concurrently with conservation aims. Despite intentions to mitigate human-wildlife conflicts and foster cooperative conservation, these measures precipitated local dissatisfaction, as they perceived that the equity-facilitating interventions inadequately addressed the costs associated with coexisting with wildlife. Furthermore, a profound sense of misrecognition was felt as wildlife and conservation objectives appeared prioritized over their well-being. Divergent perceptions of equity influence conservation efficacy, as top-down equity measures may boost biodiversity yet simultaneously diminish local support and stewardship, thereby risking long-term community engagement. The disparity between anticipated and realized equity outcomes underscores the necessity of prioritizing recognitional equity by acknowledging the heterogeneity of interests, capacities, and influence of local populations before and during the implementation of conservation interventions.

## 1. Introduction

Recently, conservation policy and practice have sought a more balanced and equitable approach to reconcile the relationship between protected and conserved areas and local people (Aastrup et al., 2021; Adams et al., 2023; Bennett et al., 2020; Gurney et al., 2023). Narratives around environmental equity have gained traction through international frameworks, such as the Paris Agreement on Climate Change (UNFCCC, 2015) and the Sustainable Development Goals (UNDESA, 2015). In the context of area-based conservation, equity is reflected in the Kunming-Montreal Global Biodiversity Framework (GBF), which commits to equitable processes and outcomes through targets 3 and 22 (CBD, 2021). Target 3 advocates for the expansion of sustainably governed conserved areas to 30 % of the planet's land and oceans by 2030, while target 22 aims to ensure equitable participation of Indigenous Peoples and Local Communities and respect for their resource rights. Although there is a general agreement on the importance of equity considerations in conservation, there remains an unresolved puzzle of how implementation of equity considerations translates into realized, and thus perceived equity achieved through conservation (Abukari and Mwalyosi, 2020; Chen et al., 2022; Gibbes and Keys, 2010; Serenari et al., 2017).

The disconnect between intended and perceived equity outcomes for Indigenous Peoples and Local Communities is obscured by the

* Correspondence to: Rhoda Nthena Kachali, Social-Ecological Systems Institute, Leuphana University Lüneburg, Universitätsallee 1, Lüneburg 21335, Germany.
*E-mail address:* rhoda.kachali@leuphana.de (R.N. Kachali).

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intersecting dimensions of distribution, procedure, and recognition (Leach et al., 2018; Schlosberg, 2013). Distributive equity deals with the equitable distribution of environmental goods and services as well as costs related to nature conservation, while procedural equity seeks to establish participatory and inclusive decision-making processes that engender transparent and meaningful involvement of relevant actors in environmental affairs that concern them (Schlosberg, 2013; Schreckenberg et al., 2016). Recognition equity involves respecting diverse identities, including social, cultural and gender differences (Martin et al., 2016; Zafra-Calvo et al., 2017). Equity also includes capabilities, which is the extent to which individuals can lead lives they value (Nussbaum, 2007; Sen, 2008; Svarstad and Benjaminsen, 2020). Additionally, environmental equity considerations may apply to non-human animals, their habitats, and entire ecosystems (Kopnina, 2016; Nussbaum, 2007; Washington et al., 2024). These diverse components of equity are considered intertwined, for instance, because the absence of recognitional equity will likely lead to ineffective participation which in turn leads to inequity in decision making and unjust distributional outcomes (Martin et al., 2018).

Environmental equity is based on ethical concerns that consider equitable governance as inherently good, as well as instrumental concerns based on the assumption that the effectiveness of protected and conserved areas is likely to improve with increased empowerment of local populations and more equitable sharing of conservation benefits and costs (Gurney et al., 2021; Hill et al., 2016). Involving and empowering local populations aligns conservation goals with the interests, knowledge and stewardship of the people who live there, making success more likely (Borrini-Feyerabend and Hill, 2015; Raymond et al., 2022). However, significant challenges remain regarding actual implementation of equitable protected area governance and conservation. In particular, the implementation of Target 3 of the Kunming-Montreal Global Biodiversity Framework which increases coverage of terrestrial protected areas, raises concerns regarding the increased possibility of inequitable outcomes as a result of exclusion from land and livelihood resources for local people (Dawson et al., 2021; Gurney et al., 2023). Furthermore, the meaning of equity in practice is unclear because it varies according to the social-ecological contexts in which conservation governance patterns and practices are implemented (Loos et al., 2023; Sikor, 2013).

In Zambia, community-based natural resource management (CBNRM) interventions have sought to integrate equity into conservation efforts since the 1980s (Marks, 1999). This is achieved through a hybrid governance model that brings together traditional institutions, local communities, and the Zambian government to form Community Resources Boards (CRBs) (GRZ, 2015). In practice, CBNRM focuses on mitigating the socioeconomic burdens faced by communities living near protected areas by promoting benefit-sharing and participatory approaches (Kansky, 2022).The first CBNRM initiative in Zambia, the Administrative Design for Game Management Areas (ADMADE) program, was launched in 1987 in the Luangwa Valley in northeastern Zambia (Hoole, 2014). The Luangwa Valley holds particular significance for CBNRM due to its high concentration of large mammals such as elephants, buffalo, lions and leopards, key species in Zambia's safari hunting industry (GRZ, 2018).

