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Article

The Type of Land We Want: Exploring the Limits of Community Forestry in Tanzania and Bolivia

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Abstract: We explore local people's perspectives of community forest (CF) on their land in Tanzania and Bolivia. Community forest management is known to improve ecological conditions of forests, but is more variable in its social outcomes. Understanding communities' experience of community forestry and the potential benefits and burdens its formation may place on a community will likely help in predicting its sustainability as a forest and land management model. Six villages, two in Tanzania and four in Bolivia, were selected based on the presence of community forestry in varying stages. We found that communities were generally supportive of existing community forests but cautious of their expansion. Deeper explorations of this response using ethnographic research methods reveal that an increase in community forest area is associated with increasing opportunity costs and constraints on agricultural land use, but not an increase in benefits. Furthermore, community forests give rise to a series of intra- and inter-community conflicts, often pertaining to the financial benefits stemming from the forests (distribution issues), perceived unfairness and weakness in decision–making processes (procedure/participation), and also tensions over cultural identity issues (recognition). Our findings suggest that communities' willingness to accept community forests requires a broader consideration of the multifunctional landscape in which it is embedded, as well as an engagement with the justice tensions such an intervention inevitably creates.

Keywords: agricultural expansion; decentralized natural resource management; environmental justice; indigenous; multifunctional landscape

1. Introduction

The struggles of indigenous peoples and local communities (IPLC) to control, use, and manage their land is increasingly visible [1,2]. These struggles have been characterized by old land use demands like agriculture and food production, forestry, and mining, but also new national and global demands for biodiversity conservation [3], biofuel crops, and climate change mitigation [4]. In the case of forested landscapes, community forestry (CF) is one mechanism that has been advocated as a means of governing these multiple demands. The rationale of these interventions is in part based on the ineffective and poor performance of centrally managed forests: decentralization, it was posited, would improve the ecological integrity of forests through sustainable management practices. Furthermore, decentralization was promoted based on the larger development discourse that greater

participation of local peoples [5] and the democratization of natural resource governance would improve efficiency and equity in decision-making, and thereby improve socio-ecological outcomes [6,7]. The process of democratic decentralization emphasizes the transfer of meaningful discretionary powers to local representative authorities—meaningful in the sense that local authorities are actually able to make or significantly influence decisions affecting the management of a natural resource in their community, without interference or outright blocking by higher authorities. The ecological contribution of community forestry is relatively well-established, and is recognized as having similar or lower deforestation rates to that of state-managed areas [8–10]. The social impacts, however, have been more varied, and perhaps, difficult to extract [11,12].

In part, research has demonstrated that the transfer of power to a given community remains quite basic, particularly where high-value resources are at stake, with the majority of decision-making being retained by government officials, private enterprises, or local elites [13–15]. Anderson and colleagues [16] have aptly named this the phenomenon of "managing leftovers." The lack of significant power transfer is embedded within the rhetoric of professionalization—the requirement of certain "expert" skills to properly manage the forest. In a recent special issue exploring the role of professionalization in participatory forestry, Lund [17] describes the historical foundations of forest management within a colonial context. These systems have emphasized inventory-based management plans that elevate formal, institutionalized knowledge, and subsequently limit local peoples' ability to participate on a level playing field [18,19]. Furthermore, these technically demanding plans often come with a hefty price tag, which when paid for by the government, private enterprises, or local elites, facilitates further justification for the lack of meaningful management rights transfer to the community [20–22]. Notwithstanding these challenges of community forestry's ability to achieve positive social outcomes, community forestry remains a strong component of many developing nations' efforts to promote sustainable and more equitable forest management [12]. This trend is perhaps reflected in the current formal management of approximately 30% of forest lands by indigenous and local people [23].

In this manuscript, we focus on the countries of Bolivia and Tanzania, which have relatively robust and varied histories with community forestry, but remain committed to its growth at the national level. In both countries, our sites counter previous studies' findings in the devolution of management rights to local communities of significant areas of commercially valuable timber. Communities retain the legal rights to cut, sell, and keep the vast majority of the monies from timber sales; they are *not* managing leftovers. Despite this rather bold entry point, the communities' relationship with community forestry remains somewhat ambivalent, with communities disagreeing with the notion of scaling up or expanding further such locally controlled and potentially lucrative areas. This reaction begs the question *why*? To our knowledge, this reaction against the possibility of further expanding community forestry has not been documented or discussed in the literature, either in Tanzania or Bolivia or on a more global scale. Yet understanding this resistance seems quite a significant issue to consider for the sustainability of this forest and land management model at a global scale, especially as it is being increasingly considered as an option for just forest management in relation to issues like climate change mitigation and adaptation.

