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Can REDD+ projects deliver livelihood benefits in private tenure arrangements? Experiences from rural Zambia

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ABSTRACT

This paper asks whether REDD+ Projects in private tenure arrangements can deliver livelihood benefits and development in rural communities. We draw on a conservancy under two private companies – a landowner and developer – alongside community zones in Zambia to explore how private capital converges in rural geographies, and what local communities make out of this 'novel' coordination arrangement. Based on a qualitative study design, we conducted household interviews, key informant interviews and group discussions to explore people centered accounts of people, lived REDD+ realities and experiences. Results show a national policy and legal context necessitates private capital convergence in rural spaces, but communities are poorly served. Private tenure arrangements heighten resource restrictions, unequal benefit sharing mechanism, and affects community agency. Selected infrastructure developments have taken place through carbon payments, but related REDD+ activities have been narrow as opposed to being broad-based, driving inequalities and gender differentiation. Continued deforestation and traditional charcoal production in project areas express community disempowerment and disinterest. Thus, even where REDD+ schemes are foisted in private tenure arrangements, they are likely to be more precarious, foreclosing political reactions from below and alternative livelihood possibilities that may be capable of resisting status quo logics of accumulation and commodification of forest carbon.

1. Introduction

Advancements in forest-based carbon have sparked a growth in the financing and market dynamic for carbon forestry in developing countries (Fleischman et al., 2021). Green markets and new conservation programmes such as the UN- Reducing Emissions from Deforestation and Degradation (REDD), Industrial Tree Plantations, and Carbon and Biodiversity offsetting schemes have steadily risen in the past three decades. While REDD is primarily intended to prevent forest loss, and reduce emissions through land use change, issues of social justice and equity, social and environmental safeguards for enhanced local benefits circulate REDD+ schemes (Dressler et al., 2012; Satyal et al., 2020; Leventon et al., 2014). Yet, there is a general under-theorisation of REDD+ schemes in private tenure arrangements and what this means for the experiments around neoliberalisation of Payment for Ecosystem Services (PES) (Matulis, 2021), and social and economic possibilities in host communities (IPCC, 2022). REDD+ schemes point to countries and projects that can demonstrate progress in the reduction of forest-related carbon emissions (Benjaminsen and Kaarhus, 2018), providing possibilities for actors in developed countries to buy 'carbon credits' from poor countries (the logics of PES). Carbon verification and validation systems for compliance with specific standards for carbon sale thus respond to the neoliberal agenda of market imperatives (Sheng, 2020a, 2020b). However, the development of carbon markets around the potential of forests and land cover to sequester carbon from the atmosphere, and harnessing private capital (frequently cited as green, sustainable, environmental financial markets) in the so called 'green spaces (carbon finance) is not straightforward, and has attracted sustained critical attention.

Recent research efforts have problematized the idea of incorporating domains previously governed by non-market values and norms into markets, circulating conservation biodiversity ecosystems profitable to investments (for profit biodiversity conservation) – evoking narratives of commodification of nature/ecosystems (Dempsey and Suarez, 2016) and related processes for doing so (Bridge et al., 2020). The argument is that neoliberal conservation integrates nature and its conservation into capitalism on a global scale and consistent with market-based conservation approaches, reshaping property rights in host communities and

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leading to a set of growing risks (Corbera, 2012). Whereas environmental markets over the past three decades have not been followed with similar massive capital flows into market-based conservation – scope, size and geographically – these, critics argue, present sites of accumulation (Dempsey and Suarez, 2016). REDD+ initiatives sustained on a 'win-win' (co-benefits) discourses (protecting biodiversity and other forest-based ecosystem services and supporting forest-based livelihoods) are seen to circulate a simplification of nature that undermines socio-ecological resilience (Dawson et al., 2018; Nathan and Pasgaard, 2017; Luttrell et al., 2013; Kelly, 2010). The argument is that these lack procedural legitimacy and reproduces existing inequities and forms of social exclusion in developing countries (Corbera, 2012).

Mainstream environmental conservation literature reveals how neoliberal conservation initiatives are often at odds with people centred accounts of their lived realities, underpinning livelihoods, human rights and autonomy of forest owners (local communities) (Benjaminsen and Kaarhus, 2018; Corbera, 2012). There are questions around land grabbing, land tenure conflicts, dispossessions, and displacement, shaped by power asymmetry in decision-making, and unclear benefit sharing mechanisms (Dunlap and Fairhead, 2014; Svarstad and Benjaminsen, 2017; Scheba and Scheba, 2017). There are concerns REDD+ leads to re-centralisation of control over forests as well as inhibit the participation of local communities in forest management (Nantongo et al., 2019), seen in the extent to which REDD+ interventions can encourage community agency and partnerships in forest governance (Conning and Kevane, 2002). Related contestation and resistance to REDD+ in some cases have pointed to militarisation and state violence (Asiyanbi, 2016). A critical social science agenda has responded by interrogating diverse ways private capital investments converge and playout in different settings, including pathways to carbon finance (Bridge et al., 2020). Whereas REDD+ often integrate local and indigenous communities as forest owners and guardians in coordination arrangements (Blom et al., 2010), how schemes play out in private tenure arrangements and implications across livelihoods remains a less understood area of inquiry (Soliev et al., 2021; Hiratsuka et al., 2021; Nantongo et al., 2019; Saeeda et al., 2018; Paudel et al., 2015). The existence of a burgeoning literature on REDD+ highlights a lacuna: we know far less about how REDD+ plays out in different coordination arrangements specifically private tenure arrangements and the processes underpinning such schemes. This article presents an empirically based and critical investigation of the ways in which a pioneering REDD+ project in Zambia plays out in a novel coordination arrangement that integrates two private companies – one a land owner the other a developer – and a community. We address three specific questions:

1. How has private capital been harnessed in national environmental conservation, and what are the coordination arrangements that underpin the delivery in private tenure arrangements?
2. In what ways do REDD+ initiatives in private tenure arrangements configure livelihoods and what do local people make out of these initiatives?
3. How can REDD+ initiatives in private tenure arrangements be organised to ensure greater social and economic benefits in local communities, and what would this mean for neoliberal conservation?

We seek to contribute to calls for further research into how neoliberal conservation sites playout, and implications, but suggest more rigorous understanding of these processes also requires insights from lived realities – meaning making. What interests us in this paper is how these elements play out in 'novel' coordination arrangements. In Zambia, dual land tenure systems prevail, but continued conversion of customary land means pre-existing livelihood patterns face pressure from private actors (Manda et al., 2019). A clear policy and legal framework enable different actors to exert pressure on forest sites as environmental conservation. Exploring how different projects navigate tenure dynamics to achieve conservation objectives, and implications livelihoods can help shed light on the limits of neoliberal environmental conservation and what this means for local communities supposed to be adapting. Our scope is a case study of a pioneering REDD+ project in the Lower Zambezi in Zambia (the Rufunsa Conservancy – RuConserve), which integrates two private actors – a land owner and a developer – and local communities (project zones) to protect about 40,126 ha of forest. RuConserve is Zambia's first Verified Carbon Standard (VCS) verified REDD+ project, achieving seven successful VCS verifications and `Gold` level validation against all three categories of the Climate, Community and Biodiversity Standard for its exceptional climate change impacts and community and biodiversity benefits (BCP, 2021). The Lower Zambezi National Park forms part of a globally significant trans-frontier conservation area home to important elephant, lions, and other wildlife populations, protecting over 60 km of threatened boundary (Mwape, 2019). By examining how REDD+ plays out in private tenure arrangements, we complement existing environmental justice literature that sheds light on the risks and limitations of ecosystems driven conservation and limitations of 'selling nature to save it' (Dempsey and Suarez, 2016). The paper argues that even where REDD+ schemes are foisted in private tenure arrangements, they are likely to be more precarious, and that the potential for greater livelihood benefits have been distorted, foreclosing political reactions from below and alternative livelihood possibilities that may be capable of resisting status quo logics of accumulation.

The paper is divided into five sections. Section 2 reviews broader debates on neoliberal conservation and community livelihoods. Section 3 is the methodology. Section 4 focuses on policy context and how REDD+ plays out in private tenure arrangements, and implications for livelihoods. Section 5 offers concluding reflections on the theoretical implications of REDD+ and how an agenda on environmental conservation can be taken forward in human geography and related fields.

2. Neoliberal conservation and community livelihoods

Climate change impacts are inherently local and political – and so are response pathways. Recent advances incorporating carbon into the extraction of financial value means, *"it is vital that we do not portray the environment as a flat terrain over which financial investment can be unproblematically stretched"* (Kay, 2018, p172). We take seriously how carbon finance is made and the political economies it enables, particularly the 'frictional encounters' that arise in conservation sites (Bridge et al., 2020; Ouma et al., 2018, p501). Trade exchanges underpinning carbon markets evoke narratives of commodification – of turning all manner of things into 'capitalised' property that generates an income stream and entails liabilities and obligations (Birch, 2017).