Although safari hunting offers economic benefits, local communities bear significant costs from human-wildlife conflicts, including property damage, crop losses, injuries, and death (Chomba et al., 2012; Frietsch et al., 2023; Phiri et al., 2024). In the Luangwa valley, elephants (*Loxodonta africana*) cause the most damage to crops and infrastructure and often cause injury or kill people (Bwalya Umar and Kapembwa, 2020; Frietsch et al., 2023). Other problem animals are leopards (*Panthera pardus*), spotted hyenas (*Crocuta crocuta*), and raptors that mainly attack livestock (Chomba et al., 2012; Nyirenda et al., 2023). Managing these conflicts poses a complex challenge in Game Management Areas (GMAs), where locals rely heavily on small-scale agriculture (Lindsey et al., 2017). Losses and risks associated with human-wildlife interactions often foster negative attitudes toward wildlife, potentially undermining local willingness to co-exist with animals and support effective conservation efforts (Kansky et al., 2021; Nyirenda et al., 2023).

The coexistence between communities and wildlife has become increasingly critical as the Zambian government seeks to align national conservation policies and legislative frameworks with international commitments, such as Target 3 of the Convention on Biological Diversity (CBD) (GRZ, 2018). However, achieving this target risks producing inequitable outcomes if equity for local communities - and their contributions to effective protected area management - is not prioritized (Dawson et al., 2021).

Additionally, although equity is employed as a way to involve diverse actors in conservation through participation and benefit-sharing, broadening the frame to include new actors can create new tensions with regard to how to manage protected areas (Raymond et al., 2022). Tensions are particularly high when the interests of wildlife and nature are perceived to supersede the interests of local people (de Bruin et al., 2023). Increased equity concerns among actors have been associated with a lower likelihood for local communities to co-exist with wildlife and find solutions to biodiversity-related conflicts (Rakotonarivo et al., 2021). Biodiversity conflicts have in turn led to a rise in perceived inequity causing involved actors to strongly defend the rights of either human or non-human entities such as wildlife (de Bruin et al., 2023). Additionally, some conservationists defend militarized approaches by humanizing wildlife and framing local people as poachers (Duffy, 2022; Neumann, 2004). Conversely, due to losses incurred by humans from human-wildlife conflicts, some locals engaged in and justified illegal offtake of wildlife (Bwalya Umar and Kapembwa, 2020). Consequently, many conflicts occur as a result of disputes about what constitutes equitable environmental governance. Understanding the perceptions of different stakeholders and rightsholders about conservation governance initiatives and their anticipated impacts can ensure an equitable conservation design that incorporates local concerns and allows for participation in ways that are meaningful to all parties (Chen et al., 2022; Zafra-Calvo et al., 2017).

Assessing equity in protected area governance is complex. However, it has been framed mainly in distributional and procedural terms, with an emphasis on financial and material costs and benefits, only recently including additional components of well-being and the complexity of causes of maldistribution and exclusion from decision making (Friedman et al., 2018). This precludes an understanding of equity as a process that reveals itself through a plurality of subjective perceptions by different actors (Michel, 2019; Wijsman and Berbés-Blázquez, 2022). Particularly underexplored is the centrality of recognition and how it overlaps or co-occurs with distribution and procedure dimensions of equity (Coolsaet and Néron, 2020; Martin et al., 2016; Schlosberg, 2007; Wijsman and Berbés-Blázquez, 2022). Recognition equity raises issues particular to the intersections between local people's identities, their ways of life and the politics of difference through which discrimination happens (Dawson et al., 2021; Sánchez-García et al., 2025). This is salient in hybridized co-governed systems that include local traditional institutions, government, and non-governmental organizations (NGOs), like many attempts to accommodate for both human well-being and conservation in Sub-Saharan Africa (Kimengsi and Balgah, 2021).

Given the gaps in environmental equity research and the context-specific nature of social-ecological systems, our study aims to analyze and disaggregate local perceptions of environmental equity in a governance setting where traditional authority is recognized and co-governance mechanisms are in place, management types (instruction, consultation, agreement, and cooperation) are significantly linked with certain directions of perceived social equity. One novel finding here is that alternative types of co-management activities are influencing social equity in diverse ways. To achieve this, we employ narrative analysis, acknowledging that narratives serve as a means for individuals to structure knowledge, express perspectives through storytelling, and

capture cultural understandings (Tumusiime and Svarstad, 2011).

Specifically, we ask the following questions:

i. What criteria do different actors use to perceive and assess equity in the governance of Game Management Areas (GMAs) adjacent to North Luangwa National Park in Zambia?
ii. How do these equity criteria vary between different regions surrounding the National Park?
iii. What role does recognition equity play in shaping perceptions of equity, particularly in relation to the distributional and procedural dimensions of governance?