We explore the complexity and multidimensionality of how communities in Tanzania and Bolivia value their management rights to valuable areas of forest, but also feel constrained by it. We begin with a brief background on our respective study sites, describing our rationale for working in these areas. We then describe our methods, mapping out the historical foundations on which community forestry has been established, utilizing a mixture of qualitative methods to capture local people's response to community forestry. Finally, we discuss the tensions created by CF and areas to pay attention to in their formation, as well as our key finding—that a focus on local perspectives holds the potential to redress the imbalance of power between local and national stakeholders.

1.1. Tanzania

Tanzania is a large and diverse country, approximately 55 percent (48.1 million ha) of which is covered by forests [24]. The majority of the country resides in rural areas, relying on agriculture and livestock to meet daily needs. Historically, Tanzanian land including forests have been the property of the state, with the president serving as a trustee for and on the behalf of its citizens. In the late 1990s, management of the country's forests underwent a shift away from more centralized control towards greater participatory management [25]. This shift was first introduced in the country through pilot projects that later stimulated the development of the 1998 Tanzanian Forest Policy [26], the goals of which were then embedded in the law through the Forest Act No. 14 of 2002 [27]. These documents established two types of management that vary in the degree of community involvement and control. The first is community-based forest management, in which a village may establish a village land forest reserve (VLFR) from forests on village land (land categorization in Tanzania is certainly more complex than we are able to describe here; for a better description of land use categories [28]). The second is joint forest management (JFM), in which village governments co-manage national and local government forest reserves in conjunction with central or district government offices. Communities retain greater control in the community-based management, maintaining retention of any proceeds (products and revenues) generated from that management [29]. In contrast, revenue collection and control for villages are more limited in joint management, with the forest reserve remaining under direct state control and ownership [30,31]. Approximately 2285 villages and 23.3% of Tanzanian forests are managed under these two forms of management [32]. A closer inspection of these numbers, however, suggests more conservative growth, with only 409 villages having established VLFRs and 171 signed JFM agreements, as of 2012 [33]. The reality is that the vast majority of Tanzanian forests remain *de facto* under local control, but *de jure* subject to higher authority decisions. For example, a person from outside a given village may request a permit at the district level to cut timber. This permit requires local approval, but is often much easier to push through due to a narrower set of authorities, i.e., the absence of a forest management committee. Historically, this has led to the deforestation of villages by outside interests, with very little if any benefits retained at the local level.

Our study focuses on community-based forest management (hereafter, CF) sites in two rural villages: Kikole and Ruhatwe in Kilwa District in southeastern Tanzania (Table 1). The district covers 13,347 km^2 in one of the lowest populated areas in the country (approx. 14.3 people/km^2) [34]. There are 93 villages in the district, many with substantial village lands containing relatively intact forest [35]. Approximately 85% of its population depend on natural resources for their livelihoods. The practice of shifting cultivation for local consumption predominates including maize, millet and rice. Cash crops include cashews and more recently, sesame seed production, primarily for export and supported by government incentives. Local people have historically kept few livestock, with the exception of chickens, due to tsetse fly infestation. More recently, however, cattle numbers have increased with the arrival of pastoral groups like the Sukuma, who have been relocated to the area following evictions in other parts of the country.

Table 1. Summary of study villages.

	Tanzania		**Bolivia**			
	Ruhatwe	**Kikole**	**Palmira**	**San Lorenzo**	**Santa Rosario**	**Todos Santos**
Year of creation	2000 (abandoned)	2004	1990	2010	2010	2010
Hectares	790	454 (expanded to 970 in 2017)	Up to 852	Up to 443	Up to 732	Up to 443
Population	979	1490	391	333	82	166

Deforestation in the Kilwa area has been relatively low, due to the location of agriculture being primarily limited to fertile valley bottoms where forests are lacking. Charcoal production has similarly played a relatively small role in the area, though predictions of its increase as the demand for charcoal

from Dar es Salaam extend southward was confirmed in recent reconnaissance by Ahrends and colleagues [36,37]. Despite the limited threat of deforestation, the loss of a valuable timber species like the African Blackwood, *Dalbergia melanoxylon* (*mpingo* in Swahili) has brought national and international attention to the Kilwa area. It was, in fact, the loss of this species that led to the formation of the in situ non-governmental organization, the Mpingo Conservation and Development Initiative (MCDI). The MCDI has been operating in the area since 1995, initially as a Cambridge University-led initiative to investigate the status of *mpingo* wood, and later (in 2004) transformed to a non-governmental organization (NGO) assisting communities with the establishment of community forests. Although now independent of its original ties with Cambridge, MCDI remains open to partnering with research institutions, facilitating a deeper understanding of community-based forestry in the country. Two of the authors of this paper (N.G.C. and A.M.) have a history of collaboration with MCDI, since 2012 and 2010, respectively, and familiarity with the study area further justifies our focus in the region.

