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Do locals have a say? Local participation in governance of forest plantations in Tanzania and Mozambique

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Abstract:

Abstract With the expansion of large-scale forest plantations in developing countries, concerns are rising about their relation and integration with adjacent local communities. Local participation in forest governance can potentially affect the distributional effects of plantations' benefits and mitigate their adverse effects. Using data from villages adjacent to plantations in Tanzania and Mozambique, we explore differences in local participation between plantations. Our quantitative analyses show that households in villages adjacent to private certified plantations are more likely to have a say in the activities of the plantations than households in villages adjacent to non-certified or state owned plantations. We use insights from access theory to explain our findings: private plantations may have more incentives to involve local people to guarantee their investments in plantations than state-owned plantations. Certification requirements may also strengthen these incentives by requiring plantations to identify and uphold customary rights of local communities. We further found that some social groups (male-headed, more educated and plantation workers) are more likely to have a say in plantations' activities than their counterparts. We emphasize that increased and fair local participation in governance of plantations is vital in terms of the sustainability of large-scale plantations and integrating them in rural landscapes. Key words: Forest plantations, local governance, participation, access , Tanzania, Mozambique

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Abstract

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1. Introduction

Since the 1990s community participation has become a buzz word in governance of natural resources. Increased community participation is regarded as one of the factors for more effective forest governance in tropical countries (Agrawal et al., 2008). To this end, many countries in Sub-Saharan Africa have promoted participatory forest management (PFM) since the 1990s with the hope of improving forest and livelihood conditions by encouraging the participation and consultation of local communities in forest governance (Mustalahti and Lund, 2009; Zahabu, 2008). However, the objectives of regulations promoting participatory forest governance have not been realized in many African countries due to a gap between policy and its implementation, rendering PFM no more than a policy discourse (Mustalahti and Lund, 2009; Ribot et al., 2006). Mozambique and Tanzania are arguably among the countries with most developed PFM processes (Mustalahti and Lund, 2009). Forest and land policies and acts in Tanzania emphasize the active participation of local communities in managing forest resources (URT, 1998). Similarly in Mozambique, the Land Act of 1997 and the Land Regulation of 1998 stipulate community consultations with regard to land related investments (Otsuki et al., 2017). The Forestry and Wildlife Law of Mozambique emphasizes that consultations

between communities and private forest owners are required to reach agreements on issues such as benefit-sharing mechanisms (Republica de Mocambique, 1999).

As in many other tropical countries, a rapid expansion of large-scale forest plantations has occurred in Mozambique and Tanzania since the 1990s (FAO, 2015; JACOVELLI, 2014). Government allocation of land for plantations which is subject to largely local customary tenure has led to concerns among NGOs and researchers regarding their impacts on local communities and whether the voices of locals are taken into account in the activities of such plantations (German et al., 2014; Schoneveld, 2017). A recent review of empirical studies on the socio-economic impacts of large-scale forest plantations concludes that plantations management should engage a wide range of stakeholders to improve potential positive outcomes and ameliorate adverse ones (Malkamäki et al., 2017). To mitigate potential adverse socio-economic impacts of forest plantations, it has been recommended that local communities be given opportunities to be heard and to hear directly from plantation companies about management plans (Landry and Chirwa, 2011). An important challenge to continued expansion of forest plantations and the management of existing ones is related to their governance and the expectations of adjacent communities (Cubbage et al., 2014; Payn et al., 2015). Community participation and consultation between forestry companies and stakeholders is becoming increasingly vital with the requirements of voluntary certification standards such as the Forest Stewardship Council (FSC) (Payn et al., 2015).¹ Forest certification is becoming prominent as contemporary form of forest governance (Arts, 2014; Cashore, 2002; Cashore et al., 2007). Global governance systems, mainly the emergence of non-state mechanisms such as certification standards, have led to polycentric forms of governance where private and community institutional structures with or without state tackle governance challenges (Schoneveld, 2017).

While studies on participatory forest governance and their outcomes thus far have focused on community and natural forests, empirical studies on local participation in the governance of (large-scale) forest plantations in Africa are scarce. In particular, it is not clear how national policies and regulations are translated at local levels and how local communities actually experience their involvement with activities of forest plantations. Private sector forest management can face additional challenges when there are institutional voids (absence of institutional arrangements and policies) to manage conflicts and local community concerns and when local communities perceive large companies as substituting the state (Katani and Babili, 2012).

In this paper, we investigate local participation in governance of large-scale private and state-owned forest plantations in rural Mozambique and Tanzania. In Tanzania, we compare the participation of local households in governance of private forest plantations with the participation of local households in a state-owned plantation to assess if differences in ownership of plantations are related to differences in local governance of plantations. In Mozambique, we compare the participation of local households in governance of FSC-certified private forest plantations with participation of locals in a non-certified private plantation to assess the influence of global market governance mechanisms on local forest governance outcomes (Secco et al., 2011). We examine if the likelihood of participation of local households in governance of forest plantations and their level of satisfaction with it differs across social groups. We use subjective measures of local governance based on the perception of households about their participation in governance of plantations adjacent to their villages and their satisfaction therein. We employ logistic regression model to analyse data collected

¹ Forest Stewardship Council (FSC) is an independent worldwide not-for-profit organization that establishes standards and criteria for responsible forest management to encourage socially, economically and environmentally beneficial outcomes (FSC, 2015)

from 664 households in eight villages in Mozambique and Tanzania. We triangulate the quantitative results with qualitative analysis of findings from focus group discussions. The study contributes to the literature on local governance of forests and sustainable land use practices. It sheds light on how local communities perceive their interaction with large-scale forest plantations. The findings of the study are relevant to current discussions about the expansion and sustainability of large-scale forest plantations in developing countries.