## 2. Methods

### 2.1. Study area

We investigated three Game Management Areas (GMAs) surrounding the North Luangwa National Park, namely: Mukungule, Munyamadzi, and Musalangu (Fig. 1). Together, they form the North Luangwa Ecosystem. North Luangwa National Park, the northernmost of three parks in the Luangwa River Valley, covers 4636 km$^2$. Established as a game reserve in 1938, it gained its current IUCN category II status in 1972 (NLCP, n.d.). No human settlement or other land use is allowed in the park, which is dedicated to conservation, tourism, and research. The Park hosts the reintroduced Black Rhino and has the highest elephant density in the Luangwa River Valley (DNPW, 2021). Musalangu and Munyamadzi GMAs are classified as 'prime' hunting blocks that generate revenues through high-value species for safari hunting, such as lion, leopard and buffalo (DNPW, 2018). Mukungule GMA is classified as a secondary hunting block, with lower populations of high value species (DNPW, 2018). Overall, households living in GMAs have lower average income than households in other rural areas (Fernandez et al., 2009). However, for prime hunting blocks in the Luangwa valley, proceeds from safari hunting result in higher incomes than rural households would otherwise be expected to achieve (Fernandez et al., 2009; Lindsey et al., 2014).

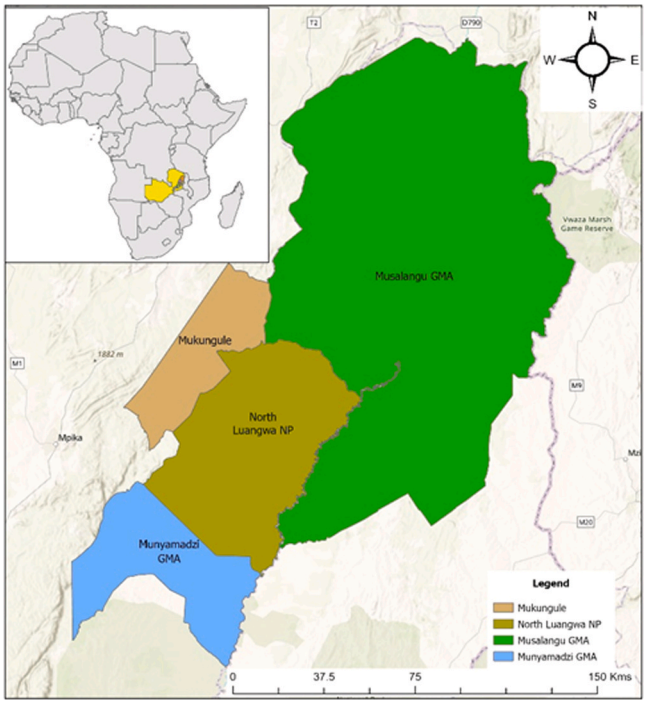


**Fig. 1.** Map of North Luangwa National Park and surrounding GMAs with its location within Zambia highlighted in green in the upper left corner. Source: Unpublished shapefiles from the Department of National Parks and Wildlife (DNPW, 2023).

The three GMAs, which fall under category VI of IUCN Management, cover a total area of 22500 km$^2$ with Musalangu being the largest at 17350 km$^2$ followed by Munymadzi at 3300 km$^2$ and Mukungule at 1900 km$^2$ (DNPW, 2018). They have been established as buffer zones, allowing human settlements and sustainable consumption of wildlife for the benefit of local communities (Lindsey et al., 2017). The GMAs are also sites where institutions for the co-governance of natural resources called Community Resources Boards (CRB) have been formed (GRZ, 2015). A CRB is a community-based organization established under the Zambia Wildlife Act of 2015 (GRZ, 2015). It consists of 7–10 community members who each represent a group of villages that are part of a Village Action Group (VAG). The VAG is the smallest governance unit for natural resources administration in a GMA. Households in each village elect at least one community member to the VAG committee every 3 years. This community governance structure is intended to be a conduit for equitable benefit-sharing and participation for local community members (Kachali et al., 2024; Milupi et al., 2017).

Local people in GMAs belong to two related ethnic groups, the Bisa in Mukungule and Munyamadzi and the Senga in Musalangu (Chondoka and Bota, 2015; Marks, 2017). Present-day Sengas descend from a group that broke off from the main Bisa chieftainship in the 18th century and settled among the Tumbuka Musalangu while other Bisa groups settled in Mukungule and Munymadzi (Chondoka and Bota, 2015; Marks, 2017). Bisa society was historically organized around hunting guilds that bestowed status on members. Hunters were esteemed as men of knowledge, wisdom, and skilled providers of sustenance who possessed the experience needed to lead their kinsmen (Marks, 1999, 2017). However, with the advent of modern conservation, local hunting went from a communal act to an individualized activity that was considered illegal unless an official permit was obtained. What were once community rites that marked life cycle events have become secretive and dissident activities (Marks, 1999).

### 2.2. Data collection

Data were collected from September to December 2022. This period was selected due to the dry season, which ensured easy access to the study areas. Furthermore, agricultural field preparation typically begins in October and November, which may have impacted respondent availability during that period.