Literature on environmental conservation and human geography reveals commodification obscures ecological complexities, ecosystems and non-economic values related to forest spaces. It also obscures power relations that underline carbon trade 'value-chain' and local implications. Specifically, these render invisible local norms, practices and social relations at local level to the exclusion of local groups (Benjaminsen and Kaarhus, 2018). There is evidence of spatial and ethnically differential outcomes of REDD+ activities (Hiratsuka et al., 2021), inadequate partnerships, and challenges of accountability (Shin et al., 2021; Angelsen et al., 2018). Scholars have raised concerns over social safeguards, including livelihood sustainability (Leventon et al., 2014). Highlighting politically contested issue of resource, access and power struggles, Paudel et al. (2015) circulates the role and importance of tenure arrangements and governance dynamics in REDD+ initiatives. The argument is that rather than promoting REDD+ activities as straightforward *'win-win'* discourse, consideration should be placed on related trade-offs, politics and conflicts. Specifically, power asymmetries lead to a lack of empowerment of citizen and social differentiation (Nantongo et al., 2019; Poudel et al., 2015).

REDD+ schemes have often deployed community approaches in

collective tenure arrangements. There is evidence these tend to be more successful in creating provisions of additional benefits and diffusing conflicts – arguably inclusive (Soliev et al., 2021). However, evidence of resistance to REDD+ activities and conservation regulations and unequal power relations mean coordination arrangements and outcomes are never straightforward (Mukono and Sambaiga, 2021). There are differential impacts of REDD+ projects (gender/ethnic lines) (Satyal et al., 2020); issues of inequalities and poverty. There are also issues related to tenure arrangements, uneven local knowledge and capacity implicated in REDD+ initiatives (Saeeda et al., 2018); including policy implementation deficits (Kalaba, 2016). In addition, acceptability of REDD+ activities is somewhat contingent on the appropriation of its benefits and costs to affected households, which further depends on the forest management regime – private, community or government (Rakatama et al., 2020). Yet, payment of monetary incentives or lack thereof does not necessarily motivate community participation in REDD+ (Isyaku, 2021) – which is also dependent upon coordination arrangements of schemes. Specifically, how private tenure arrangement shape coordination arrangements and benefit sharing mechanisms in host communities is a key unknown in REDD+ literature. Whereas significant attention is being paid to ensure communities stand to benefit in REDD+, concerns continue to point to the potential negative livelihood impacts on communities of forest preservation (Shrestha and Shrestha, 2017; Leventon et al., 2014; Awono et al., 2014), including unequal benefit sharing mechanisms (Bare et al., 2015).

What is also concerning is how REDD+ initiatives can drive concentration of land into larger holdings and act as important forms of land control, affecting availability, access and utilization of land. Specifically, livelihood activities and capabilities of host communities continued to be pushed to the margins (dispossession), whilst prospects for non-forest resource based livelihoods increasingly become uncertain. Some of this relate to reconfigurations of land and land-based resource access and utilization, including forest ecosystem services (Loaiza et al., 2016). Given the social and cultural multiplicity in what constitutes appropriate livelihoods, there is need for critical climate change literature to consider local conditions necessary to achieve successful adaptation, including which coordination arrangements work best. This paper sheds light on the lived realities at the intersection of private capital and local livelihoods. Specifically, how private capital is harnessed within the national context as 'new ventures,' how actors converge in local settings, and what local communities make out of these processes is central to this paper.

3. Research design and methodology

Rufunsa district is a municipal sub-office under Chongwe Municipal Council. It was declared a district in 2012, comprising one constituency and ten wards. The district locates over 158 km from the capital Lusaka and has a population of approximately 71,000 based on 2017 estimates (GRZ 2021). RuConserve locates in Chief BundaBunda and has four zones: Chilimba, Mweshang'ombe, Ndubulula and Namanongo. Whereas RuConserve land is held under leasehold, project zones are villages affected by the REDD+ project and are designated as customary land occupied by villages (BCP, 2013). The population of the project zone is approximately 8300 people with 1167 households living in 28 villages spread across four community zones. We focused on Namanongo and Ndubulula (Fig. 1).

There are over 9297 households (about 50.6% male). Rufunsa is dominated by Miombo woodlands vegetation type predominantly Isobelinia, Brachystegia, Mopane and julbernardia species. Subsistence agriculture predominates alongside charcoal production (Mwape, 2019). Across the study sites, most households have no access to electricity and good sanitation services and are primarily reliant on charcoal production and subsistence agricultural activities. Documentary evidence show 88% of households in the project area live below $1.25 per day. Average household annual incomes revolve around ZMK8000 and ZMK5000 with mean annual per capita income revolving around ZMK10,500 and ZMK8000 in Ndubulula and Namanongo respectively (BCP, 2013). REDD+ project implementers BioCarbon Project (BCP) supports various activities in community zones whilst maintaining the ecological integrity of the RuConseve.

We deploy a qualitative study design that surfaces people centered accounts of people, lived REDD+ realities and experiences. Our inductive and grounded inquiry incorporates individuals drawn into REDD+

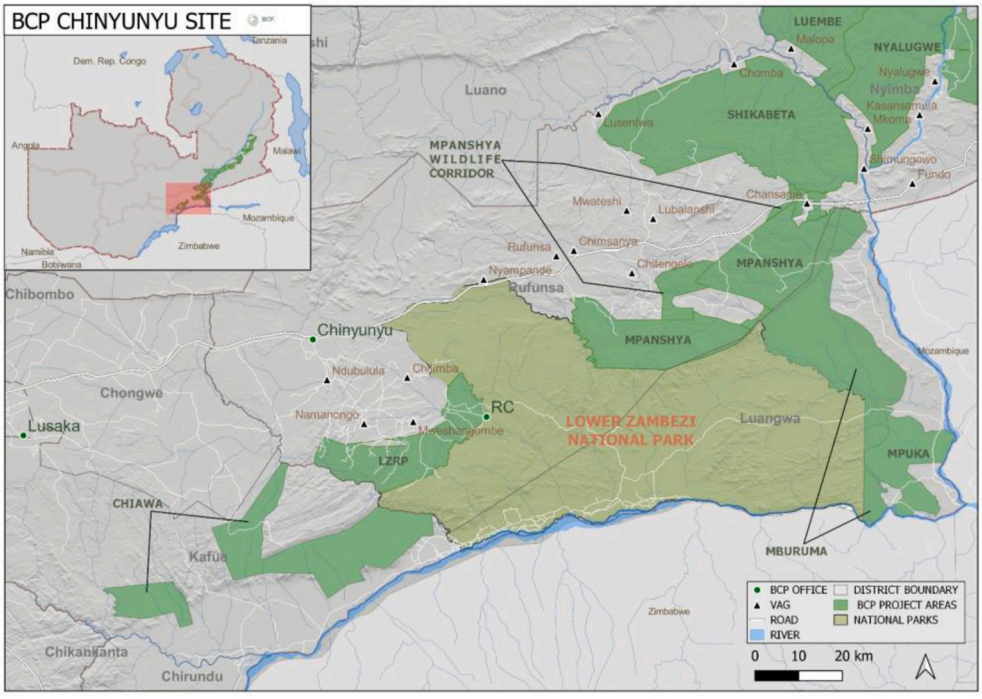

Fig. 1. BCP Sites (BCP, 2021).

schemes as 'knowledgeable agents p.17' (Gioia et al., 2012). This allowed a deep and rich analysis of the context and realities within which REDD+ takes shape. As much as possible we feature local views prominently throughout the study as opposed to affirming pre-existing theoretical concepts (Gioia et al., 2012).

Table 1 shows demographic profile of the two study sites.

We selected participants based on their knowledge and relationship with the RuConserve and the project zones, without a preset number of participants (Campbell et al., 2020). Headmen and other traditional leaders helped to identify households in the zones who could identify themselves with the project at least for three years, excluding new immigrants. We approached individuals available and willing to participate in the study, selecting candidates across a broad spectrum (heterogeneous sampling) (Table 2).

Whereas we sampled different groups across gender, age and economic categories (Fig. 2), decision on sampling was based on adequacy and representation of different identified social groups (Saunders et al., 2018).

We emphasised saturation – a stage where any further data collection was unnecessary and where no new data could be found (Campbell et al., 2020; Saunders et al., 2018; Etikan et al., 2016). We applied a four-stage data collection strategy, collecting data between 2018 and 2022 through a series of fieldworks. We collected retrospective and real-time accounts of people supposed to be co-existing with the RuConserve (Gioia et al., 2012). Stage I was preliminary field assessment, getting to a sense of 'who is who' and 'who is doing what, where and how' in REDD+ communities – including livelihood patterns. We defined the rationale and procedures for participant selection, generating a preliminary list of potential recruits. We avoided using frequently cited theoretical concepts such as 'commodification,' 'dispossession' and 'sites of accumulation' to allow new framing and descriptions of lived realities and to avoid imposing researcher's pre-ordained understanding on people's REDD+ experiences (Gioia et al., 2012).