We selected villages based on their being two of the four villages where MCDI began working. The historical presence of MCDI and differing community experiences with CF provide an in-depth view of local perspectives on CF over time. Through the encouragement and financial support of MCDI, Kikole established a village forest (454 ha) and made its first timber sale in 2009. In 2017, Kikole further expanded its village forest to 954 ha. Ruhatwe had a somewhat different fate. In 2000, an initial area of 790 ha was set aside as a reserve, but border disputes with the neighboring village of Migeregere led to the abandonment of the legal process shortly thereafter. No patrolling or management activities of any kind were instituted, leaving the forest much as it was prior to MCDI's involvement. Despite this seeming abandonment, MCDI retains an interest in the establishment of CF in Ruhatwe and continues to follow the community's progress towards dispute resolution through another community-based organization, MJUMITA. The production of intra- and inter-community conflict due to the formation of CF is not uncommon; it is in part a reflection of MCDI's experience in resolving disputes that can involve considerable time and resources, which led to their stepping back from Ruhatwe. MCDI requires villages where there is conflict (or the potential for conflict to arise) to resolve these issues of their own accord prior to MCDI's commencement of activities within the community.

1.2. Bolivia

The majority of Bolivia's forests are located in the lowlands and contain a high diversity of species of commercial value [38]. Land use, and in particular forest management, has passed through a series of reforms, from rubber production in the late 19th century to a boom of private logging concessions issued by the state in the 1970s. These were tumultuous times for indigenous communities, whose lands were confiscated and often ended up (forcibly) working on rubber plantations [39]. It was not until 1990 that indigenous communities' territorial claims began to gain governmental traction, with the recognition of a few indigenous territories that reversed the state's previous allocations to private logging companies or conservation [7,40]. Indeed, it is the persistent efforts of several indigenous grassroots organizations, applying pressure through marches on the capital, that led to a series of presidential decrees defining a type of property called *territorios indígena originario campesino* (hereafter, TIOCs). In 1996, the formation of the Forest Law (No. 1700) and Land Law (No. 1715) deepened the foundations for indigenous territorial control [40].

TIOCs are communal indigenous territories based on ancestral claims, as well as the amount of land required by a given indigenous group to maintain their livelihood and quality of life through the employment of customary resource management practices [41]. The 1996 land laws created a means for indigenous people to request formal recognition of their property rights and initiate titling. Since their initial formation, approximately 13.8 million hectares have been titled as TIOCs, with 1.7 million hectares under formal forest management [42]. Whilst TIOCs have been a significant achievement in indigenous groups' ability to maintain sovereignty over ancestral lands, titling has been a slow and somewhat limited process. Although the government stopped all new claims on established

TIOCs, property claims of existing third parties remain a point of contention and struggle for resident indigenous populations. Our research focused on the TIOC of Lomerio, an area of 256,000 hectares located in the department of Santa Cruz, and legally owned and managed by the Monkoxi indigenous peoples since 2006. Selection of this TIOC was based on established relations of one of the authors (M.I.) and historical engagement with community forestry.

Community forestry has been an important strategy utilized by the Monkoxi to secure tenure rights over their territory. Currently, all villages in Lomerio are trying to establish market-oriented forestry under local control. There are 23 (out of 29) communities in Lomerio that have set aside areas for community-based commercial forestry, amounting to over a third of the TIOC. Communities are allowed to retain 100% of the income from community forestry, although in theory 5% of the income should go to the legal authority over the territory, the CICOL (the Indigenous Organization of the Native Communities of Lomerio), to help cover administration costs.

Our research was based in four, purposively-selected communities in Lomerio, based on their having CF management plans in varying stages of development: Palmira, Santo Rosario, San Lorenzo, and Todos Santos (Table 1). These communities all rely on natural resources for their livelihoods, primarily from subsistence agriculture. Despite their legal ownership, the Monkoxi have limited control over forestry activity. Foremost, CF management must comply with regulations set out in the Forestry Law, including applying for a harvesting permit and following a set of specifications for tree harvesting. Second, they remain heavily dependent on (external) timber companies for forest exploitation expertise. Before harvesting, each community makes a contract with a timber company that assigns a forest officer to assist in the formation of an inventory of the exploitable tree species; this is one of the legal requirements in the Forestry Law to grant a community a harvesting permit.