Data collection involved unstructured key informant interviews, focus group discussions, and participant observation. Only people over 18 years of age participated in our data collection. For key informant interviews, thirty actors involved in governance were initially identified based on a snowball sampling approach. Half of the respondents were government actors from the Forestry Department (FD), Department of National Parks and Wildlife (DNPW), as well as Department of Chiefs and Traditional Affairs. The other half represented NGOs, primarily the Frankfurt Zoological Society (FZS) and community-based organizations. Governance actors were selected based on their institutional role in shaping conservation objectives, determining strategies and resources, making decisions, and defining power, authority, and accountability (Dawson et al., 2024). The initial respondents were based on the personal knowledge of the first author, who had worked in the study area, and the preliminary identification of stakeholders conducted prior to field work. The interviews were conducted until data saturation was reached. These key informants were interviewed in the study area, as well as in the capital Lusaka, where the headquarters of NGOs and government departments are located. We used an interview guide to explore the role of the respective governance actors and their perceptions of equity in benefit-sharing, decision making procedures, and recognition. The questions were open-ended, allowing participants to express various perspectives on equity.

In the study area, a total of 20 focus group discussions were held involving participants from the local community, 8 in Munyamadzi, 6 in

Musalangu and 6 in Mukungule. In each of the study systems, focus groups included at least three communities adjacent to the National Park and two communities in Musalangu and Mukungule adjacent to the towns of Chama and Mpika, respectively. This helped to unravel variations in equity perceptions based on spatial patterns that have an impact on the distribution of costs and benefits (Tumusiime and Sjaastad, 2014). Each focus group had between 7 and 12 participants, and separate focus groups were conducted according to their age and sex. The focus group members were identified through the VAG chairpersons and the village leaders who were key respondents identified through snowball sampling. Each focus group participant came from a different village so that there was a wide representation of views from each chiefdom. The participants were also divided by age and sex to represent their different lived experiences. Dividing groups by gender and age was important to minimize any potential influence of unequal power relationships. It was also intended to detect if there were variations in perceptions of equity based on the factors mentioned above. During the discussions, participants were invited to discuss what they considered equitable and inequitable regarding the governance of protected areas.

The researchers participated in informal interactions with members of the local community to gain a deeper understanding of their daily routines, livelihood activities and relationships with governance institutions. The trust established and the insights gained through participant observation and unstructured interviews helped shape focus group discussions and guided thematic data analysis (Lecuyer et al., 2018).

All interviews and focus group discussions were conducted in English, Bemba or Tumbuka, depending on the respondent's preference for the language. A local translator assisted in the Bemba and Tumbuka interviews to ensure the accurate articulation of context-specific equity-related terms. With the informed consent of the participants, all interviews were recorded. Participants were assigned anonymous identifiers (number codes) instead of using personal names, addresses, or contact details. Data was reported and shared only in anonymized forms to ensure confidentiality and prevent identification. Ethical clearance for this study was granted by the Ethics Advisory Board of Leuphana University (Ethics approval number: 202003_02_Loos_WVJGovernance), issued on May 22nd, 2020.

The interviews were later transcribed and coded using MAXQDA 2022 software. MAXQDA was selected because it is user-friendly and well designed for qualitative data analysis. It supports both thematic coding and mixed methods, as well as tools for visualizing data. MAXQDA offers secure data management, which makes it suitable for handling focus group data (Gizzi and Rädiker, 2021).

### 2.3. Coding and analysis

We analyzed the transcribed focus group discussions by identifying recurring themes and connecting them with equity criteria. Initially, we inductively developed codes based on locally perceived equity criteria, allowing patterns to emerge naturally from the data. We then applied a deductive approach, classifying these codes according to established equity dimensions as described by Schreckenberg et al. (2016) and Schlosberg (2013). These frameworks define equity as an interaction of multiple dimensions, including distribution, procedural fairness, recognition, capabilities, and justice for nature.

To analyze the relationships between equity dimensions, we used the code relations browser tool in MAXQDA 2022, which helped identify overlaps and co-occurrences in the responses of the respondents. This allowed us to explore how different dimensions of equity were perceived as interconnected. The analysis of co-occurrences, commonly applied in political communication research (Leimbigler and Lammert, 2016) was particularly useful in uncovering how local people characterized relationships between several aspects of equity.

## 3. Results

Our results disaggregate how different actors within the conservation co-governance system in the North Luangwa Ecosystem perceive equity and which recurrent topics relate to various equity dimensions.

### 3.1. NGOs and government actor perceptions of equity

The perceptions among NGO and government representatives about equity were markedly different from those of community members. Table 1. While only one focus group respondent in Pondo VAG mentioned challenges due to human-wildlife conflict faced by single women, key respondents from the DNPW and NGOs continually mentioned gender parity as an indicator of equity in CBNRM governance. This was evidenced by the FZS report that due to their interventions, the representation of women increased at the Village Action Group (VAG) level from 21 % in 2017 to 50 % in 2020. At the CRB level, in 2017, two out of 40 chiefdom positions were occupied by women – this rose to nine out of 40 in 2020, with a woman becoming the CRB chair in the Chikwa chiefdom (FZS, 2021). According to key respondents, women's participation in resource protection was considered particularly important because it influenced continued funding from multilateral and bilateral donors. On the contrary, the respondents reported that communities found it difficult to accept this intervention because women's participation went against cultural norms, with one respondent stating *"First, it's difficult for them [community members] to really accept that* [gender equity]. *Because even the same women in communities were rejecting that. [We would say] "Okay, this is your slot. Can we have women?" Okay but you find that the women who offer themselves will be*