Stage II involved conducting qualitative household interviews in Ndubulula and Namanongo Zones (n = 72) using a qualitative questionnaire checklist (Table 3). We used a household as analytical lens for exploring REDD+ implications on diverse aspects of livelihoods, including land-use dynamics, incomes, food security, and gender dynamics (see appendix).

The questionnaire checklist explored household experiences and perceptions of REDD+ in private tenure arrangements specifically how households make sense of the REDD+ scheme. This includes land-use, incomes sources, and expenditure and general livelihood activities.

Stage III involved group discussions across gender as follow up probes, and to explore processes through which the first pioneering REDD+ projected unfolded in the community. Discussions focused on processes underpinning REDD+ implementation and what this means for social, economic and environmental aspects of livelihoods. Discussion across age and gender (n = 36) were used to explore perceptions of REDD+ activities, governance and coordination arrangements and local impacts. We followed discussions with key informant interviews with state departments (n = 5). We included Chiefs (n = 1), forest guards (n = 2), BCP Officers (n = 2), NGO (n = 1), and representatives of state agencies (n = 1). Interviews explored actors and their roles, including the wider context within which REDD+ plays out, including policy and legal tools relied upon. We also used observations to get a sense of livelihood activities and links to the RuConserve.

Analysis involved manually figuring out patterns in the data, surfacing concepts and relationships beyond the awareness of participants, and then circulating emerging concepts in theoretically relevant terms – as advanced by Gioia et al. (2012). Specifically, 1st order analysis generated and adhered to informant terms, codes and categories, including similarities and differences across gender and zones. 2nd order analysis asked: what is theoretically going on in the 1st order data, linking grounded insights to wider narratives, paying attention to

Table 1
Village Project Zones and population dynamics (RuConserve project reports).

Zone	Heads of Household		Number of households	Mean household Size	Total
	Male	Female			
Namanongo	305	39	344	6.36	2187
Ndubulula	295	43	338	7.1	2400

Table 2
Data sources and study participants.

Source	Participants
Interview Questionnaire	72
Focus Group Discussions	20
Key Informants	
Ministry of National Planning	1
Bio-carbon Partners	2
Department of forestry	1
Zambia Development Agency	1
Department of wildlife and National Parks	1
NGO	1
Community key persons (e.g. forest guards/officers)	2
Traditional Leaders	2

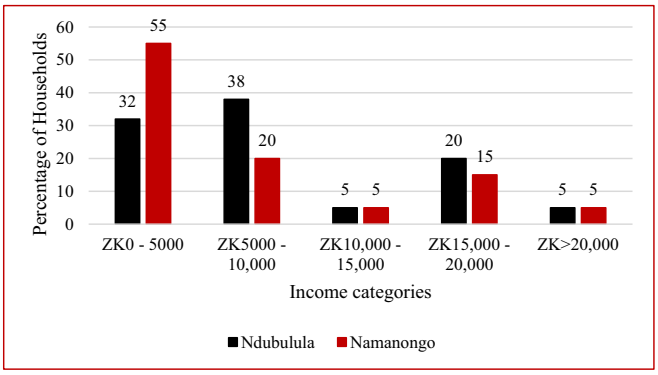

Fig. 2. Households and income categories.

Table 3
Demographic characteristics of the study participants.

Background characteristics	Frequency	Percentage
Age Group		
20–39	37	53.3
40–49	19	26.3
50–59	11	15.2
60 and above	5	6
Employment level		
Employed	2	2.7
Unemployed	12	16.6
Self employed	56	77.7
Retired	2	2.7
Marital status		
Single	10	13.8
Married	55	76.3
Divorced	5	6.9
Widowed	2	2.7
Gender		
Male	47	66
Female	25	34

concepts without adequate theoretical referents in existing REDD+ literature (ibidi.). We coded, generated and reviewed emerging themes in relation to the study objectives. We used NVivo to create nodes as themes and content analysis to gain understanding of local experiences (Maclean et al., 2021). NVivo nodes provided the basis for answering our questions, allowing solid thematic areas. As much as possible, results have been presented in way as to maintain grounded narratives and maintain local richness of experiences (Charmaz, 2002).

4. Results

4.1. Environmental conservation in Zambia: policy and legal tools

REDD+ schemes have made visible policy and legal frameworks underpinning environmental conservation initiatives in Zambia and carbon markets situate within national climate change governance as key to driving a green economy. Frequently cited arguments in government interviews point to Zambia experiencing one of the highest deforestation rates in the world, losing between 250,000 and 300,000 ha of forest per annum. And that drivers to climate change include deforestation from charcoal and wood fuel production, logging for timber, expansion of small-scale agriculture and unsustainable agricultural practices. Nearly 75% of the population in Zambia is without access to electricity, with charcoal and wood fuel constituting the main source of energy for most of the population (GRZ and UN-REDD, 2010). This has shaped a specific policy and legal context for environmental conservation – an expansionary carbon market dynamic (Table 4).

Zambia has witnessed an increased number of carbon developers, with interviewees agreeing carbon markets are growing. The number of carbon developers increased from one in 2012 to six in 2022, with state agencies emerging as important players in the market. Under the newly branded MGEE, the government:1) gained control over land in Eastern Province, 2) enabled policy and legal tools relied upon, and 3) is protecting carbon and biodiversity offsets assets (nature banks). This includes the Ministry of Green Economy and Environment's (MGEE) proposed Forest Reference Emission Level (FREL of 23,520,000 tons of CO2/year) (UNFCC (2021). As one Officer at ZDA argued, *"the government is acknowledging the rise carbon offsetting investments/markets."* There have been concerns *"private actors have been trading without Government involvement"* and that in response *"the government plans to establish a Carbon Trading Centre for regulation"* (ZDA 2022). However, analysis shows whereas carbon trading used to be an open space for private actors to operate, government's involvement has come with hesitation in the way it grants licenses as well as heightened regulation as move to maximise its returns. To BCP, *"the market dynamic is now chaotic. The government has seen the profitability potential of carbon markets and wants a market share"* (BCP 2022).[1] Carbon markets in Zambia are changing across scope, seize and geography. The Government has implemented the Zambia Integrated Forest Landscape Project in the Eastern part of the country supported by the World Bank. GRZ and private actor BioCarbon Fund recently signed intent to purchase Emissions Reduction of up to USD30 million by the year 2030. BCP itself has REDD+ projects in Lusaka and Eastern provinces, conserving over a million hectares of land with ongoing feasibility to conserve 4 million ha in the Kafue and Zambezi landscape. Other private actors include: 1) Dongwe Carbon Forest, 2) Compassion Carbon by Eden Reforestation Projects Company, and 3) The Nature Conservancy. There are NGO based actors such as the Community Markets for Conservation (COMACO) with 125,466 ha across 28 Chiefdoms (REDD+), and 1.78 million ha forest areas as Community Forest Management Areas (Community Conservation Areas). Other private actors such as Price Waterhouse Coopers (PWC) are advisors in the carbon market. This context is crucial in understanding the role and importance of host communities in the dynamic.

Analysis of interviews from ZAWA and Forest Department revealed a wider lack of coordination and overlapping tasks between and within different levels of governance. Tensions were perceived between ZAWA and the Forest Department (T1) and between BCP and ZAWA/Forest Department (T2). There were also tensions between the Community and BCP (T3) and between the Community and Sable (T4). More generally, tensions revolved around regulation and enforcement of resource restrictions, between taking a hard line against the local community and relaxed one. At district level, this top-down approach is *"affecting who does what and when in the community and the conservancy"* (Interview ZAWA 2019). Competing interest within district agencies reflect a lack of clarity over the functions of government agencies at all levels responsible for addressing climate change issues although a coordinating platform exists (PPCR) in the MGEE. One National Official in the MGEE explained: "*at the central level, the Forestry Department deals with REDD+ whilst the National Planning Department deals with climate change agencies. We need a director that can oversee and streamline activities. Currently these are in silos even at lower levels* (National Interview 2019). Some of this relate to perceived competition for climate resources, and a lack of coordination in government ministries. *"Climate change issues come as money ventures and well-funded. REDD+ is technical and it is not clear which government unit links elements together" (Forest Conservation Officer 2018)*. Overall, REDD+ is generally not well integrated across state agencies with unclear coordination between MGEE, Department of Forest, ZAWA and local authorities. Poor funding affects district support towards ocal communities.

Table 4
Policy and legal tools enacted.