CICOL has been experiencing great difficulty regulating resource management in the area. For example, some communities enter into unfavorable negotiations with timber companies without following CICOL's recommendations. Furthermore, the government is promoting mining and cattle grazing without undergoing a free prior and informed consent procedure, or involving CICOL in territorial planning. As a result, there is increasing pressure from external mining cooperatives to exploit the territory, and there has been noticeable land conversion for cattle grazing in forested areas, which is likely to increase in the near future [43].

2. Materials and Methods

Our manuscript forms part of the *Conservation, Markets and Justice* research project that explores the influence of market-based conservation mechanisms on local people's perceptions of justice (for project documents and data sets, see [44–46]). We adopted a mixed-methods approach, employing a questionnaire to identify headline views of CF expansion and how these views are distributed. Questionnaires included a binary response ("fair" or "unfair") referring to the hypothetical establishment or expansion of a CF on a village's land, as well as an open-ended explanatory question ("why did you answer fair/unfair?"). Sampling varied slightly in the respective countries, due to differences in village sizes. In Tanzania, 60 individuals in each village were randomly selected to be interviewed, from a list of households generated by the 2012 census [34]. In Bolivia, with much smaller villages, we attempted to interview one member from each household across the four communities.

Next, we utilized additional qualitative methods, including group and individual interviews, key stakeholder interviews, participatory videos, and dialogue and dissemination workshops (see Table 2 for more details) to understand the context in which decisions were made—i.e., interactions between forestry and agricultural interests. Sampling varied slightly in the respective countries, due to differences in village sizes (see Table 2). Efforts were made to sample men and women equally (n = 280 questionnaires, with 59% men and 41% women).

Table 2. Methodological details of fieldwork and sampling selection.

Method	Purpose	Tanzania	Bolivia
Questionnaire	To explore local response to the hypothetical establishment or expansion of a community forest on village land.	Sixty questionnaires in each of two villages–Ruhatwe and Kikole—were randomly selected, using a list of households generated from the 2012 census (NBS 2013).	One hundred sixty questionnaires in four villages in the Lomerio TIOC—approximately one individual per household.
Group and individual interviews	To explore and clarify people's perspectives on community forestry–e.g., constraints and benefits of community forestry.	Twelve individuals per village were randomly selected that completed the questionnaire. Half were men and half were women. A semi-structured format was followed.	Two focus group discussions with elders (men and women) from San Antonio and San Lorenzo (six participants in each).
Key stakeholder interviews	To explore the perspectives of organizations, governmental and non-governmental roganizations (NGOs), on community forests, as well as potential constraints or support provided to communities in their formation.	Four individuals were interviewed, including a forestry officer in the Kilwa District Forestry Office, the Kilwa District Land Management officer, and two local NGOs that actively promote and support community forestry (TFCG and MJUMITA).	Six individuals were interviewed, including a representative from the Bolivian Forestry Agency (ABT), two representatives of CICOL, including the president and a founding member, and a representative from each of the following NGOs: Apoyo Para el Campesino-Indígena del Oriente Boliviano (APCOB), Centro de Estudios Juricos e Investigacion Social (CEJIS), and the Netherlands Development Organization (SNV) in Bolivia.
Participatory video	To develop trust with study communities, explore how communities perceived justice and the environment, and to provide a tangible outcome to respective communities of local relevance.	A single video in each of the study villages was created involving a core team of approximately eight people in each community.	Three videos were created: one in each of the villages of Todos Santos and Santo Rosario, and a third historical video in conjunction with CICOL.
		Videos are freely available through the permissions of the communities at: https://www.youtube.com/playlist?list=PL2tuXXfyo5WRYFWoy1cDqMAFm-3hkcEsy	
Dialogue and dissemination workshops	To share and explore findings with respective study communities and research partners. In addition to country meetings, an intercultural meeting with partners from each country were invited to the United Kingdom.	Three dialogue meetings were held, including one in each village, with a screening of the completed videos and summary of research findings. A third meeting with targeted non-governmental and governmental organisations as well as representatives from the study communities was held in Dar es Salaam.	Four community dialogue meetings were held, including one with the Board of Directors of CICOL, one general assembly in San Lorenzo (with three representatives from each village that forms part of the TIOC), and two village meetings (in Todos Santa and Santo Rosario) with a screening of the completed videos and summary of research findings. A fifth meeting with targeted non-governmental and governmental organisations, as well as representatives from the study communities, was held in Santa Cruz.