**Table 1**
Summary of equity perceptions.

| Dimension | NGO Perceptions | Government Perceptions | Local People's Perceptions |
|---|---|---|---|
| Distribution | – Emphasis on gender parity in governance.<br>– Equity viewed in terms of benefit-sharing and conservation funding. | – Equity viewed in terms of benefit-sharing and conservation funding | – Human-wildlife conflict disproportionately affects them, with no compensation<br>– Wealth from safari hunting benefits elites. |
| Procedure | – Decisions about conservation priorities and interventions are primarily made at international and organizational levels.<br>– Communities are consulted but must align with NGO goals to receive support. | – Decisions about conservation priorities and interventions are primarily made at National and Regional Level<br>– Communities are consulted but must align with national Policies | – Decision making is centralized at the national and district levels, reducing local capacity to address pressing issues.<br>– Local governance structures seen as corrupt and exclusionary. |
| Recognition | – Cultural norms acknowledged but sometimes overridden to achieve conservation goals<br>– NGO interventions are withdrawn if community adherence is not met. | – Cultural norms acknowledged but overridden for conservation goals e.g. Local hunting illegal<br>– Community infantilized by government actors | – Communities feel. Government and NGOs prioritize conservation over human well-being.<br>– Loss of Historical local governance structures (e.g., local hunters) were more responsive. |

*less than 30 %. So, it was really a challenge. And it's still a challenge, let me accept that. But we are trying, we are striving, and we are trying by all means to ensure that we have more women in resource protection. Sometimes you can even have more women than men apply in some communities. But in some communities, it's still a problem because of some cultural beliefs and the issues of, I think, perception as well. Which is really affecting them, they feel "No, we can't be there."* [Key_2]. Therefore, gender equity efforts remain hindered by both cultural norms and internalized perceptions among women themselves, as this respondent highlights. Nevertheless, NGO actors were confident that making community governance structures more inclusive placed them among the best in the country and was responsible for the rapid drop in elephant poaching in the national park and the GMAs.

According to the monitoring reports of the NGOs, the interventions of human-wildlife conflict were considered successful. However, this assessment contrasts with data provided by the DNPW which indicates that human-wildlife conflict had increased by 153 % in Munyamadzi, 447 % in Mukungule, and 541 % in Musalangu GMA. Focus group participants also reported increased elephant sightings, which they said was the result of conservation success. They acknowledged that "*conservation is good because it brings tourism but what we really want is just to be protected from wildlife by the people who are managing these animals. Even if you hide your maize in the house, the elephant will destroy the roof and just take it. They might even kill you. They need to protect us even if it means hiring more officers.* [FGD01]. Key informants involved in law enforcement acknowledged that certain legal frameworks limited the community's ability to defend itself in cases of human-wildlife conflict. "*Communities cannot supervise a trained officer because they are civilians"* [Key_1], suggesting that the roles of trained wildlife officers and community members were institutionally separated. Therefore, local communities had no formal capacity to solve aspects of human-wildlife conflicts that they perceived as having the greatest impact on their livelihood. Furthermore, there was a tendency among government officials to infantilize community members in their narratives, with one key respondent continually referring to communities in wildlife areas as *"our children"* [Key_1] and another reporting that "*communities do not have the capacity to manage wildlife"* [Key_4].

Interviews with key respondents from NGOs revealed that, while there was a focus on equitable benefit-sharing, their primary priority was conservation, with decisions already made at the international level of the organisation. According to a key respondent from an NGO, in the long term, they expect "*less animals killed, fewer trees are deforested. improved soil quality in the area, improved water bodies, ecologically functioning systems within the areas that we work in"* [Key_2], indicating a strong emphasis on ecological outcomes. At the same time, the NGO respondents also reported that they were aware of the importance of tradition and culture within any community they went to: *"We always consult community leaders when we undertake a project"* [Key_2]. It was important that they learned how people worked and what was sacred to them before they implemented their activities. However, even as they tried to implement culture recognition, NGO staff also reported withdrawing logistical support in some areas where community members would not follow NGO guidelines for project implementation. When discussing an incident where a disagreement occurred with community members, an NGO respondent stated: *"It is better we move those [construction] materials from that area, we give to the people who are serious."* [Key_3]. Hence, while some input was sought from local communities on project implementation, they had to align with the NGO to benefit from interventions.

### 3.2. Perceptions of the local people about equity

The focus groups included four VAGs adjacent to the National Park, these were Pondo, Chishala, Chilima and Kazembe, as well as two VAGs adjacent to the towns of Chama and Mpika, Mwansabamba and Chizimba. Differences in perceptions of equity appeared to be influenced by human-wildlife interactions, particularly with elephants. However, additional factors, such as economic opportunities, may also shape these perceptions. These dynamics were evident in areas like Chizimba, where wildlife impacts had eroded economic independence, and Mwansabamba, where distance from conflict zones limited access to conservation-related benefits. In Chizimba, respondents expressed frustration over their increased reliance on government aid due to wildlife-induced crop losses, stating, *"We had businesses when there were fewer animals. . . Now we depend on government aid"* [FGD06]. In contrast, the respondents in Mwansabamba, where no human-wildlife conflict was reported, perceived less direct environmental injustice. Instead they, attributed their exclusion from conservation benefits to their location outside the park's buffer zone. One participant explained: *"We were sidelined maybe because we are not close to the buffer zone near the National Park. We are like orphans, even when it comes to giving jobs, only people from that area get job"* [FGD05].