	Policy and legal tool	Comment
1	8th National Development Plan 2022	▪ Low Carbon, Climate-resilient development Pathway
2	7thNational Development Plan 2021	
3	Vision 2030	
4	Forest Carbon SI 2021	▪ Forest (Carbon Stock Management) regulations
5	'National Forest Policy – 2014	Forest management:
6	Revised Forest Act – 2015	▪ Establishment of National Forest ▪ Establishment of Local Forest ▪ Community Forest Management
7	Revised urban and Regional Planning Act – 2015	▪ Improved Land-use Planning and Forest Management.
8	Community Forest Management Regulation SI 2018	▪ Forest governance
9	National Energy Policy – 2019	▪ Efficient management of forests and conserve natural resources for the benefit of future generations.
10	National Policy on Environment – 2007	▪ Framework for managing natural resources utilization and conservation.
11	National Agricultural Policy 2012–2030	▪ Promoting environmentally friendly farming systems, conservation and afforestation
12	National Strategy for Reducing Emissions from Deforestation and Forest Degradation – 2015	▪ National Strategy for REDD+

4.2. Defining spatial boundaries and coordination arrangements in the RuConserve

The RuConserve is privately owned by Sable Transport Limited (Sable, a Zambian company. According to BCP, there are no community forests in Ndubulula and Namanongo integrated as REDD+. Community zones, however, co-exist with the RuConserve, raising land disputes with community members, which ended in litigation. Then Sable Managing Director argued, *"he acquired the land with consent from 12 headmen who*

[1] Prevailing prices of $10 carbon ton (interviews 2022)

eventually signed a sketch produced in March 2001" but local people were unaware (Sichone, 2014). In 2007, the government cancelled the Title Deed, citing administrative error. In this period, some villagers resisted and commenced court processes against Sable, but lost the case in 2009. In 2011, the government reinstated the title Deed of RuConserve providing a 99-year leasehold. BCP raised questions of illegal squatters on the land, but feared that *"to relocate the occupants could lead to unnecessary conflict."* Whereas Sable granted 1500 ha of land to some communities in other parts of the conservancy as settlement, ending a 15 year old land dispute, many people in the study sites continue to circulate accusations of land-grabbing." BCP identified an area potentially sustainable for conservation and sustainable forest management and carved an investment agreement with Sable. BCP later made an application to the Forestry Department for land-use change as the property was originally registered as a game ranch for wildlife tourism.

Thus, the RuConserve is the only privately owned wildlife sanctuary in this upper escarpment portion of the Lower Zambezi ecosystem, advanced alongside aspects of communal land. Given that a block of forests surround community zones and share boundaries, the communities are in principle renting over 40,000 ha from Sable for implementation by BCP – another private company and developer. An existing investment agreement allows Sable and BCP to operate the Lower Zambezi REDD-Project. BCP pushed for enforceable land rights, arguing *"we cannot invest in these communities without lease agreements, showing land ownership"* (BCP Interview 2021). A Deed of Conservation Easement Certificate was executed for an initial term of 30 years to allow BCP to manage and preserve the forest and trade carbon on the international market (BCP, 2013), and share revenue with Sable and community members near and around conservation sites.The RuConserve integrates different actors (Fig. 3).

BCP Officers explained throughout this application process, *"it was important to show that the application was supported by different stakeholders"* (BCP, 2021). Community group discussions revealed BCP consulted the Zambia Wildlife Authority (ZAWA), Forestry Department, Ministry of Lands and Natural Resources, the Ministry of Tourism. They also consulted the Department of National Parks who is in-charge of Game Management Areas (currently providing community forest guards (guards) and extension services, including law enforcement in the conservancy. The Forestry Department also provides policy guidance on the project and offer extension services. Whilst the Department of Social Welfare and Community Development focus on community social and economic welfare, but their articulation was less pronounced. Political representatives such as the District Commissioner and the Local Authority (Council) were also consulted.

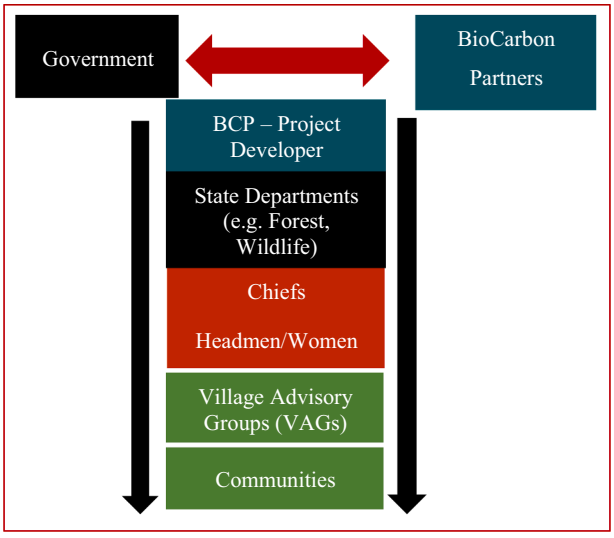

Fig. 3. Institutional arrangement and implementation structure.

BCP consulted local Chiefs ahead of the project *"informing them that they were crucial to the implementation process"* (BCP Interview 2021). Interviews and documentary analysis reveal Chiefs were initially hesitant and resisted the REDD+ project due to trust issues and fear of losing their land. In response, BCP rely upon government Community Forest Management Regulations and Community Forest Management Groups to push for project acceptability, noting since then, *"there have been improvements on the part of Chiefs since Carbon payments started to come through and have since been supportive."* Chiefs are now champions *"lobbying other traditional leaders to register their community forests"* explained one Officer (BCP Interview 2021). With knowledge about the project, chiefs instructed local headmen to be cooperative and help project implementers in mobilising local communities. One group discussion participant explained: *"after government and BCP representatives explained the project to the chief, seeking permission to operate in the zones, the chief instructed headmen/women to mobilise community members"* (Ndubulula Group Discussion 2019). Community discussions reveal local consultations were technical, inadequate, hurried and beneficiaries lacked clear strategy to inform BCP activities and top-down.

In terms of governance, at community level, ten members form the Village Advisory Groups (VAGs) (evenly distributed across gender), two of which participate as Community Resource Board Members (CRBs) (Fig. 3). Analysis shows that whereas the committees are gender inclusive, women are *"are generally less active"* due to capacity, leading to ineffectiveness (BCP Interview 2021). Analysis reveals VAGs and local community members lack specific governance training such as those around control of resources across community structures. VAGs receive a share of carbon offsets funds and use this to implement various projects with some households drawn into poultry rearing and bee keeping. VAGs can also use funds to build simple infrastructure and train community members. However, VAGs are ineffective, poorly funded and face governance issues. Power relations and ineffectiveness of VAGs affect negotiations. However, powerful actors benefit. For instance, local people explained the Makasa Safari are *"hunting in the areas we are protecting,"* based on the agreement with the Department of National Parks and BCP to the exclusion of local people. Seeing through their own forest exclusion and their concentration in project zones, local people see this as double standards by BCP and source of conflict (Section 4.4). Majority beneficiaries expressed opinions Bio-Carbon emphasised consent and forest conservation rather than socio-economic and environmental imperatives of the project (livelihood capabilities).

Meanwhile, perception of BCP activities and revenue flow to local communities vary accordingly (Table 5). More generally, local awareness of REDD+ relates to how long an individual resided in the project zone. BCP officers reported a general positive shift in community attitudes citing reduced poaching and declining number of abducted locals for encroaching for illegal mining, hunting, and deforestation. Successful initiatives includes voluntary surrendering of guns. In Namanongo, one Community Eco-Charcoal Association (CECA) representatives reported reduced deforestation because *"people understand bees need trees for shelter and proper reproduction."* However, cases of charcoal burning and expansion of agricultural expansion were reported and observed in communities, in part due to REDD+ *"remaining technical and communities are yet to appreciate wider benefits"* (BioCarbon Representative 2019).

In both communities, participants expressed understanding of the effects of deforestation, linking to the role of CECA and BCP

Table 5
BCP activities and perception of revenue flows (+ = high concentration; − = low concentration).

Income Generating Activity	Ndubulula	Namanongo
Charcoal Production	+	−
Bee Keeping	−	+
The general perception of the project	Negative	Positive

sensitisation. One respondent said: *"under BCP, trees can grow back in project zones and can be replanted"* (Respondent Ndubulula 2018). One BCP Project Officer argued most members in Ndubulula adopted the eco-charcoaling initiative, intently burning charcoal with lower emissions. They have also engaged in alternative sources of income such as beekeeping, afforestation (getting plants from the forestry department) and adopted the Casamance system of cutting down the trees. However, BCP Officers perceived a general community disinterest in REDD+ compared to projects on community land and elsewhere. In Namanongo, some members resisted environmental changes, citing project aspects that overlook customary land-use arrangements. Here, a general view was that there still exists enormous community pressure on natural resources from the open forest and that existing accessible ecosystem services were inadequate, adding *"the marking for the protected areas are just a few meters away from our farming fields,"* affecting livelihoods (Participant Namanongo 2018). As a result, *"beneficiaries feel Bio-Carbon has limited their right or freedom to access, and use of forest products, eroding their livelihood patterns"* (Participant Namanongo 2018). Analysis shows the presence of forest guards however creates conflict with local people and marginalise local communities from environmental resources (Group Discussion 2019).