Previous studies on local forest governance have largely focused on community and natural forests (Anderson et al., 2015; Baynes et al., 2015; Katani and Babili, 2012; Lund et al., 2015; Mustalahti and Lund, 2009; Persha et al., 2011; Pokharel et al., 2015; Schusser et al., 2015). A comparative case study of PFM in Laos, Mozambique and Tanzania found that while the policy framework in Tanzania places communities in a better position to participate in the management of adjacent forests, in Laos and Mozambique the economic interests of powerful private actors are promoted at the expense of those of local communities (Mustalahti and Lund, 2009). The study also found that despite policies supporting community participation in forestry, local communities were systematically excluded from sharing in the returns from commercially valuable forest resources in the three countries. Ribot et al. (2010) question the equitable nature of local governance of natural resources and contend that in most parts of Africa such initiatives benefitted the powerful, the rich and well-connected at the expense of the poor. Agrawal and Gupta (2005) found that the likelihood of participation in environmental governance increases with wealth and social status while it decreases with education. In a review of the literature on forest governance, Arts and Visseren-Hamakers (2012) indicate that PFM has been subject to power struggles and elite capture, as well as conflicts between forest officials and communities over valuable timber resources, land rights and monitoring. Schusser et al. (2015) found that powerful actors (public officials and representatives of forest users) exhibit a significant effect on the results of community forestry for local people.

The outcomes of participatory forest governance approaches with regard to improving forest conditions and local livelihoods are mixed (Arts and de Koning, 2017). Blomley and Ramadhani (2006) indicate that PFM in Tanzania has contributed to improved forest quality and sustainable forest management while there is less evidence of its impact on improving local livelihoods. Lund et al. (2015) found that forests managed with community participation exhibit lower extraction rates than forests under other non-PFM regimes. Similar findings have been reported in other studies (Arts and Babili, 2012; Blomley et al., 2008; de Koning, 2011; Katani and Babili, 2012; Persha and Blomley, 2009). Iddi (2002) reported that community involvement in the management of a natural forest reserve in Tanzania led to improved forest protection, better understanding and trust between forest managers and villagers resulting in reduced conflicts. Pokharel et al. (2015) show that recognition of local knowledge and forest management practices improves sustainability of forest management. The rest of the paper is structured as follows. The next section provides an overview of forest governance policies in Mozambique and Tanzania. Section 3 describes the conceptual framework. The study context and data are explained in Section 4. Section 5 elaborates the methods of analysis and the results are discussed in Section 6. The last section concludes.

2. Overview of forest governance policies in Tanzania and Mozambique

Tanzania and Mozambique have developed policies and legislations regarding the management of their forests and other land related investments. In this section, we briefly review the policies and laws related to local participation in forest governance in each country.

2.1 Tanzania

A comprehensive national forest policy covering all types of forests in Tanzania was formulated in 1998 (URT, 1998). The overall priority of the policy is the management of the country's forests and forest-based industries to contribute to sustainable and equitable national development. The policy calls for the consultation and participation of forest adjacent communities in the management of forests. The National Forest Programme of 2001 highlights the need to create enabling environment for gender balanced participation of all stakeholders in forest governance. The programme calls for devolution of forest management and recognizes local communities as key partners in plantation forest management (URT, 2001). Effective collaboration and participation of stakeholders require formal institutional arrangements and mechanisms at different levels of forest management. These establishments are in the form of policy and legal frameworks and may include capacity building, empowerment of local governments, cost and benefit sharing and security of tenure (URT, 2001). In 2002, the Forest Act was enacted by the parliament to serve as the legal framework for the forest management in Tanzania (URT, 2002). The main objective of the act was to promote and enhance the contribution of the forest sector to sustainable national development. The act requires forest owners to have a forest management plan which includes a description of adjacent communities and an outline of a scheme for the involvement of these communities in the use and management of the forest, including any benefits that may be made available to such communities where direct involvement in use and management may not be appropriate. According to the act, local communities should be consulted in the preparation of detailed forest management plans (URT, 2002). Despite such policy frameworks, the implementation of PFM in Tanzania has suffered from two major bottlenecks: slower progress in areas with high value forest resources and lack of support to local communities in asserting their legal rights (Mustalahti and Lund, 2009).

Traditionally, all facets of forest management in Tanzania were the domain of the central government (URT, 2001). With the recognition of the roles other stakeholders could play in forest management, the direction of forest governance shifted to a more decentralized management where local governments, communities and the private sector play a greater role in the actual management whereas the central government concentrates on facilitation and enabling functions. Until recently, the Forest and Beekeeping Division (FBD) of the Ministry of Natural Resources and Tourism (MNRT) has been responsible for the management of forests in Tanzania. In 2010, the Tanzania Forest Services (TFS) Agency was established as a semi-autonomous government executive agency under MNRT for managing the national forests and enforcing the regulations enacted by the FBD (URT, 2013). The TFS has the role of monitoring and evaluating the implementation of forest policies and regulations.

2.2 Mozambique

In Mozambique, the Land Law of 1997 recognizes community's rights to land and puts community consultation as a requirement when assigning rights of use to another party. The Forest and Wildlife Law of 1999 establishes state ownership of forests and wildlife (Republica de Mocambique, 1999). It promotes the establishment of forest industries and increasing exports of manufactured products. The Law delineates the rights and benefits of forest dependent local communities, covering subsistence level use of the resources, participation in the co-management of forest resources, community consultation and approval prior to allocation of exploitation rights to third parties. However, the law emphasizes community consultations only as a means to reach agreements with the private sector (Mustalahti and Lund, 2009). It also outlines development benefits derived from timber production under a concession regime. It establishes two types of license for legal timber production: forest concessions and simple licenses. Concessions are granted to national or non-national operators for areas larger than 20,000 ha with an approved management plan, and can be allocated for up to 50 years, though concessionaires are also required to have an annual harvesting license which specifies the volume and species they may cut. Simple licenses offer harvesting quotas of 500 cubic meters or less across 10,000 ha, annually over five years and exclusively to national operators. While these simple licenses do require a simplified management plan, no area mapping takes place; in essence it is a harvesting license (Mustalahti and Lund, 2009).