We utilized a general inductive approach [47] to analyze our data. Authors initially read transcripts to identify themes that were then discussed to consider possible meanings and grounding in the broader political context. Questionnaire responses to the expansion of CF, key stakeholder interviews, focal group discussions, video footage, and dissemination meeting minutes were then coded (by N.G.C. and I.R.) using NVivo software (QSR 2015). Codes were further discussed (by N.G.C., I.R., and A.M.) in parallel to a re-reading of a sub-selection of interviews, to ensure descriptive validity with all themes identified [48] (p. 36).

3. Results

3.1. Peoples' Response to the Hypothetical Establishment or Expansion of Community Forest

Questionnaire respondents answered predominantly negatively to the prospect of establishing or expanding their CF (78%; n = 280). Codes were created to describe a respondent's justification for their response, and fell under three broad categories: benefits, costs, and dimensions of environmental justice. Forty-seven percent of the coded statements associated with a negative response pertained to agricultural constraints (255 codes in 218 questionnaires). This was relatively consistent between countries (Table 3). Tanzanian respondents were equally concerned about increased exposure to crop-raiding by wild animals, and many also raised concerns about constraints on forest product collection. Bolivian respondents did not share these concerns about crop-raiding and resource access, but did cite procedural concerns, suggesting the central importance of democratic procedures in community norms.

Table 3. Reasons for choosing "unfair" (n = 218 questionnaires).

	Bolivia	**Tanzania**
Communal vs. personal	2	0
Costs		
Constrain access forest products	0	38
Constrain agriculture	68	52
Crop raiding	0	53
Environmental justice dimensions		
Distribution	5	7
Future generations	0	5
Procedural	17	2
Recognition identity	6	0
Total	**98**	**157**

Sixty-nine statements affiliated with a positive response to the expansion of CFs were similarly coded (62 questionnaires). Reasons for a positive response varied considerably between countries, with Bolivians favoring CF because it aligns with their preference for community over individual governance, as well as with their norms for the "correct" procedure to make forest management decisions (Table 4). For Tanzanians, there was a broader spread of reasons for supporting CF, including concerns for economic benefits derived through the CF ("village income"), but also including support based on a preference for community decision-making ("procedural"). "Costs" (i.e., constraints on access to forest products and agriculture) were described, but were superseded by potential CF benefits, as well as a recognition that proximity to a forest, managed or not, would drive exposure to crop raiding.

The most prevalent concerns throughout our data sets were constraints on the ability to convert forest into agricultural land.

> "If we have enough agricultural land, I would have no problem with the expansion of our community forest, but if we only had a little land, I would not agree." (Kikole respondent, questionnaire)

Table 4. Reasons for choosing "fair" (n = 62 questionnaires).

	Bolivia	**Tanzania**
Communal vs. personal	17	3
Benefits		
Ecosystem	1	2
Security	0	4
Village income	0	9
Costs		
Constrain access forest products	0	1
Constrain agriculture	0	2
Crop raiding	0	5
Environmental justice dimensions		
Distribution	0	2
Future generations	1	2
Procedural	13	6
Recognition identity	1	0
Total	**33**	**36**

One key concern in Tanzania is that a reduction in agricultural land will reduce opportunities to expand sesame production, which has contributed to income growth for many households. According to data collected in field work, a hectare of recently cleared and highly fertile land would yield between 690–1170 USD/ha, based on the production of 1000–1700 kg of sesame at a 2015 rate of sale of 1500 TSH/kg (0.70 USD/kg). In contrast, Kikole's CF was anticipated to produce an annual income of 2660 USD/year from timber extraction (less than 6 USD/ha), but in actual fact generated only 894 USD/year (2 USD/ha). Admittedly, our calculation is a crude one, and does not take into account the relative longevity of these production choices, nor the labor demands for clearing and maintaining land for agricultural production. It does, however, illustrate the potential trade-offs involved in land use choices, including short term, local, and household profitability of sesame production versus longer-term, communal and local to global economic benefits flowing from CF.

In addition to immediate economic concerns about land scarcity, villagers have concerns about their capacity to continue with their preferred farming systems and practices. In Tanzania, respondents expressed concerns that land shortages would prevent their ability to practice shifting cultivation (n = 10). Others raised concerns that land available for agriculture would not be suitable for the preferred types of crops, such as maize and sesame:

> "When you want to prepare your farm, you need to look at the topography, if it is hilly, the maize and sesame will not grow well, you also need to look at the type of trees and grasses, this will tell you if you will produce a lot of sesame." (Kikole respondent, interview)

These comments are indicative of the more integrated, holistic way in which local land management expertise is based on the landscape as a complex forest–agriculture mosaic, rather than as uniform and permanent blocks of demarcated "forest" and "farmland".

In Bolivia, respondents were equally concerned that demarcating forest lands would constrain traditional land use systems, but expressed this in ways that connected more strongly with recognition, such as identity and place attachment.