4.3. Livelihood dynamics

This section assess the extent to which BCP activities helped local communities with means to gain a living in project zones – community spaces around the RuConserve.

a. *Forest conservation and management activities*

Three forest conservation and management activities have been advanced in project zones (outside the RuConserve), which have been built around the CECA. The *first* is tree planting. In Ndubulula, CECA replanted trees in areas of the eco-charcoal forest that were degraded through charcoal production. Some members were trained on tree planting as community forest conservation and preservation. The Forestry Department provided seedlings for replanting of harvested trees. However, *"replanting of trees has since ceased because the communities cannot access the trees from the Ministry anymore"* (BCP Interview 2019). This has negatively affected forestation in project zones. *Second* is controlled tree cutting. Community members participate in selective coppicing, encouraging quick tree regeneration. Some communities underwent training on the importance of selective tree cutting such as those with medicinal benefits or bear subsistence fruits among others, emphasising *"these should not be cut."* Thus, to control tree cutting, the Forestry Department together with Bio-Carbon developed a sustainable harvesting plan based on the 'Coup and Shelterbelt' system to maintain the ecological integrity (18 = year rotation plan). This is achieved by clear-cutting alternate strips so that remaining forest strips can serve as biodiversity and seed bank refugees. One female participant from Ndubulula explained: *"Instead of cutting a tree horizontally (traditional way), the tree is cut in a V-shaped manner, which supports regeneration"* (Female Participant, Ndubulula 2019). Third is *strip cutting* – a system in which long and narrow clear-cuts are made, with alternating uncut strips of forest left between. The CECA would cut from the first strips and until that is completed, they skip the second strip to the third so that the forest does not fully dilapidate. Thus, *"by the time they get back to the first strip, the trees in the original strip would have pre-germinated."* One group discussion participant in Namanongo explained that one advantage of strip-cutting is that *"seeds from uncut trees fall into the harvested strips, and new trees soon begin to grow there."* In the Ndubulula zone, the trees are painted white to show the area has been selected for carbon production, but this also reveals project demarcations local community should not cross. BCP Officer clarified that: *"The first strip would be cut in Year 1, and skip to third strip. The cycle takes 18-years"* (BCP Representative). BCP believes this process has slightly reduced deforestation in the zones.

However, analysis shows eco-charcoal activities in community zones benefit men and better off individuals to the exclusion of women and youths. Whilst environmental activities helped control indiscriminate tree cutting in the area, illegal timber harvesting has continued. A focus on the CECA in conservation management has marginalised other members of the community, leading to inequalities.

b. *Livelihood Patterns*

We interrogated livelihoods in terms of income sources, agriculture, and land-use dynamics, including access to and utilization of ecosystem services. Household questionnaires and group discussions revealed several sources of incomes: agriculture, selling animals, small businesses, mining, piecework (irregular informal casual work), charcoal, permanent employment and remittances. All households reported being involved in agriculture (crops and vegetables), averaging 32% of total household incomes, compared to 7% (small businesses), and 20% from wood, wildlife, plants and other ecosystem services. Meanwhile, charcoal production remains high averaging 37% of total household income (Fig. 4).

Frequently cited expenditure decisions in household interviews and group discussions include: 1) food, 2) agriculture inputs (seed, fertiliser), 3) schools, healthcare, and 4) others in that order. Prior to the BCP project, local livelihoods closely linked to natural resources – land and forests. Local people reported they previously accessed community and the RuConserve forests for firewood, hunting, and charcoal production and other ecosystem services as they were unaware the land had been sold and had become private property (Section 4.2). They collected herbs and materials for house construction, and practiced farming and grazing activities. However, community members perceived heightened forest restrictions and enforcement with BCP and Sable forest management agreement. Community members are not allowed to enter the conservancy areas for previous livelihood purposes. They explained that whereas others such as Makasa Safari could afford to hunt, *"hunting for us requires a permit (pass) from ZAWA, which is difficult"* (Group Discussion 2019) *(incomes)*. Heightened restrictions were reported on grazing of cattle, harvesting firewood, digging of medicinal roots or edible fruits *(ecosystem services)*. Community members expressed fear of being shot at by Forest Guards who advance a very strict forest regulation line. Reports were heard about how one person in Namanongo was almost shot by the guards for going into the conservancy area, raising security fears among community members. The headman further explained, *"if you are caught, the community takes you to the authorities."* Some members felt forests boundaries in the zones were expanding towards community agriculture fields, limiting agricultural *livelihoods*. Frequently heard accusations were that *"those benefiting were BCP and those hunting our grounds"* (Group Discussion Participant 2019). Results show 30% of the respondents felt that their normal activities were

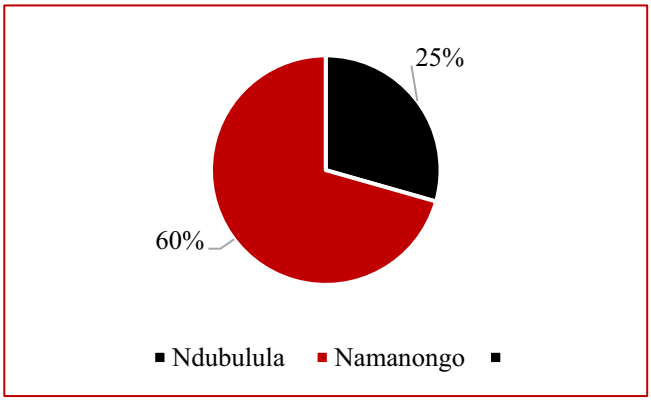

Fig. 4. Percentage of households producing charcoal.

disturbed and that there were unfulfilled promises such as in the provision of seeds and chickens that could supplement charcoal production *(agriculture)*. Group discussion members expressed opinions *"members feel they are sacrificing more than they are receiving"*.

BCP implemented several livelihood activities in move to *"cushion encroaching and deforestation,"* (land-use). The project implemented eco charcoal production in Ndubulula (93 ha). Participants were trained to produce charcoal using high efficiency kilns that reduce emissions during production and use. BCP then links *'Charpreneurs'* (Charcoal entrepreneurs) to markets, but these linkages were less clear for beneficiaries. However, only 87 eco-charcoal producers mostly men were trained, some of which are either inactive or dropped out of the project altogether.

Meanwhile, BCP distributed 5000 beehives. Beneficiaries can produce honey for selling in urban and other markets. Each household qualified to receive 10 beehives, targeting 500 households as empowerment. However, the number of hives supplied mean the project could only cover 300 out of possible 1190 households. Whereas some were simply disinterested, *"actual profitability potential of beekeeping has been limited by increasing deforestation"* further affecting subscription explained one BCP Officer. In the two zones, some farmers ended up having as much as 10–20 beehives due to low subscription, but poor handling means beehive numbers have dropped, affecting frequency of harvests and most importantly incomes. Meanwhile, the number of beehives have reduced to about 3000 – some naturally wearing out and others just missing as sabotage. In 2021, BCP supplied 1400 additional hives, but these are either fewer or faced with disinterest *(incomes)*.

There are efforts around conservation agriculture to reduce soil erosion and degradation as strategy to optimising yields. Group discussions however revealed very few people subscribe to conservation farming. *"People want farming seed which was promised at the start of this project,"* explained one Headman. Interviews show there are cultural and education issues that must be addressed, but community members argued there were challenges related to conservation agricultural practices themselves (e.g., farm inputs, labour, profitability) *(agriculture)*. Only a few have undergone the Conservation Farming Training Program (CFTP). Meanwhile, there were hammer mills distributed in both communities. The idea was to channel all proceeds towards community projects, but hammer mills have *"accountability issues"* and limited revenue flow. BCP supported improved village chicken projects (under the Small Livestock Production Program) in the pipeline, but actual implementation timelines were unknown *(incomes)*.

More generally, community reports reveal alternative sources of income introduced such as beekeeping, and eco charcoaling were less reliable. A few community members (23%) agreed the introduction of eco-charcoal and beekeeping improved incomes but these were beneficiaries of CECA training. As a result, *"most have continued with traditional charcoaling despite having information on the effects of forest degradation"* (BCP 2020). This pressure driven by demographic growth has been exerted around non-REDD+ zones as well as community forests. One Headman confirmed, *"Charcoal production is still alarming across the project areas driven by urban markets."* One District Official confirmed, *"I have witnessed deforestation in the area where Bio-Carbon is trying to conserve and preserve forested areas"* (District Official 2019). The researcher's own headcount of the frequency of trucks carrying charcoal passing through the study sites per day was over 30, carrying approximately 70–80 bags of charcoal *(incomes, land-use)*.