The rules of the 2002 Forest and Wildlife Regulation state that all timber operators, whether concessionaires or simple license operators, must consult with local communities and receive permission from these in order to exploit forest resources, as well as give precedence to local community members when employing relevant staff. The 2002 Regulation creates local councils for the management of natural resources, composed of all relevant parties to timber trade, including local communities, all of whom are tasked with overseeing all timber operations in concessions and simple license areas. Local Councils may also suggest improvements to legislation and to forest management. In spite of these rules, Mozambique is generally characterized by a central government favouring commercial timber exploitation at the expense of communities' rights and (Mustalahti and Lund, 2009).

3. Conceptual and theoretical framework

In order to assess local forest governance, we need to define what forest governance is and have indicators which can measure its aspects. Governance refers to mechanisms for mutual interactions of actors in making and implementing policy decisions regarding common problems (Secco et al., 2014). Forest governance has been defined in various ways (Arts and Visseren-Hamakers, 2012; Giessen and Buttoud, 2014). In this paper, we use the definition widely used in the literature. Accordingly, forest governance is defined as 'new modes of governing that go beyond the confines of the state' (Arts, 2014). Forest governance can be conceptualized at global, national and local levels (Arts and Visseren-Hamakers, 2012; Secco et al., 2014). This conceptualization leads to three levels of forest governance analysis: international forest regimes, forest politics and policy and governance and management of forests (Arts and Visseren-Hamakers, 2012; Secco et al., 2014). This study concentrates on the interface between national forest-related policies and politics and how they are translated into the practice of local governance and management of forest plantations. Local governance refers to "the lowest tier of forest administration within a given state (e.g. region, province, county, district, municipality, etc.) and/or as the smallest area at which a forest project or program can be implemented by involving various actors" (Secco et al., 2014, p. 61). Local

governance commonly includes decentralisation and public participation (Arts and Visseren-Hamakers, 2012; Ribot et al., 2006; van der Arend and Behagel, 2011). Decentralization refers to the transfer of authority from central to lower levels of administrative structures, while public participation implies involvement of the public in local policy and decision-making beyond regular democratic elections. Both forms of local governance are expected to enhance the effectiveness and legitimacy of policies as well as to reduce the gap between politics and citizens (Arts and Visseren-Hamakers, 2012).

Various indicators have been suggested for assessing and monitoring forest governance at global and national levels (Kishor and Rosenbaum, 2012; PROFOR, 2011; UNDP, 2009). Indicators are quantitative or qualitative variables that can be used to concisely describe, understand, monitor and assess the quality of governance (Secco et al., 2014). Indicators of the quality of local governance can help to identify weaknesses and strengths in local forest governance mechanisms and provide feedback on effectiveness of global and national policy implementations at a local level (Secco et al., 2014). To assess the governance of forest plantations at local level, we use indicators of local forest governance suggested by Secco et al. (2014) based on subjective perception and satisfaction with local governance outcomes. In the process of developing these indicators, Secco et al. (2014) first identified seven key dimensions of governance and within each key dimension they identified key sub-dimensions (Figure 2). Possible indicators were then identified for the key sub-dimensions. In this study, we mainly focus on the key dimension of participation and thereof its sub parts: stakeholders inclusion, representativeness and equity in participation (Figure 1). We use subjective indicators based on the perceptions of local households about their say in the activities of plantations and their satisfaction with their say and dealings with the plantations (Secco et al., 2014).

Fig. 2. Local governance key-dimensions and sub-dimensions: a simplified conceptual framework. Source: Secco et al., 2014.

The concept of responsible forest management has been guided by internationally developed sustainable forest governance and management guidelines which reflect principles of accountability, effectiveness, efficiency, fairness/equity, participation of all interested people in decisions, transparency and availability of information on how forests are governed and managed (Capistrano, 2010; European Commission, 2010; FAO, 2011; Finance Alliance for Sustainable Trade, 2014; Lawson and MacFaul, 2010). Compliance with national regulations and independently verified certification schemes – such as Forest Stewardship Council (FSC), Programme for Endorsement of Forest Certification Schemes (PEFC), Verified Carbon Standard (VCS), Climate, Community and Biodiversity (CCB) standards – and international quality and environmental management standards and guidelines (e.g. FAO, 2011) can be seen as a demonstrable measures of responsible (and legal) forest management.

We use insights from access theory to guide our theoretical expectations on how plantation owners may differ in terms of engaging and interacting with adjacent communities. Access theory posits that actors may use various mechanisms to secure and maintain their benefits from resource uses (Ribot and Peluso, 2003). One of these mechanisms can be engaging adjacent communities (Bluwstein, 2017). Since forest plantations are established on village lands which used to be governed by customary rules, investors in plantations may commit some resources to cultivate relations with villagers so as to gain, control and maintain their access over forest plantations (Ribot and Peluso, 2003). Plantation owners also require labour and may decide to invest in improving their relations with adjacent communities to gain and maintain their access to workforce for timber production. Community participation in natural resources is an important example of a shift in control of people from the state to private actors (Bluwstein, 2017).