The increase in human-wildlife conflict has made co-existence with wildlife a contentious issue particularly in Munyamadzi and Musalangu GMAs. This increase has been particularly felt in Musalangu GMA near Chama town where respondents reported that depredation on their crops by elephants had lowered their ability to look after themselves and made them poorer. One respondent linked this situation to a broader sense of misrecognition, arguing that conservation policies appeared to prioritize wildlife over people: "*We're facing difficulties because the people governing these natural resources do not consider us. . . They've taken care of dead animals, forgetting us"* [FGD03]. In the eyes of local people, the lack of compensation, especially when human lives were lost, was considered particularly unjust because authorities did not value human life the same way they valued an elephant. It was felt that since elephants had a high monetary value when they were hunted by safari hunters, compensation for the loss of a human life should at least equal the price of an elephant. This lack of perceived value for local people and prioritization of conservation over their well-being was highlighted in several of our focus group discussions and individual conversations through the refrain "*We have become animals, and the animals have become people.*" [FGD02].

In Musalangu, respondents believed, that valuing wildlife over people led governance actors to use human-wildlife conflict as a tool for displacement. In their view, displacement was being achieved indirectly by not effectively responding to human-wildlife conflicts. According to one respondent, even the chief was complicit in trying to displace them: "*I think what the chief is doing is making us suffer. It is intended to force us to move from here. Even what the government is doing to make us suffer is intended to force us to move"* [FGD04]. In contrast, focus group respondents recalled previous times when human-wildlife conflict mitigation had been more effective. In the past, they had local hunters they called *"Ba fundi"*. These were hunters who lived within communities and could hunt 'problem animals', particularly elephants. According to respondents, in the past, a decision about what to do in conflict situations was made locally. Currently, a decision about what to do if an elephant damages their crops is made by the Department of National Parks and Wildlife (DNPW) officers at the district level, in consultation with their Lusaka head office. By the time a decision is made, it is often too late for community members, since they would have already lost their crops or experienced injury or death.

Respondents viewed distributional, procedural, and recognitional equity as interconnected rather than separate concepts. Local communities often attributed the lack of distributional and procedural equity to the lack of recognition. In one instance, a focus group respondent explained that their unwillingness to participate was due to the burdens of human-wildlife conflict which they believed was exacerbated by misrecognition, stating: *"Going to these meetings is like fooling yourself because when these animals destroy and eat our crops you report [To DNPW], but they don't come. If you kill an animal, they will be here right away. When you go there it's as if you are stupid. They are not even concerned with us; they are concerned with their animals."* [FGD04]. For the

local people, misrecognition was not purely subjective, since it was linked with quantifiable losses to their livelihoods. However, when asked if they would be willing to move out of the GMA to areas without human-wildlife conflict, a focus group respondent stated: *"We can never move from here. The fact that we complain does not mean that this land is bad. No, this is good land. Even if we drink from the same water hole as wildlife, it is still good water that still quenches our thirst"* [FGD04]. This illustrates a notable tension with respect to local narratives: on the one hand, local people expressed frustration with the lack of protection from wildlife by governance actors while still articulating a sense of belonging to the land, its resources, and the wildlife they share it with.

## 4. Discussion

The North Luangwa Ecosystem is a co-governance model that combines "fences and fines" conservation (Hutton et al., 2005), in which nature is conceived as wilderness in the NLNP, with an attempt to reflect a more equitable "people and nature conservation" paradigm in Game Management Areas through participatory approaches and benefit-sharing mechanisms (Bennett et al., 2020; Mace, 2014). The expectation of NGOs and governments implementing CBNRM projects is that, given the benefits of wildlife and the opportunities to participate, local communities will be willing to live with the costs of wildlife (Kansky et al., 2021). Thus, government and NGO actors have made efforts to implement equity in tandem with conservation in the North Luangwa Ecosystem. However, our research illustrates a deep disconnect in perceptions of equity within this conservation co-governance system, highlighting tensions between NGO/government actors and local communities. These tensions go beyond mere perceptions and are deeply embedded in the interplay of distributional, procedural, and recognition equity with differences across regions underscoring the challenges of achieving equitable conservation outcomes. Our results align with and add to the existing literature on CBNRM in the context of human-wildlife conflict, equity, and power dynamics in conservation (Agrawal and Gibson, 1999; Dressler et al., 2010).