Whereas CECA uses REDD+ funds to provide social services (e.g., school, clinic and borehole refurbishments, and other services, etc), livelihood benefits are generally limited. In Ndubulula for instance, *"a health community post and two ventilated pit latrines were constructed"* (Participant Ndubulula 2019). Elsewhere within the area, a teacher's house was constructed. Others expressed concerns, *"the headman also received a percentage of carbon fees"* (Z3: Project Participant Ndubulula 2019). Project implementers and District Officials feared, *"communities may not see tangible results of the REDD+ initiative."* Overall, analysis revelas safeguards to protect local people's rights, livelihoods and interests have been insufficiently formulated and articulated. As a result, adoption of new and alternative livelihood activities have been slow than previously predicted by BPO, with more implications across gender.

c. *Unequal Benefit Sharing Mechanisms*

BCP deploys two main funding streams. The first is debt financing specifically advance sales to private companies (emitters) such as BP, ENI that are in Oil and Gas Exploration. The second is sale of Carbon Credits – in voluntary markets in partnership with communities on the one hand and verification bodies. Communities receive a share of carbon offset finance. Interviews in Namanongo and Ndubulula frequently acknowledged procedures for realising and sharing REDD+ benefits were complicated. Unclear land ownership structure straddles between private and community ownership, affecting articulation of local rights. BCP reports, "portion of the property has been encroached by illegal squatters (from the neighbouring community) currently undertaking charcoaling and subsistence agricultural activities. One BCP Field Officer explained, *"there is headache here. Communities do not own any right to the forest, and are ignorant of boundary location. Consequently, it looks like we as BCP have control over their territories"* (BCP, 2021). Land ownership arrangements have shaped benefit-sharing mechanism where 15% of the revenue is paid as community carbon fees compared to 60% for BCP and 25% for Sable. BCP controls funds through a trust account monitored by other players, also controlling procurement and other contractual issues. BCP confirmed this is significantly lower than in project sitting on community land. Documentary evidence show this coordination arrangements differs with NGO based initiatives founded on community forests and land ownership arrangements, including the reach of inclusion of diverse actors.[2]

Respondents found determination of Carbon Fees to be paid is technical, dependent upon trees the community sequester. There are variations in actual revenue shared given that some communities are bigger than the other. However, calculations are made by the BCP Carbon Team, and shared with other stakeholders. Meanwhile, it was clear benefit sharing mechanisms that integrates BCP in the coordination arrangement affected community buy in and ownership. Group discussions show the communities have largely been peripheral to these processes compared to other BCP areas where Community Resource Boards (CRBs) are active, affecting social service provision.

In Ndubulula, most respondents were unhappy with the benefit sharing mechanisms that splits three parties, also pointing to lack of transparency, accountability, and information. Some respondents were unaware of the benefit-sharing agreement with the community for forest preservation because *"the agreement was done with the chieftainess and BCP*.

Analysis shows design elements led to limited employment of local people and affected community engagement. Group discussions revealed Bio-Carbon contracted a local safari company as opposed to local people to work as guards. A private company hired by BioCarbon to provide security and act as guards is seen to limit possibility of local accumulation. The role and presence of Sable reduced flexibility in the implementation insofar as community livelihoods were concerned. One BCP Officer explained that with private forest ownership means, *"trespassing is and will always an issue"* which has directly or indirectly strengthened illegal gold mining, poaching, deforestation, and charcoal

[2] Benefit sharing mechanisms seem more negotiated in other models such as COMACO. We found that more of a negotiated process between the community (owner of user rights) and COMACO (interested partner). For instance, initial shares for the community and COMACO moved from 60% and 40% to a negotiated 55% and 35% respectively, integrating the Forest Department at 10% (COMACO 2022).

production. Reports were frequently heard of clashes between local communities and forest guards who *"have been given permits to patrol the forests and powers to arrest"* (Group Discussion 2019). Meanwhile, whereas as guards and other *"law enforcements take a hard-line protecting the territories along private land ownership rights to the exclusion of local communities,"* BCP on the other hand is seen to *"take a soft cooperative arrangement and in some cases mediation"* (BCP, 2021).

More widely, BCP ventures in and around project zones are less widespread and revolve around a few trained members. Traditional leaders generally agreed if benefits for forest preservation were clear, communities would be more willing to conserve the forest and build progressive partnerships with BCP and Sable. Community members talked about poor coordination arrangements where social services were channelled further away from households closer to the forest boundaries and ones that directly feel livelihood difficulties. Some of these relate to project delivery in the two sites which is more top-down than in other sites. BCP acknowledges this design concern: *"if the developer is too much involved instead of the community then the project cannot succeed"* (BCP Interview 2021).

d. *Tenure arrangements and implications*

There are specific elements across the study areas perceived to complicated sustainability. We explore sustainability implications of REDD+ through risks and opportunities emerging from the implementation of the project in private tenure settings. We do this through four frames: social, ecological, environmental, and economic (Table 6), and argue that a focus on forest conservation seems stronger but neglext social safeguards supposed to underpin livelihoods. Interviews revealed differences between REDD+ projects foisted on private land arrangements and those on community land. Various interviews revealed compared to community land, beneficiaries in private tenure arrangements expressed little agency and community engagement, receiving less financial benefits compared to their counterparts on community land. They are generally *"disinterested and less likely to disagree on key decisions which makes it appear that it is easier to make project decisions here than elsewhere"* (BCP Interview 2021). Analysis also shows beneficiaries expressed elements of disempowerment, with interviewees explaining deforestation was still problematic in the two sites because of local dissatisfaction on land ownership arrangements.

Meanwhile, related differences in capabilities means ability to transition to alternative livelihoods varies accordingly across gender, incomes and age. Boundary markings near farmer agricultural plots, and related REDD+ activities restricted access to the forest ecosystem services, raising differential impacts across gender (Table 7).

Women reported walking longer distances in search of firewood, edible and medicinal roots and other ecosystem services, including difficulty in finding extra household plots for agricultural expansion and grazing land. Majority women expressed disempowerment through disruptions to livelihoods (e.g., traditional charcoal burning) and exclusion from eco-charcoal activities, including bee hives (power dynamics). Women argued their normal activities were disrupted, alongside false promises: *"they promised us seeds, and chickens as alternative to traditional charcoal production but these have not come through" (Group Discussion 2019)*. Overall, beneficiaries are often treated as homogenous, whilst capabilities, cultural norms and values that shape REDD+ outcomes are ignored. There are questions about sense of community and place that arise with REDD+ initiatives, distorting social and cultural relations.

Table 7
REDD+ activities and perception of gendered impacts.

Women feel disempowered through disruptions raised by demarcation and boundary mappings, affecting trading in bush meat	Forestland conversion disrupted agriculture/ livelihoods. Alternative livelihood activities discourage deforestation, but women lose out.	Disruptions to the access to various forest products such as mushrooms, firewood, fibre, poles for their houses, grass	Women affected through restrictions to the access to and use of forest (e.g, poaching, digging of roots for medicine and one called Mukuyu which they use to make energy drinks (Munkoyo)

5. Final reflections: neoliberal environmental conservation and livelihood possibilities

This paper has sought to explore how REDD+ projects plays out in private tenure arrangements and what this means for local livelihoods and development. The paper shows REDD+ initiatives in private tenure arrangements intensify livelihood struggles and entrench unequal benefit sharing mechanisms. This produces risky and narrow livelihoods with greater impacts across gender. National level neoliberal policy and legal tools relied upon for implementing REDD+ initiatives tend to look uncritically at communities, their integration and pre-existing livelihood patterns – producing a mismatch between policy visions and local realities. We argue changing the coordination arrangements for REDD+ does little to drive win-win and livelihood outcomes for communities, and that these critically depend on the logics underpinning such neoliberal schemes. And that these forms of REDD+ circulations are embedded in quite specific expectations of how modified community

Table 6
Sustainability implications of REDD+: possibilities and limitations.

REDD+ opportunities/ Challenges	Social impact	Ecological impact	Environmental impact	Economic impact
Possibilities	▪ Natural resource use in project zones allowed for domestic purposes.	▪ Controlled tree cutting: Some individuals were trained on selective tree cutting and eco charcoal production.	▪ Opportunities for local communities to improve biodiversity conservation and sustainable management of forests	▪ Income generating activities (e.g., bee keeping, eco-charcoal production), enhance access to social services.
Limitations	▪ Tight resource restrictions affect livelihoods, limits capabilities for alternative livelihood patterns. Permission to exploit forest from the headman or the Forest Department is required and these are not straightforward ▪ Communities still clear forests and produce charcoal unsustainably – reflective of precarious livelihoods.	▪ Commitments are low ▪ There still is increased land-use pressure on carbon poor ecosystems outside the RuConserve.	▪ Wider acceptability of REDD+ remains an issue.	▪ These are less widespread and produce narrow livelihoods.

agency aggregates to generate liberal social transitions towards environmental conservation that push to the margins local visions of livelihood, conservations and sustainability.