4. Study context and data

4.1 The context

We selected FSC certified plantations owned by a private company, Green Resources AS (hereafter GR). In Tanzania, GR had developed about 17,000 ha of standing forest (eucalyptus and pine) plantations by 2016 on 74,000 ha of land, the majority of which used to be grassland with scattered shrubs and isolated trees. The company acquired the land on a 99 years lease from the Government of Tanzania, negotiating with the relevant authorities in accordance with the 2006 Land Law. Under this law, land is granted by the village under the supervision and mandate of the District authorities and authenticated by the Ministry of Lands and Human Settlement Development through the Regional Office in Mbeya. In Mozambique, GR had developed about 20,000 ha of standing eucalyptus and pine trees on about 252,000 ha of land by 2016. It acquired the land on a 50 year concession basis, renewable for the same period, through community consultations and final approval by the council of minister in 2009 (Green Resources As, 2017).

For comparison purposes, in Tanzania, Sao-Hill forest plantation was selected: a state-owned eucalyptus and pine plantation of comparable size to GR, also located in Mufindi district. In Mozambique, a non-certified private plantation company, Florestas di Niassa, operating in Niassa province was selected. The company had planted 7,000 ha of eucalyptus and pine trees by 2016.

Eight villages in Mozambique and Tanzania were identified and selected for the study according to the following criteria: proximity to forest plantations, plantations had started operations (such as planting and community projects) in the villages, plantations employ villagers and there is sufficient distance between the villages to minimize spill-over effects. We used maps, information from district offices, company documents and plantation managers to identify villages that fulfil these four criteria.

Table 1. Study villages in Tanzania and Mozambique

Country	Village	Year established	Number of households	Distance to the nearest town market (in minutes by public transport)	Is the village connected to at least one road useable by cars in all seasons?	Plantation owner	Certification
Tanzania	Idete	1974	864	42	Yes	Private	Yes
	Mapanda	1974	1080	105	Yes	Private	Yes
	Kihanga	1974	850	50	Yes	Public	No
	Nzivi	1974	821	40	Yes	Public	No
Mozambique	Malulu	1977	670	60	Yes	Private	Yes
	Namina	1915	Not known	10	Yes	Private	Yes
	Naconda	1976	Not known	160	Yes	Private	No
	Namuanica	1975	Not known	170	Yes	Private	No