> "The Monkoxi were traditionally hunter-gatherers and farmers. Timber was and is not our main activity. Considering expanding the community forests would place greater restrictions on our access to the forest, why would we want to do that?" (CICOL representative, U.K. meeting)

Respondents referred to how they valued the capacity to select land for agricultural use, according to their own criteria. One of these criteria was historical use, and in particular areas of land that had been cleared with their own labor or that of relatives.

> "I have worked in that place. Even if they pay me, I would not leave." (Bolivian respondent, questionnaire)

Tanzanians raised serious concerns about the implications of CF expansion and their exposure to wild animals (n = 63). Whilst the majority of these respondents were concerned solely with crop loss, approximately a fifth indicated a heightened risk of injury or death. Such risks were corroborated by the Kilwa District Forest Officer (4–5 people killed annually by elephants) and the Ruhatwe participatory video group (2 people killed in Ruhatwe, 2014). Although some felt placement of the CF "far from our fields" was a way of reducing this risk, others indicated that "all our farms are close to the forest."

Furthermore, Tanzanians expressed concern over their ability to access forest products in areas under communal management. This loss was often balanced through the remaining "open" forest. Open forest, or *misitu ya wazi*, refers to forest that falls on village land but is not under any kind of formal management—i.e., community, joint, or otherwise. These areas are often much larger than that of the CF, and play an important role in a community's ability to access new agricultural land as well as forest products. Local people widely perceived the open forest as a kind of free-for-all, though it is in fact more complex. Based on the 1999 Land Act, any land not being "used" by a village is considered general land, and falls under the jurisdiction of the central government. This means that the District Forest Office is able to, in theory, issue licenses for harvesting trees in the open area, for which the village may only claim a small percentage from the central government. In practice, this varies from district to district and village to village, but constitutes a significant loophole that is poorly understood by most communities, who perceive the open areas quite differently.

Set against these reservations relating to agricultural livelihoods and human–wildlife conflicts, CFs are understood to provide potentially important strategic benefits for local communities. For the Monkoxi, CFs were pursued as a means to stop outsiders from harvesting their timber (personal communication, CICOL representative, U.K. meeting). Furthermore, they were important to their claim for territorial autonomy.

> "CICOL's motives in seeking [timber] certification were strongly linked to its potential commercial benefits, as well as the possibility that it might facilitate Lomerío's territorial demands." [49] (p. 25)

Tanzanians' pursuit of CF was not based on a struggle for autonomy, but similarly helped communities achieve greater control over forest access and exclusion, and this is highly valued [50]. This was exemplified in the participatory video made by villagers in Kikole that included a story about transparency (*uwazi*), which explored their concerns that village leaders often acted corruptly, i.e., taking bribes from illegal outside loggers operating in the CF. Participants indicated that this story was in fact based on the current leaders, who were replaced shortly thereafter in a general election. It appears that the governance structures to manage CF were, in part, key in ousting the corrupt leaders and in efforts to maintain greater transparency.

The lack of control over "open forests" in Tanzania meant that illicit activities were already reducing available benefits from open forests:

> "In CF we are able to get income [through the sale of timber] while in the open forest we are able to collect things but they are very small and because there are also illegal activities taking place in the open forest, the benefits we receive in the village overall are very small." (Kikole respondent, interview)

The point made here is that when you switch from open to community forest, access to the collection of forest products is lost or severely reduced. However, whilst open forest enables greater extraction, this is uncontrolled, and therefore the village community benefits little from it. Some also express the concern that left as open land, there may be no timber or fuelwood to collect in future. Conversion to CF therefore only deprives them of a small benefit, with the added potential bonus that the community benefits from income through timber sales.

Summarizing some of these points, we see a set of related reasons why villagers might welcome the benefits arising from a limited area of community forestry, but not view these benefits as scalable, because associated costs escalate at a faster rate. For example, whilst adoption of CF was used as evidence of resource management capacity during claims for autonomy, the expansion of CF does not really serve to strengthen that claim. Costs do, however, escalate, and can do so in non-linear ways, as evidenced by concerns of a tipping point at which the scarcity of farmland would make shifting cultivation untenable. Progressive (and potentially rapid) undermining of local landscape management expertise is not a purely economic concern, but also related to the importance of land and farming to identity.

3.2. Conflict within and between Communities

A further concern with expanding community forestry is that it will amplify tensions within and between communities. One key issue is related to boundary conflicts arising from the demarcation of community forest lands. In the case of Lomerio, the formation of the TIOC boundaries has resulted in the eruption of new tensions.