A central question surrounding harnessing private capital and enrolling market forces in REDD+ initiatives is how to strike a balance between environmental objectives and community livelihoods and wellbeing. Our study points to a few implications. First, it highlights how REDD+ schemes complicated land-use dynamics and tensions around livelihoods, including struggles facing households in adapting to new livelihood activities. The study shows REDD+ generates narrow as opposed to diversified livelihoods – limited in scope and coverage. Specifically, increased reliance on enforceable rights, unequal incentive structures and power relations undermine pre-existing livelihoods whilst related new support pathways are narrow, not inclusive and challenges autonomy of communities (Fleischman et al., 2021; McDermott, 2017). Weakly recognised rights over forests allow private sector actors to converge (e.g., push for land title and deal with local resistance through litigation) and drive 'land grabs' which affects local access to ecosystem services. These social elements have been pushed to the margins in national policies (Benjaminsen and Kaarhus, 2018). Unequal profit-sharing mechanisms highlight communities as losers, and that REDD+ initiatives do not always produce *'win-win'* scenarios. Whereas development activities such as rehabilitation of boreholes and building of schools have taken place through carbon payments, the project insufficiently contribute to the wider community and household livelihoods and wellbeing remain peripheral. Unfulfilled project promises around livelihood strategies create local resistance and limit commitments to sustainable forest management. The primary argument is that incomes from beekeeping and eco-charcoal production are incomparable to incomes from alternative land-use activities, including illegal poaching and traditional charcoal operations (Graham et al., 2016). Sustained deforestation in the study areas is reflective of general community disinterest, expressions of disempowerment, which affects environmental sustainability. These processes have enhanced inequalities in incomes and access to resources whilst maintaining the integrity/value of REDD+ forest sites (Corbera, 2012). As a result, host communities exhibit low capabilities to transition to alternative livelihoods, raising questions of social equity (Hiratsuka et al., 2021) (Isyaku, 2021).

Second relates to community exclusion in decision-making. Previous studies show collective tenure mechanisms tend to be more successful in delivering equitable social outcomes (Soliev et al., 2021), including schemes where local customary institutions have been afforded a central role (Mahanty et al. 2013). On the contrary, our study shows there are accountability and transparency challenges related to people's ability to obtain information about REDD+ projects and related policies that affect their livelihoods and influence decisions, including sanctioning decision-makers (Gakou-Kakeu et al., 2022). Continued charcoal production and deforestation reflect ineffectiveness in REDD+ coordination mechanism (Atela et al., 2016). Questions of transparency and fairness, including fears BCP and Sable monopolised benefits discourage communities to support and manage forests, whilst sustaining narratives of accumulation by dispossession (Ehara et al., 2021). Private tenure arrangements mean long-term financial support and compensation for communities related to land-use changes and changing forest management practice may be missing. This study dovetails with studies that argue tenure security matters as much as design elements (Awono et al., 2014), including incentives for participation in conservation programs (Shrestha and Shrestha, 2017). It shows structure and organisation of REDD+ can create poor accountability relationships, and ineffectiveness in the extent to which communities can hold implementers accountable for their actions (Gakou-Kakeu et al., 2022). A key insight is that local communities integrated in such project arrangements somewhat incentivise private sector accumulation at the expense of building sustainable livelihoods. This links to a failure to build social safeguards for improving long-term livelihood security and well-being of local communities (Hiratsuka et al., 2021); and inability to build progressive partnerships that can improve delivery, accountability, efficiency and effectiveness of projects (Angelsen et al., 2018; Shin et al., 2022).

Unequal benefit sharing point to a third concern about commodification of ecosystem services, with REDD+ spaces as sites of accumulation. Rather than being broad and inclusive across youths and women, the study shows REDD+ implementation centralised forest governance around the CECA, driving inequalities (Luttrell et al., 2013). As with Dempsey and Suarez (2016), these elements foreclose alternatives possibilities capable of resisting status quo logics of accumulation. In cases such as COMACO, Community Resource Boards are important in enhancing local inclusion, accountability, transparency and building sustainability. Such community extensions should be clear on site selection and project design that integrate local communities. However, in the case study area, these are missing, affecting inclusion and benefit sharing (Leventon et al., 2014). This has resulted in failure to situate the REDD+ scheme in broader socio-cultural and economic context beyond conservation sites (Leventon et al., 2014). The study highlights the role and importance of strengthening community livelihoods alongside environmental objectives around forest management.

Finally, despite the rising importance of carbon trading in national context, public institutions facilitate the implementation context consistent with market-based conservation approaches and neoliberalisation of nature, but these insufficiently consider pre-existing livelihoods and mechanism for benefit sharing (Corbera, 2012). This easing process is however simplistic, sustained on 'win-win' discourse that lacks clarity in procedural justice in local communities. A focus on financial imperatives in REDD+ projects in national policy mean negative outcomes of forest carbon finance have been ignored (Fleischman et al., 2021). A related lack of appreciation of pre-existing livelihood patterns means REDD+ schemes in private tenure arrangements reproduce existing inequalities and forms of social exclusion (Saeeda et al., 2018). Portrayals of environmental conservation in national environmental policy and legal frameworks in one which is unproblematic, failing to look at 'rural communities' in a complex way – binding them loosely in resilience and adaptation pathways (Wainwright and Mann, 2015). There are questions about the plurality of social and cultural dynamics of livelihood and conservation and the extent to which increasingly interventions in poor societies is central to neoliberal attempts to homogenise communities and self-determination into a liberal capitalist universalism (Manda, 2022). However, this also is where the connections between private capital and development including livelihoods loosen.

Overall, coordination mechanisms that integrate private actors heighten resource restrictions and affects community agency. Private sector convergence leads to a set of growing livelihood risks. Communities express disempowerment and low levels of interest projected in continued deforestation and traditional charcoal production. Seen through unequal benefit sharing mechanisms and precarious tenure arrangements, communities can be seen as incentivizing private interests. Thus, early stage REDD+ project should consider how tenure politics play out and the conditions that underpin local community integration in forest-based carbon storage coordination mechanism.

Author statement

Simon Manda: Conceptualisation; Data curation; Formal analysis; Methodology; Project administration; Writing; original draft; writing - review and editing

Nyambe Mukanda: Conceptualization, Methodology, Data Collection and Analysis, Original draft preparation.

Declaration of Competing Interest

We have no conflict of interest to disclose.

Data availability

Data will be made available on request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.forpol.2023.102952.

References

Angelsen, A., Martius, C., De Sy, V., Duchelle, A.E., Larson, A.M., Pham, T.T., 2018. Transforming REDD+: Lessons and New Directions (CIFOR).

Asiyanbi, A.P., 2016. A political ecology of REDD+: property rights, militarised protectionism, and carbonised exclusion in Cross River. Geoforum 77(December), 146–156.

Atela, J.O., Quinn, C.H., Minang, P.A., Dugum, L.A., Houdet, J.A., 2016. Implementing REDD+ at the national level: stakeholder engagement and policy coherences between REDD+ rules and Kenya's sectoral policies. For. Pol. Econ. 65, 37–46.

Awono, A., Somorin, O.A., Atyi, R.A., Levang, P., 2014. Tenure and participation in local REDD+ projects: insights from southern Cameroon. Environ. Sci. Pol. 35, 76–86.

Bare, M., Kauffman, C., Miller, D.C., 2015. Assessing the impact of international conservation aid on deforestation in sub-Saharan Africa. Environ.Res.Lett. 10 (12), 125010.

BCP, 2013. Lower Zambezi REDD+ Project Rufunsa District, Zambia. Project Design Document. 2nd Edition. Lusaka, Zambia.

BCP, 2021. Lower Zambezi REDD+ Project. https://biocarbonpartners.com/impacts/lower-zambezi-redd-project/. Accessed on 05.01.2022.

Benjaminsen, G., Kaarhus, R., 2018. Commodification of forest carbon: REDD+ and socially embedded forest practices in Zanzibar. Geoforum 93 (2018), 48–56.

Birch, K., 2017. Rethinking value in the bioeconomy: finance, assetisation, and the management of value. Sci. Technol. Hum. Values 42 (3), 460–490.

Blom, B., Sunderland, T., Murdiyarso, D., 2010. Getting REDD to work locally: lessons learned from integrated conservation and development projects. Environ. Sci. Pol. 13, 164–172.

Bridge, G., Bulkeley, H., Langley, P., Van-Veelen, B., 2020. Pluralizing and problematizing carbon finance. Pog. Hum. Geo. 44 (4), 724–742.

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., Walker, K., 2020. Purposive sampling: complex or simple? Research case examples. J. Res. Nurs. 25 (8), 652–661.

Charmaz, K., 2002. Qualitative interviewing and grounded theory analysis. In: Gubrium, J.F., Holstein, J.A. (Eds.), Handbook of Interview Research: Context and Method. Sage, pp. 675–694.

Conning, J., Kevane, M., 2002. Community-based targeting mechanisms for social. World. Dev. 30 (3), 375–394.

Corbera, E., 2012. Problematizing REDD+ as an experiment in payments for ecosystem services. Current Opinion in Environmental Sustainability 4 (6), 612–619.

Dawson, N., Mason, M., Mwayafu, D., Dhungana, H., Satyal, P., Fisher, J., Zeitoun, M., Schroeder, H., 2018. Barriers to equity in REDD+: deficiencies in national interpretation processes constrain adaptation to context. Environ. Sci. Pol. 88, 1–9.

Dempsey, J., Suarez, D.C., 2016. Arrested Development? The Promises and Paradoxes of "Selling Nature to Save It". Annals of the American Association of Geographers 106 (3), 653–671. https://doi.org/10.1080/24694452.2016.1140018.

Dunlap, A., Fairhead, J., 2014. The Militarisation and Marketisation of Nature: An Alternative Lens to 'Climate-Conflict'. Geopolitics 19 (4), 937–961. https://doi.org/10.1080/14650045.2014.964864.