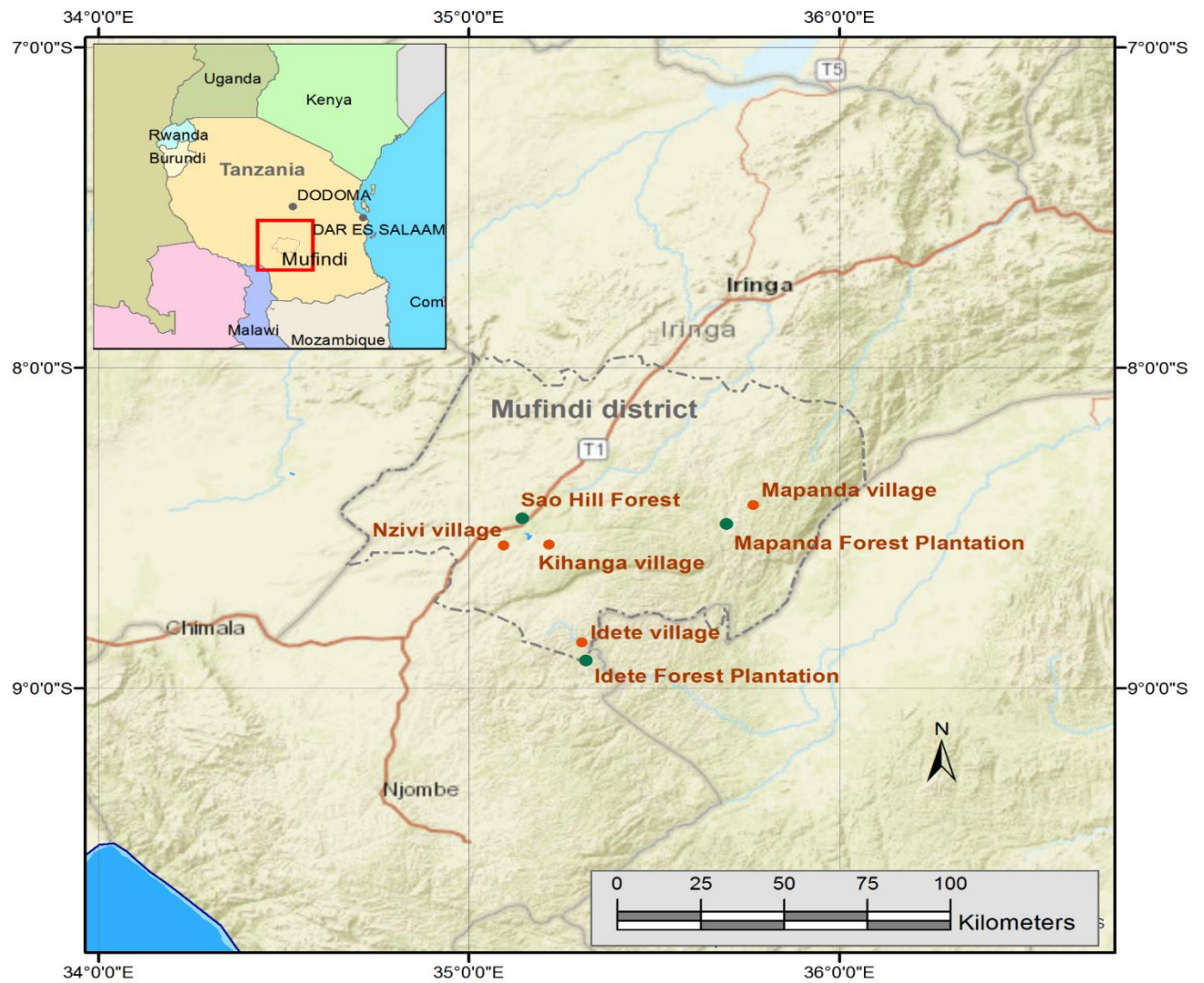


Figure 3. Map of study villages, Tanzania

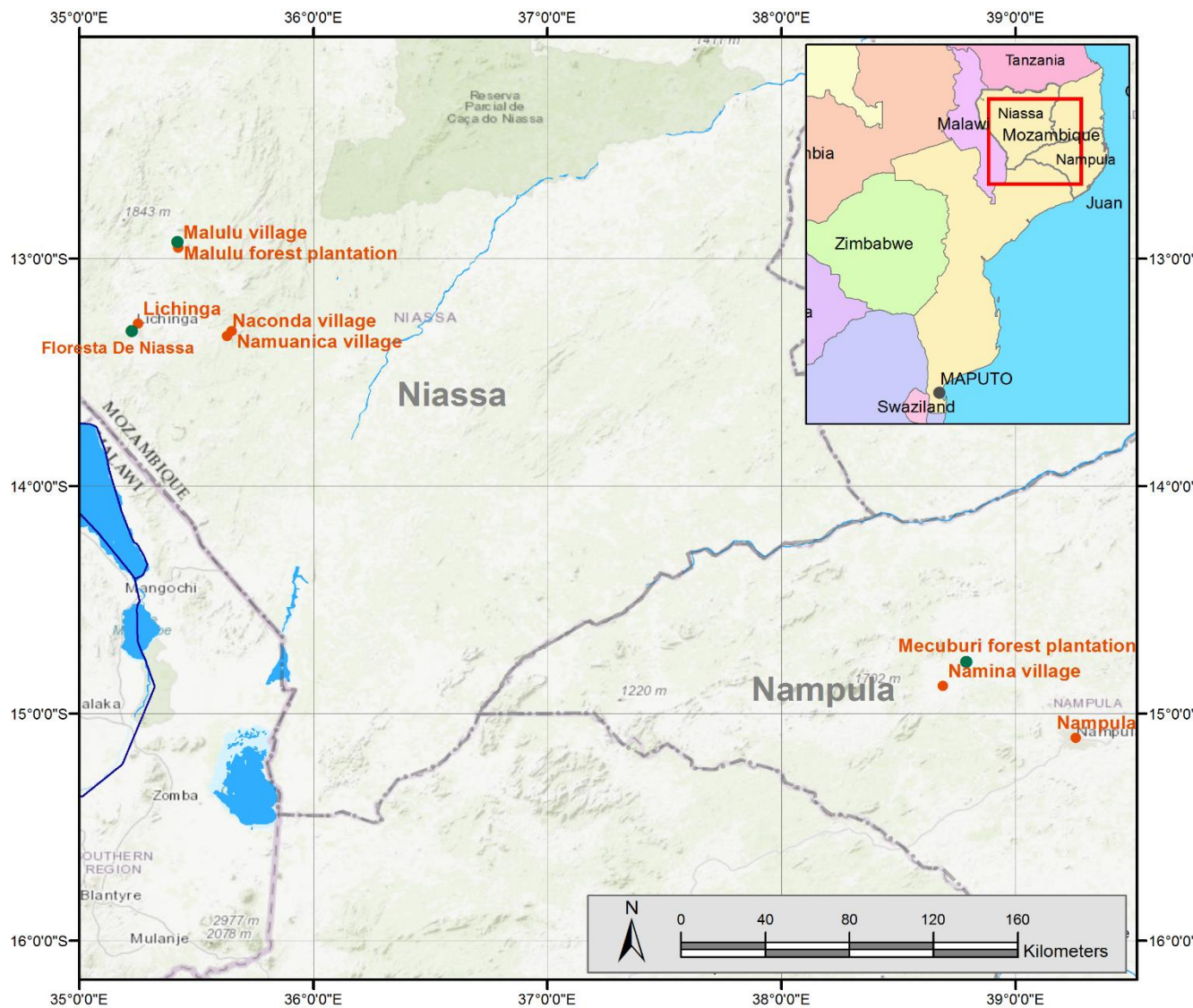


Figure 4. Map of study villages, Mozambique

4.2 Data

Data were collected between January and April 2016 through a survey from 664 randomly selected households (326 in Mozambique and 338 in Tanzania) in the study villages in both countries. Using structured questionnaires, we collected data on the socio-demographic and economic characteristics of the households and their perceptions about their participation in the activities of plantations and their impacts in their villages. We asked respondents whether they have a say in the activities of the plantations, their satisfaction with their say and dealings with the plantation company as well as the socio-economic and environmental changes that resulted from the plantations. Two enumerators administered the survey per respondent to minimize bias and errors from fatigue. A focus group discussion (FGD) was held in each village to discuss community perceptions about the governance of the plantations and their impacts. Village leaders and key informants suggested representative

groups of people in the villages (in terms of profession, gender, age and wealth) for the FGD. The focus groups consisted 10-20 individuals to allow for a detailed discussion and active participation and lasted on average 1.5 hours. In both countries, the household surveys and FGD were conducted by enumerators fluent in the local languages and English.