Although government and NGO actors acknowledged the need for participation, there has been no real decentralization of power regarding the mitigation of human-wildlife conflict. This represents a stark change for local people, particularly the Bisa of Munyamadzi and Mukungule, whose identities were deeply rooted in local hunting practices (Marks, 1999, 2017). The shift from localized conflict resolution through traditional institutions such as "Ba fundi" to centralized decision making by the DNPW and NGOs exacerbated procedural inequity across all regions and is most pronounced in isolated areas like Munyamadzi GMA. For the Bisa, hunting wildlife is "about more than protein and revenue" (Marks, 1999, 2017). Rather than being purely transactional, this tradition is rooted in customary rites and reciprocal relationships, facilitated by the social exchange of wildlife products (Marks, 1999, 2017). Although communities are recognized through "participation" as defined by NGO and government actors in the North Luangwa, they are denied customary rights that cannot be measured in monetary values. Studies on the Makah tribe in Washington State (Roberts, 2010), the Indio-Maíz Biological Reserve in Nicaragua (Nygren, 2004), and land restrictions affecting the Maasai in East Africa (Brockington, 2004; Woodhouse and McCabe, 2018) highlight a recurring theme similar to that of the Bisa in that conservation efforts can perpetuate historical injustices when they exclude local and Indigenous perspectives and ways of living.

For government and NGO actors in the North Luangwa Ecosystem, equity was framed in terms of measurable indicators, such as increased gender parity in governance structures (e.g., women's representation in Village Action Groups rising from 21 % to 50 % between 2017 and 2020) and reduced elephant poaching, which were linked to donor-driven priorities. While these metrics are important, they reflect an instrumental rather than a fundamental or intrinsic value system. Instrumental framings of equity treat the environment primarily as a resource for human use, aligning with anthropocentric perspectives common in Western thought (Marks, 2019). In contrast, a fundamental framing views equity (in both processes and outcomes) as inherently right or valuable, independent of whether it directly supports conservation efforts (Law et al., 2018). Thus, a fundamental view of environmental equity becomes a moral imperative that recognizes local worldviews, such as those emphasizing kinship with land and wildlife. Conversely, purely instrumental equity interventions lack robustness and risk failing to engage their intended audiences effectively. They may inadvertently lead to new forms of coercion or dispossession, disproportionately impacting communities relative to the problems they seek to address (Martin et al., 2015).

In the case of the North Luangwa Ecosystem, local people bear the ever-increasing cost of human-wildlife conflict, which rose by 153 % in Munyamadzi, 447 % in Mukungule, and 541 % in Musalangu respectively. As a result, equity interventions did not align with local people's need to address human-wildlife conflict in ways that do not have a net negative effect on their capabilities to achieve sustainable livelihoods. The feelings of inequity resulting from human-wildlife conflict costs were compounded by perceptions of misrecognition, evident in statements such as "*we have become animals, and the animals have become people*." [FGD02]. These sentiments were particularly strong in VAGs around Musalangu GMA and reflect a perceived devaluing of human life compared to wildlife especially elephants, which have significant safari-hunting value. Furthermore, the perception that wildlife was more important than local people caused a profound sense of misrecognition because the idea of animals possessing equal rights with humans is not a culturally accepted concept in Zambia (Kapembwa, 2017). For instance, in their study of shared cultural norms around GMAs adjacent to Kafue National Park, (Nyirenda et al., 2024), found that both Wildlife Police officers and local people agreed that "the needs of people are more important than the needs of animals," highlighting a complex tension between policy perceptions and cultural values.

Misrecognition is exacerbated by interventions that clash with local culture, such as strict gender parity mandates, and withdrawal of support from communities that fail to comply with NGO guidelines, such as redirecting construction materials to other communities. Although NGOs claim to adapt to local traditions, their insistence on compliance as a condition for benefits suggests a form of conditional recognition that is neither truly inclusive nor resonant with local populations (Pascual et al., 2014). Gambon and Bottazzi (2021) argue that a key issue with CBNRM interventions is the mismatch between local people's ways of being-in-place and their social organization, and the conditions imposed by NGOs and government programs. This misalignment results in a profound misrecognition of the diverse subjective realities through which individuals and communities perceive and value nature, shaped by their unique cultural, social, and firsthand experiences (Gambon and Bottazzi, 2021). Furthermore, misrecognition extends beyond the subjective; it is tied to tangible losses, such as reduced capabilities to sustain local livelihoods (Martin et al., 2016). The absence of compensation, combined with infantilizing attitudes from government actors like the DNPW (who refer to local people as "our children") undermines the recognition of local identities and needs, a fundamental aspect of equity (Martin et al., 2016).

Actors in the North Luangwa Ecosystem reflect what Witter (2013) terms divergent narratives. On the one hand, NGOs and government institutions promote a "win-win narrative," while local communities have an ambivalent narrative (Tumusiime and Svarstad, 2011). The "win–win narrative" promises positive outcomes for both conservation and local communities, while the ambivalent narrative expresses disappointment in the uncompensated costs of living adjacent to a protected area (Tumusiime and Svarstad, 2011). Although the rhetoric around local participation has grown, in practice, NGOs and governments appear primarily concerned with conserving nature, using equity as merely one means rather than an end (Benjaminsen and Svarstad, 2010). Many conservation initiatives promise to contribute to equitable futures, but are often not designed to do so from the outset, remaining

top-down (Dressler et al., 2010; West and Brockington, 2006). GMAs around North Luangwa exemplify this top-down history: as Gibson and Marks (1995) noted, the push for equity interventions in the Luangwa Valley did not originate from local people themselves, although they still contributed in several ways to these external projects.