Dressler, W., McDermott, M., Smith, W., Pulhin, J., 2012. REDD policy impacts on indigenous property rights regimes on Palawan Island. Philipp. Hum. Eco. 40 (5), 679–691.

Ehara, M., Samejima, H., Yamanoshita, M., Asada, Y., Shogaki, Y., Yano, M., Hyakumura, K., 2021. REDD+ engagement types preferred by Japanese private firms: the challenges and opportunities in relation to private sector participation. For. Pol. Econ. 106 (2019), 101945.

Etikan, I., Musa, S.A., Alkassim, R.S., 2016. Comparison of convenience sampling and purposive sampling. Am. J. Theor. App. Stat. 5 (1), 1–4.

Fleischman, F., Basant, S., Fischer, H., Gupta, D., Lopez, G.G., Kashwan, P., Powers, J.S., Ramprasad, V., Rana, P., Rastogi, A., Solorzano, C.R., Schmitz, M., 2021. How politics shapes the outcomes of forest carbon finance Forrest. Current Opinion in Environmental Sustainability 51 (2021), 7–14.

Gakou-Kakeu, J., Di Gregorio, M., Paavola, J., Sonwa, D.J., 2022. REDD+ policy implementation and institutional interplay: evidence from three pilot projects in Cameroon. For. Pol. Econ. 135 (2022), 102642.

Gioia, D.A., Corley, K.G., Hamilton, A.L., 2012. Seeking Qualitative Rigor in Inductive Research: notes on the Gioia Methodology. Organizational Research Methods 16 (1), 15–31.

Graham, V., Laurance, S.G., Grech, A., McGregor, A., Venter, O., 2016. A comparative assessment of the financial costs and carbon benefits of REDD+ strategies in Southeast Asia. Environ. Res. Lett. 11 (2016), 114022.

Hiratsuka, M., Bounithiphonh, C., Phonevilay Sichanthongthip, P., Furuta, T., Suzuki, K., Kobayashi, N., Chikaraishi, H., Phongoudome, C., Amano, M., 2021. Variations in village-level performances related to reducing deforestation and forest degradation associated with a REDD+ project in northern Lao People's Democratic Republic. Environ. Dev. Sustain. 23 (2021), 2762–2784.

IPCC, 2022. Climate change 2022: Impacts, adaptation, and vulnerability. In: Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press (In press).

Isyaku, U., 2021. What motivates communities to participate in forest conservation? A study of REDD+ pilot sites in Cross River, Nigeria. For. Pol. Econ. 133 (2021), 102598.

Kalaba, F.K., 2016. Barriers to policy implementation and implications for Zambia's forest ecosystems. For. Pol. Econ. 69 (2016), 40–44.

Kay, K., 2018. A hostile takeover of nature? Placing value in conservation finance. Antipode 50 (1), 164–183.

Kelly, D.J., 2010. The case for social safeguards in a Post-2012 agreement on REDD. Law Environ. Dev. J. 6 (2010), 61–81.

Leventon, J., Kalaba, F.K., Dyer, J.C., Stringer, L.C., Dougill, A.J., 2014. Delivering community benefits through REDD+: lessons from joint Forest Management in Zambia. For. Pol. Econ. 44 (2014), 10–17.

Loaiza, T., Nehren, U., Gerold, G., 2016. REDD + implementation in the Ecuadorian Amazon: why land configuration and common-pool resources management matter. For. Pol. Econ. 70 (2016), 67–79.

Luttrell, C., Loft, L., Fernanda Gebara, M., Kweka, D., Brockhaus, M., Angelsen, A., et al., 2013. Who should benefit from REDD+? Rationales and realities. Ecol. Soc. 18 (4), 52.

Maclean, K., Woodward, E., Jarvis, D., Turpin, G., Rowland, D., Rist, P., 2021. Decolonising knowledge co-production: examining the role of positionality and partnerships to support indigenous-led bush product enterprises in northern Australia. Sustain. Sci. https://doi.org/10.1007/s11625-021-00973-4.

Manda, S., Dougill, A., Tallontire, A., 2019. Large-scale land acquisitions and institutions: patterns, influence and barriers in Zambia. Geo. J. 185 (2), 1–15.

Manda, S., 2022. Sugarcane Commercialization and Gender Experiences in the Zambian "Sweetest Town". Feminist Econ. 28 (4), 254–284. https://doi.org/10.1080/13545701.2022.2079697.

Matulis, B.S., 2021. The narrowing gap between vision and execution: Neoliberalization of PES in Costa Rica. Geoforum 44 (2013), 253–260.

McDermott, C., 2017. Whose forests, whose gain? Nat. Clim. Chang. 7 (2017), 386–387.

Mukono, D., Sambaiga, R.F., 2021. Negotiating power from the margins: encountering everyday experiences and contestations to REDD+in Southern Tanzania. EPE: Nat. Space 5 (4), 1–21.

Mwape, M., 2019. Communication for Empowerment and Participatory Development: A Community Engagement Strategy in Forest Carbon Trade in Lower Zambezi: A Case of Bio-Carbon Partners. MA Thesis,. University of Zambia.

Nantongo, M., Vatn, V., Vedeld, P., 2019. All that glitters is not gold; power and participation in processes and structures of implementing REDD+ in Kondoa, Tanzania. For. Pol. Econ. 100 (2019), 44–54.

Nathan, I., Pasgaard, M., 2017. Is REDD+ effective, efficient, and equitable? Learning from a REDD+ project in Northern Cambodia. Geoforum 83, 26–38.

Ouma, S., Johnson, L., Bigger, P., 2018. Rethinking the financialisation of 'nature.'. Environ. Plan. A.E&S 50 (3), 500–511.

Paudel, N.S., Vedeld, P.O., Khatri, D.B., 2015. Prospects and challenges of tenure and forest governance reform in the context of REDD+ initiatives in Nepal. For. Pol. Econ. 52 (2015), 1–8.

Poudel, M., Thwaites, R., Race, D., Dahal, G.R., 2015. Social equity and livelihood implications of REDD+ in rural communities: a case study from Nepal. Int. J. Commons 9 (2015), 177–208.

Rakatama, A., Pandit, R., Iftekhar, S., Ma, C., 2020. Policy forum: improving the acceptability of REDD+ projects among local households in Indonesia. For. Pol. Econ. 116 (2020), 102172.

Saeeda, A.R., McDermott, C., Boyd, E., 2018. Examining equity in Ghana's national REDD+ process. For. Pol. Econ. 90 (2018), 48–58.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., Jinks, C., 2018. Saturation in qualitative research: exploring its conceptualization and operationalization. Qual.Quant 52 (2018), 1893–1907.

Satyal, P., Corbera, E., Dawson, N., Dhungana, H., Maskey, G., 2020. Justice-related impacts and social differentiation dynamics in Nepal's REDD+ projects. For. Pol. Econ. 117 (2020), 102203.

Scheba, A., Scheba, S., 2017. REDD+ as 'inclusive' neoliberal conservation: the case of Lindi, Tanzania. J. East. Afr. Stud. 11 (3), 526–548.

Sheng, J., 2020a. Private sector participation and incentive coordination of actors in REDD+. For. Pol. Econ. 118 (2020), 102262.

Sheng, J., 2020b. Private sector participation and incentive coordination of actors in REDD+. For. Pol. Econ. 118 (2020), 102262.

Shin, S., Park, M.S., Lee, H., Baral, H., 2021. The structure and pattern of global partnerships in the REDD+ mechanism. For. Pol. Econ. 135 (2022), 102640.

Shin, S., Park, M.S., Lee, H., Baral, H., 2022. The structure and pattern of global partnerships in the REDD+ mechanism. Forest Policy and Economics 135 (2022), 102640.

Shrestha, S., Shrestha, B., 2017. Beyond money: does REDD+ payment enhance household's participation in forest governance and management in Nepal's community forests? For. Pol. Econ. 80 (2017), 63–70.
Sichone, C., 2014. Kalaba Puts 15-Year Land Dispute to Bed. Times of Zambia. Published 11th January 2014, Accessed. http://www.times.co.zm/?p=3670.
Soliev, L., Theesfeld, I., Abert, E., Schramm, W., 2021. Benefit sharing and conflict transformation: insights for and from REDD+ forest governance in sub-Saharan Africa. For. Pol. Econ. 133 (2021), 102623.
Svarstad, H., Benjaminsen, T.A., 2017. Nothing succeeds like success narratives: a case of conservation and development in the time of REDD. J. East. Afr. Stud. 11 (3), 482–500.
UNFCC, 2021. Report on the Technical Assessment of the Proposed Forest Reference Emission Level of Zambia. FCCC/TAR/2021/ZMB.
UN-REDD, 2010. Ministry of Lands. Natural Resources and Environmental Protection, Lusaka, Zambia.
Wainwright, J., Mann, G., 2015. Climate change and the adaptation of the political. Ann. Ass. Am. Geog. 105 (2), 313–321.