5. Methods of analysis

5.1 Tanzania

We estimate a series of logistic regressions of the form given in equation 1 to analyze the perceptions of households about their participation in the activities of forest plantations in their villages:

$$Y_{ij} = \beta_0 + \beta_1 Private_{ij} + \beta_2 \mathbf{x}_{ij} + \beta_3 v_j + \varepsilon_{ij} \quad 1$$

where the dependent variables, Y_{ij} include whether household i from village j has a say in the activities of the plantation in the village (yes = 1 and 0 otherwise), to what extent it is satisfied with its say, to what extent it is satisfied with its dealings with the plantation company (5-point Likert scale ranging from 1= very dissatisfied to 5= very satisfied) and whether the household perceives the plantation company responds to community complaints/grievances. The main explanatory variable, $Private_{ij}$, indicates whether household i lives in a village adjacent to a private forest plantation.² The variable takes a value of 1 if the household lives in a village adjacent to a private plantation, and 0 otherwise.

Equation (1) also allows us to analyze whether household characteristics explain differences in the perceived participation of households in the activities of plantations. We included a vector of household characteristics, \mathbf{x}_{ij} , to account for relevant household characteristics expected to influence their participation in the activities of forest plantations. These include sex and education level of the household head, household size, size of farm land, total household income and whether a household member works for the plantation company. The village dummies, v_j , include (un)observable factors which may differ between the villages and influence the dependent variables. These may include for example difference in the distance of plantations from the district forestry offices which may influence the supervision of plantation activities.

5.2 Mozambique

We estimate a series of logistic regressions of the form given in equation 2 to analyze the perceptions of households about their participation in the activities of forest plantations in their villages:

$$Y_{ij} = \beta_0 + \beta_1 FSC_{ij} + \beta_2 \mathbf{x}_{ij} + \beta_3 p_j + \varepsilon_{ij} \quad 2$$

² We put our main explanatory variables, $Private_{ij}$ and FSC_{ij} , in equations 1 and 2 respectively in such a way that they vary by households even if households live in the same village. Hence, we need to cluster standard errors at the village level to relax the assumption of independent observations, suggesting that observations are independent only across villages.

where the dependent variables, Y_{ij} , include whether household i from village j has a say in the activities of the plantation in the village (yes = 1 and 0 otherwise), to what extent it is satisfied with its say, to what extent it is satisfied with its dealings with the plantation company (5-point Likert scale ranging from 1= very dissatisfied to 5= very satisfied) and to what extent the household agrees that it has in general benefitted from the plantation in its village (5-point Likert scale ranging from 1= strongly disagree to 5= strongly agree). The vector of household characteristics, x_{ij} , are the same as the ones in equation 1 explained above. In equation 2 the main explanatory variable is FSC_{ij} and indicates whether household i lives in a village adjacent to an FSC-certified private forest plantation. The variable takes a value of 1 if the household lives in a village adjacent to a certified plantation, and 0 otherwise. The province dummies, p_j , capture (un)observable factors which may vary at this higher level of administrative structure and influence the governance and management of plantations.³ These may include for instance differences in policy implementation and monitoring capacity of province level forestry administrators.

Tables 2 and 3 provide the descriptive statistics of the variables used in the regressions for Tanzania and Mozambique respectively.

³ Note that we did not use such dummies in equation 1 because the study villages in Tanzania are all located in the same district under the same region having similar district and regional level forest administrators.

Table 2. Descriptive statistics of variables: Tanzania

Variable	Mean		Std. deviation		Min.		Max.		N	
	Private	State	Private	State	Private	State	Private	State	Private	State
A. Dependent variables										
Household has say in the activities of plantations ^a	0.38	0.19	0.49	0.39	0	0	1	1	156	145
Extent of household satisfaction with say in plantation activities ^b	3.58	2.82	0.83	1.12	2	1	5	5	60	28
Extent of household satisfaction with its dealings with plantation company ^b	3.24	2.84	0.93	0.98	1	1	5	5	129	123
Plantation company responds to community complaints/grievances ^a	0.57	0.36	0.49	0.48	0	0	1	1	141	126
Household considers plantation ‘a good neighbor’ ^c	3.36	3.17	1.09	1.30	1	1	5	5	165	150
B. Household (hh) characteristics										
Age of head (in years)	44.50	44.91	15.59	13.15	23	20	85	85	169	163
Sex of head (0=female, 1=male)	0.82	0.76	0.38	0.42	0	0	1	1	171	167
Education of head ^d (0-4)	1.82	1.84	0.90	0.87	0	1	4	4	171	167
Household size (in number)	4.49	5.23	1.96	2.06	1	1	12	11	171	167
Total farm size (in hectares)	1.98	1.43	2.33	1.58	0.10	0.20	12	16.4	168	164
Employed by plantation (0=No, 1= Yes)	0.07	0.09	0.26	0.29	0	0	1	1	170	169
Forest use (0=No, 1= Yes)	0.95	0.90	0.21	0.29	0	0	1	1	170	166
Total hh income (in million Tzs)	1.27	1.81	1.48	4.09	0.03	0	10	39.8	155	150
Share of agricultural income (%)	59.13	43.45	39.81	39.20	0	0	100	100	164	159
Share of business income (%)	11.30	22.44	25.36	33.53	0	0	100	100	164	159
Share of forest income (%)	5.18	7.39	19.47	21.50	0	0	100	100	164	160
Share of off-farm income (%)	17.24	22.14	30.63	35.60	0	0	100	100	164	159

Note: ^a binary variable: 1= Yes, 0= No

^b categorical variable: 1= very dissatisfied, 2= dissatisfied, 3= neutral, 4= satisfied, 5= very satisfied

^c categorical variable: 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

^d categorical variable: 0= no schooling, 1= kindergarten, 2=primary, 3= secondary, 4= college and above