> "Now that we have a joint title [for the TIOC], people don't want to respect the other communities [villages within the TIOC]. Before, people didn't use to go through or carry out activities in the territory of other communities without seeking permission from the community authorities. Now, they don't respect [one another], they go through as if they were the owners, there is none of that common respect. What will it be like later?" (village elder, San Antonio, group interview)

Furthermore, there remains considerable tensions within communities over how benefits derived from timber sales were actually distributed. In particular, the elders in Santa Rosario vocalized discontent with their contribution to the legal battle to establish the TIOC, as well as the current lack of recognition or receipt of financial benefit from younger generations actively harvesting timber.

> "We gave a good fight, we won our battle with the State [to establish the TIOC], but with time, this has created problems. The younger generations now manage our heritage. We ended up working for them, but it should not be like that. Those who fought for what we have should be the first to benefit, then the others. It's important that the young ones know how much it cost us to have what we have. But as they have no idea, they don't care. And we, who struggled to obtain what we have, suffer when only some people benefit." (elders, Santa Rosario, group interview)

Similarly, another elder described his frustration at participating in his village's decision-making process, but lacking any benefit:

> "The engineer came and explained everything. He said that everybody was going to benefit. Then, the young ones received motorcycles, but nobody told me anything else. Everybody has kept very quiet. The people from Santa Rita asked me, have you received anything? And I said, nothing. I don't know anything, I said. In Santa Rita and San Simon, they have all benefited, but in Santa Rosario, nothing!" (village elder, Santa Rosario, video 2)

In the Tanzanian cases, there were similar concerns about being "left out" linked to generational issues:

> "For us as old people, we do not benefit from the CF. It is those that are responsible for its management, especially the leaders, that see the benefit. We get what we need from the open forest. We don't see the benefits [from the CF] being mostly to the leaders as a problem because others participate and benefit through relatives or other villagers. We don't benefit though and that's okay." (Kikole respondent, interview)

In Ruhatwe, conflict with the neighboring village of Migeregere arose due a lack of clarity regarding the boundary between village lands, resulting in conflict when the District granted Migeregere permissions to fell some high-value timber in the disputed area. Whilst a community-based organization, MJUMITA, has helped these villages negotiate a new agreed-upon boundary, this is not formally recognized, and MCDI is therefore reluctant to proceed with establishing a CF in the area. Further interviews with villagers in Ruhatwe revealed frustration at this impasse:

> "Migeregere continues to encroach our forest. The boundary has been demarcated and shows that the forest belongs to us [Ruhatwe]. We wish the conflict to be resolved and would share the forest, but Migeregere has to cooperate." (Ruhatwe respondent, interview)

In Kikole, the establishment of a CF has similarly created tensions. Shortly after the establishment of its CF, Kikole was approached by its neighboring village, Kisangi, to provide some forest to facilitate the establishment of their own CF. Whilst Kikole granted Kisangi some forest land, they subsequently believed that Kisangi had breached this agreement by cutting timber outside of the agreed area, and critically, "kept the money instead of sharing it equally with Kikole," (Kikole respondent, interview). The key point to take from this is that CF leads to tensions between communities, and this places considerable burdens on local institutions and relationships.

4. Discussion

In this paper, we have explored the responses of six villages in Bolivia and Tanzania to the potential establishment or expansion of CFs in their territories. It is worth reiterating the economic value of and community control over revenues generated from these forests, in contrast to other more tokenistic (or even burdensome) community-managed forests [16]. Despite this relatively bold entry point, communities were tempered in their interest in establishing or expanding community forests on their land. Two main themes help to understand the context in which community forestry is perceived as a burden or benefit, and were broadly relevant across our two study countries.

The foremost theme is that scale matters. Whereas small community forests were perceived to provide greater control (i.e., ability to exclude outsiders) and potential financial benefit through timber sales, larger CFs were less desirable, due to the decrease in available land and ability to use it for other activities. Communities' major reservation on the expansion of CF was based on concerns for sufficient (forested) land *outside* of these areas, where subsistence resource collection and agricultural expansion was still permitted. Hajjar and colleagues found similar responses in their study examining local perspectives of CFs in Mexico and Brazil, where prohibition on the clearing of land for agriculture in forest management areas was acceptable, so long as they, "still had sufficient land for agriculture" [51] (p. 165). The significance of agricultural land in Bolivia and Tanzania is perhaps unsurprising, given its historical role and importance to a key livelihood activity: food production. As in many tropical forest landscapes, agricultural production in Bolivia and Tanzania has primarily been through a system of shifting cultivation [52,53]. Agricultural expansion and in particular shifting cultivation has long been contested as one of the main drivers of tropical deforestation [54,55]. The work of researchers like Alcorn [56], Fox and colleagues [57], and Padoch and Pinedo-Vasquez [58] has demonstrated the complexity of shifting cultivation, and *inter alia*, the ability to support secondary forest growth, carbon sequestration, agricultural diversity, and species conservation. In Tanzania and Bolivia, there is a similar view of swidden farming—it is generally discouraged, yet remains commonly practiced in the study area. We posit that unless local concerns over agriculture are integrated into CF and forest management practices more broadly, i.e., the landscape level approach, the long-term sustainability of such interventions remains tenuous. We echo the sentiments expressed by Hajjar and colleagues [51] who advocated for the inclusion of swidden agriculture in community forestry, as well as the concept of "domestic forests", defined by Michon et al. [59] as "a forest for living, a forest that integrates production and conservation with social, political, and spiritual dimensions."