Implementing equity interventions poses "wicked" problems that are difficult for protected area governance actors to solve (DeFries and Nagendra, 2017). This complexity arises because equity itself is not absolute; different perceptions of equity present unique challenges in implementing interventions intended to produce equitable outcomes (Martin et al., 2016). Determining levels of benefit-sharing that foster cooperation is challenging, and purely monetary benefits do not always account for variations in wildlife tolerance (Kansky et al., 2021). For instance, the creation of a Swiss park failed because locals perceived a sense of inequity, despite the supposedly robust distributional, recognitional and procedural processes (Michel, 2019). Thus, it is not clear whether fulfilling equity dimensions in an "objective" way (e.g., achieving gender parity) would necessarily result in a perceived sense of equity (Michel, 2019). This underscores the importance of understanding diverse perceptions of equity based on the specific contexts in which conservation governance initiatives occur and their impacts. Such an understanding can guide more equitable conservation design that incorporates local concerns and fosters involvement in ways meaningful to all stakeholders.

While our study provides rich qualitative insights, its reliance on focus groups and key informants limits the generalizability of findings across the broader North Luangwa Ecosystem. We addressed this limitation by conducting 20 focus groups in areas representing a broad spectrum of lived experiences, including peri-urban environments such as Mwansabamba and Chizimba VAGs, as well as communities living close to wildlife adjacent to North Luangwa National Park, such as Pondo and Chishala VAGs. Future research could adopt a more ethnographic approach to gain deeper insights into how perceptions of justice interact with other factors in traditional societies like those around North Luangwa (Das, 2021). We also recommend an intersectional approach to equity that helps identify marginalized groups within communities and conceptualizes social-ecological transformation in light of local perceptions (Sánchez-García et al., 2025).

## 5. Conclusion

The North Luangwa Ecosystem demonstrates the complex challenge of harmonizing conservation with equity within a co-governance framework. Our study reveals how human-wildlife conflict exacerbates local perceptions of inequity, as communities link their marginalization to a system that prioritizes wildlife conservation over human well-being. These feelings are not merely subjective but are tied to tangible losses, crop damage, land competition, injury, and death, compounded by a sense of disrespect and misrecognition from governance actors. By contrast, NGOs and the DNPW often frame equity in quantifiable terms, such as distributional benefits or procedural participation, treating it as a tool for conservation rather than an intrinsic goal. This instrumental approach fuels local dissatisfaction, exacerbating a serious disconnect that undermines the promise of equitable conservation.

To address this equity gap, we propose prioritizing recognition equity through training for NGO and government actors on local worldviews, such as the Bisa's cultural ties to hunting, thus ensuring conservation interventions include respect for intrinsic values beyond measurable metrics. These steps change equity from a means to an end, fostering a governance model that aligns with community realities. Furthermore, there is a need to decentralize decision-making power regarding human-wildlife conflict interventions to the lowest level of local institutions such as Village Action Groups as well as reviving traditional institutions such as "*Bafundi*". This can enhance procedural and distributional equity by integrating community-led human-wildlife conflict resolution strategies. Additionally, we recommend establishing autonomous mediation forums that can bridge divergent narratives, allowing open dialogue between communities, NGOs, and government actors to collaboratively establish shared meanings and definitions of equity and conservation. We recommend incentivizing adaptive co-management and allowing policies like gender parity mandates to develop with community input, preventing conditional recognition, and building trust. Without closing this equity gap, conservation risks becoming a hollow victory, celebrated by external actors but mourned by those living alongside wildlife. By embracing these recommendations, the North Luangwa Ecosystem can move toward a shared success that honors both nature and its people.

## Author statement

On behalf of my co-author, I would like to re-submit our revised manuscript titled "Unveiling disparities between planned and perceived equity arrangements in protected area co-governance: evidence from the North Luangwa Ecosystem in Zambia" for consideration by Environmental Science and Policy. The submitted manuscript is original research carried out by the authors. Both authors agree with the contents of the manuscript and its submission to the journal. Rhoda Nthena Kachali led the conceptualization, data collection and analysis, and was the primary author of the manuscript. Jacqueline Loos contributed to the conceptualization, writing, and supervision of the research. Both authors reviewed and approved the final version of the manuscript. The data supporting the findings of this study are available from the corresponding author upon reasonable request. The research and the manuscript have not been published so far in any form and is not under consideration for publication in any other journal currently. Any research in the paper not carried out by the authors is fully acknowledged. We acknowledged all sources of funding in the manuscript and declare that there is no direct financial benefit that could result from the publication. We meet all requirements concerning research ethics.

## CRediT authorship contribution statement

**Loos Jacqueline:** Writing – review & editing, Supervision, Project administration, Methodology, Funding acquisition, Conceptualization. **Kachali Rhoda N:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.envsci.2025.104068.

## Data availability

Data will be made available on request.

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