Table 3. Descriptive statistics of variables: Mozambique

Variable	Mean		Std. deviation		Min.		Max.		N	
	FSC	Non-FSC	FSC	Non-FSC	FSC	Non-FSC	FSC	Non-FSC	FSC	Non-FSC
A. Dependent variables										
Household has say in the activities of plantations ^a	0.21	0.06	0.41	0.25	0	0	1	1	140	138
Extent of household satisfaction with say in plantation activities ^b	2.71	3.33	1.01	0.87	1	2	4	4	28	9
Extent of household satisfaction with its dealings with plantation company ^b	2.97	3.23	0.95	0.97	1	1	5	5	138	104
Household benefitted from plantation ^c	2.48	2.85	1.03	1.08	1	1	5	5	140	165
Household considers plantation ‘a good neighbor’ ^c	3.15	3.48	1.08	0.96	1	1	5	5	139	161
B. Household (hh) characteristics										
Age of head (in years)	41.22	43.09	13.94	15.73	18	20	76	82	157	149
Sex of head (0=female, 1=male)	0.89	0.84	0.31	0.36	0	0	1	1	161	165
Education of head ^d (0-4)	1.99	1.18	0.98	1.07	0	0	4	3	161	165
Household size (in number)	5.06	5.39	2.13	2.41	1	1	13	15	161	165
Total farm size (in hectares)	2.39	2.08	3.38	1.45	0.16	0.2	36	8.5	147	154
Employed by plantation (0=No, 1= Yes)	0.11	0.06	0.32	0.24	0	0	1	1	161	165
Forest use (0=No, 1= Yes)	0.85	0.97	0.35	0.15	0	0	1	1	159	165
Total hh income (in thousand MZN)	42.56	31.27	102.62	79.25	0.55	0	948	500	127	142
Share of agricultural income (%)	57.45	57.01	44.16	45.97	0	0	100	100	159	165
Share of business income (%)	11.58	8.13	28.99	25.64	0	0	100	100	159	165
Share of forest income (%)	2.89	3.97	12.86	17.56	0	0	100	100	159	165
Share of off-farm income (%)	18.32	11.45	34.64	29.36	0	0	100	100	157	165

Note: ^a binary variable: 1= Yes, 0= No

^b categorical variable: 1= very dissatisfied, 2= dissatisfied, 3= neutral, 4= satisfied, 5= very satisfied

^c categorical variable: 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree

^d categorical variable: 0= no schooling, 1= kindergarten, 2=primary, 3= secondary, 4= college and above

6. Results and discussion

In this section, we present and discuss the results of the logistic regressions explained in Section 5 and the results based on the focus group discussions in the study villages. Since estimates from ordered logit regressions cannot be directly interpreted, we provide and interpret odds ratios.⁴ Note that an odds ratio of greater than one indicates positive relation, while an odds ratio of less than indicates negative relation. We first present the results for Tanzania and then for Mozambique.

6.1 Tanzania

Table 3 presents the odds ratios of the estimated logit models for the case of Tanzania. In column (a), the dependent variable is whether a household has a say in the activities of forest plantations in its village. The results show that households in villages neighboring the private forest plantations are more likely to report that they have a say in plantation activities, as compared to households near the state-owned plantation. The odds ratio of 2.27 indicates that households in villages neighboring the private plantations are 2.27 times more likely to report that they have a say in the activities of the plantations than their counter parts. In column (b), the dependent variable is the extent of satisfaction of the household with its say in plantation activities. Households in villages near the private forest plantations are more likely to report that they are satisfied with their say, as compared to households near the state-owned plantation. The odds of satisfaction for households in villages near private forest plantations versus their counterparts is 22.42. In column (c), the dependent variable is the extent of satisfaction of the household with its dealings with the plantation. Households in villages near the private forest plantations are more likely to report that they are satisfied with their dealings with the plantations, as compared to their counterparts. The odds ratio for this is 2.83. In column (d), the dependent variable is whether the household perceives that the plantation company responds to community complaints and grievances. Compared to the state-owned plantation, the private plantations are perceived by households to respond to community complaints and grievances. The odds ratio for this 3.33.

Regarding household characteristics, gender of head, working for plantations, being involved in collecting forest products and proportion of income obtained from agriculture are significantly related to having a say in plantation activities. Male-headed households are more likely to have a say in plantation activities which might suggest that women do not have equal opportunities to share their views with regards to plantation activities.

⁴ The odds ratio is the ratio of the probability that an outcome would occur to the probability that it would not for a marginal change in the explanatory variable.

Table 3. Odds ratios of estimated logit models

Variables	Odds ratios				
	Household has a say in plantation activities	Household satisfaction with its say in plantation activities	Household satisfaction with its dealings with plantation company	Plantation company responds to community complaints and grievances	Plantation is a 'good neighbor'
	(a)	(b)	(c)	(d)	(e)
Private	2.272*** (0.433)	22.42*** (15.470)	2.834*** (0.775)	3.327*** (0.262)	1.503*** (0.154)
Age of head	0.994 (0.018)	1.028*** (0.003)	1.002 (0.015)	1.033** (0.016)	1.005 (0.004)
Sex of head	2.214*** (0.371)	0.132 (0.218)	0.545** (0.163)	1.733** (0.361)	0.805* (0.094)