The second thematic area revealed by our research was that of the intra- and inter-community tensions over justice concerns borne by the introduction of CF. These conflicts are most certainly not unique to CF, and are often observed in areas where the marketization of an environmental resource disrupts IPLC's livelihoods, and perhaps more corrosively, relationships [60]. Nonetheless, understanding communities' response to CF can help identify the conditions under which CF is more (or less) likely to succeed. Reflections on the historical context in which CFs were established in the respective countries is likely relevant in interpreting these tensions. The grassroots efforts to establish the Lomerio TIOC were largely led by the (now) elders. Embedded within this larger struggle for autonomy and cultural recognition is the Lomerianos' pursuit of community forestry. In this sense then, CF is as much to do with the Lomerianos struggle for identity as it is about control over its territory and natural resources (see also [61]). This history feeds into their current perspectives on the distribution of benefits (and burdens) from CF.

In contrast, in Tanzania, village land rights and the Forest Act of 1998 were established at the state level with little input from local stakeholders. Thus, whilst the formation of community forestry in Bolivia may in part be described as an extension of the efforts of the elder's pursuit for indigenous autonomy and the formation of the TIOC, the creation of local resource control in Tanzania was entirely externally-driven. Furthermore, the formation of CFs in Tanzania, and in particular Kilwa, brought substantial outside attention from both government and non-governmental organizations, as well as funding that was largely absent before. These interventions were perceived by many members of the study villages to bring new value to the forest, as well as contribute to a village's ability to assert legal control over its resources (see also [29,50]). In particular, the presence of the politically savvy non-profit organization advocating for community forests (MCDI) has undoubtedly influenced the situation in Kilwa, by operating as a liaison between a village, the district, and national-level interests. MCDI has reduced the knowledge gap of villagers in managing their forests, satisfying the "professionalization" demands of higher officials, yet remains challenged by intra- and inter-community tensions, as well as competing land use interests manifested in the formation of community forests.

The ability to increase and maintain CFs managed by local stakeholders mandates an understanding of intra-community dynamics in relation to deeper justice claims, e.g., how decisions are made (procedural/participation issues), benefits and burdens distributed, and the way in which peoples' way of life is acknowledged or ignored (recognition). Our study has revealed some of the challenges that communities in Tanzania and Bolivia experience in forming or potentially expanding community-managed forests. Whilst communities' response is cautious, it is by no means condemning, and is perhaps indicative of communities' active engagement to make CF their own. In his 40-year review of community forestry, Gilmour [12] states that "even when community-based forestry is given high priority in a country's development agenda and most of the [necessary] conditions [are met], a long time is still needed for communities to build a sense of ownership and sufficient natural, social and human capital to deliver on their management objectives." Quite simply, "[c]ommunities need to go through a process of learning and adaptation to improve their governance to achieve the desired outcomes." Similarly Lund and Treue's [62] work in the Southern Highlands of Tanzania suggests that though imperfect, meaningful decentralization of forest management "holds 'self-correction' potentials of addressing social inequities that appear far better than those of top-down, centralized systems." This perhaps begs a final question of how do we, as researchers, governmental employees, and NGOs, best support this process?

In their recent cross-country analysis of CF, Arts and De Koning described the potentially critical role that the development of a community of practice—defined as "a high degree of networking among internal and external stakeholders based on common concerns, social learning and mutual respect"—plays in CF success [63]. Like that of Gilmour [12], Arts and De Koning [63] indicate that a community of practice necessitates time, but also a willingness of external stakeholders, like ourselves, to engage (on a parallel level) with communities in order to establish "legitimate" power—i.e., build trust. Perhaps through an engagement of communities' perceptions of CF, new communities of practice

may emerge, facilitating greater recognition of a community in the management of their forests and ultimately, the type of land they want.

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