Education of head	0.940 (0.263)	3.491*** (0.745)	1.218 (0.394)	1.482 (0.425)	1.298** (0.122)
Household size	1.093 (0.112)	1.256* (0.160)	0.942 (0.084)	1.053 (0.035)	1.085 (0.068)
Total farm size	1.070 (0.051)	0.745** (0.101)	1.062 (0.097)	0.817*** (0.029)	0.948 (0.098)
Employed by plantation	3.640*** (0.924)	1.519 (0.980)	4.194* (3.210)	1.327 (0.530)	1.740 (0.806)
Forest use	0.584** (0.118)	2.399*** (0.329)	5.190*** (2.660)	0.517 (0.506)	4.046*** (0.811)
Total household income	0.999 (0.010)	0.939** (0.029)	1.023 (0.026)	1.123** (0.050)	1.034** (0.017)
Share of agriculture income	1.010** (0.003)	0.976* (0.013)	1.009 (0.008)	0.998 (0.007)	1.001 (0.004)
Share of business income	1.007 (0.008)	0.988 (0.014)	1.014** (0.005)	0.999 (0.011)	1.002 (0.007)
Share of off-farm income	1.002 (0.003)	1.002 (0.008)	1.009 (0.007)	1.006 (0.005)	1.009 (0.007)
Share of forest income	1.005 (0.008)	0.993 (0.015)	1.002 (0.014)	0.985 (0.012)	1.001 (0.009)
Constant	0.074** (0.095)			0.0664*** (0.026)	
Village dummies	Yes	Yes	Yes	Yes	Yes
Pseudo-R ²	0.091	0.199	0.058	0.109	0.029
Observations	261	78	217	234	274

Note: Robust standard errors in parentheses are clustered at village level. */**/** denote statistically significantly different from 1 at 10/5/1 % levels respectively.

6.2 Mozambique

The results in Table 4 show that households in villages neighboring the certified forest plantations are more likely to report that they have a say in plantation activities, as compared to households near the non-certified plantation.

Table 4. Odds ratios of estimated logit models

Variables	Odds ratios				
	Household has a say in plantation activities	Household satisfaction with its say in plantation activities	Household satisfaction with its dealings with plantation company	Household benefitted from plantation company	Plantation is a 'good neighbor'
	(a)	(b)	(c)	(d)	(e)
FSC	8.327*** (4.144)	0.953 (0.630)	0.478*** (0.079)	0.322*** (0.083)	1.101 (0.382)
Age of head	1.000 (0.026)	0.889*** (0.018)	0.986** (0.005)	0.979*** (0.004)	0.996 (0.004)
Sex of head	Omitted (-)	Omitted (-)	1.285 (0.214)	1.401 (0.527)	1.065 (0.328)
Education of head	1.109 (0.322)	1.648** (0.416)	1.300* (0.198)	1.104 (0.107)	1.078** (0.034)

Household size	1.110*** (0.016)	1.200 (0.155)	1.059 (0.125)	1.084* (0.046)	1.069 (0.089)
Total farm size	1.040 (0.041)	0.741** (0.104)	0.983 (0.036)	0.961 (0.052)	0.933** (0.028)
Employed by plantation	5.289*** (2.347)	1.265 (1.773)	1.938 (0.818)	5.844*** (2.506)	2.259 (1.149)
Forest use	Omitted (-)	Omitted (-)	0.498* (0.181)	6.231*** (2.836)	3.055*** (0.745)
Total household income	0.996 (0.005)	0.965 (0.018)	1.003** (0.001)	1.003 (0.003)	1.007*** (0.002)
Share of agriculture income	0.991 (0.011)	1.010 (0.008)	1.007** (0.003)	0.983*** (0.002)	0.989** (0.005)
Share of business income	0.986* (0.008)	0.987 (0.008)	0.998 (0.009)	0.998 (0.011)	0.981* (0.010)
Share of off-farm income	0.993 (0.010)	0.998 (0.008)	1.006 (0.004)	0.978*** (0.005)	0.987* (0.007)
Share of forest income	0.993 (0.012)	0.903 (0.071)	0.985*** (0.002)	0.978*** (0.006)	0.979*** (0.006)
Constant	0.0182** (0.026)				
Province dummies	Yes	Yes	Yes	Yes	Yes
Pseudo-R ²	0.176	0.218	0.051	0.109	0.049
Observations	202	32	179	216	211

Note: Robust standard errors in parentheses are clustered at village level. */**/** denote statistically significantly different from 1 at 10/5/1 % levels respectively.

6.3 Results from focus group discussions

Country	Village	Were villagers consulted before the plantations started?	How did villagers come to know about the plantations?	Does the village have a say in the community projects of plantations?	Land use type before plantations?	Land ownership before plantations?
Tanzania	Idete	Yes	From plantation	Yes	Agricultural land	Public
	Mapanda	Yes	Village chief	Yes	Grass land and forest	Open access
	Kihanga	NA	Already there	Yes	Grass land	Open access
	Nzivi	Yes	Village chief	Yes	Agricultural land	Open access
Mozambique	Malulu	No	Village chief	Yes		Open access
	Namina	Yes	From plantation	No	Agricultural land	Open access
	Naconda	Yes	From plantation	No	Grass land and forest	Open access
	Namuanica	No	From district	No	Grass land and Forest	Open access

Source: Focus group discussions, 2016

7. Conclusions

We investigated differences in participation of local communities in forest plantations in Tanzania and Mozambique. Using cases from certified and private forest plantations adjacent to rural communities, we explored whether local households have a say in the governance of the plantations and to what extent they are satisfied with their say and dealings. Our results indicate that households are more likely to participate in governance and report higher degree of satisfaction with local governance outcomes in the case of the certified private forest plantations in Tanzania.

Finally, the following points need consideration. We used subjective measures of local governance outcomes based on the perceptions of households and perceptions may be affected by other factors not related to governance. Future studies on the topic could benefit by incorporating objective measures of local governance and triangulating these with perceptions. The number of plantations and villages in our study are limited and hence it is not possible to generalize our findings to other plantations in different contexts. Extending the analysis by including more number of plantations and villages could be an important avenue for future research.

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