Forest-based land reform partnerships in rural development and the sustenance of timber markets. Learning from two South African cases

Ratsodo Phillip Tshidzumba[a,b],* and Paxie Wanangwa Chirwa[b]

[a]Department of Forestry and Natural Resource Management, Fort Cox Agriculture and Forestry Training Institute, Middledrift 5685, South Africa
[b]Faculty of Natural and Agricultural Sciences, Department of Plant and Soil Sciences, University of Pretoria, RM 5-15, Plant Sciences Complex, Corner of Lynwood Rd and Roper St, Hatfield, Pretoria 0028, South Africa

*Corresponding author at: Department of Forestry and Natural Resource Management, Fort Cox Agriculture and Forestry Training Institute, Middledrift 5685, South Africa. Email: phillipmgf@yahoo.com

Highlights

- Rural development and sustenance of timber markets to improve household beneficiaries in South Africa remain unclear.
- This study assessed the perception of timber products end use alternatives in Cata and Amabomvini communities, respectively.
- There is potential for the community beneficiaries to engage in various wood products/timber markets.
- Analysis revealed not educated beneficiaries are significantly less likely to influence timber usage for building material ($p \leq 0.038$) and sawn timber ($p \leq 0.033$).
- Strengthening existing forestry sector transformation charter policy to guarantee consistent preferential market support or open up timber markets avenues.

Abstract

In South Africa, although implementation of government and forestry industry's embraced forest-based land reform partnership governance models, rural development and community beneficiaries' access to timber or wood products markets independently remain a challenge. This study assessed the perception of community beneficiaries on the sales and leaseback and community managed enterprise forest-based land reform public-private partnership (FBLR PPP) models on the provision of wood product end-use alternative. Two communities (Amabomvini and Cata) were purposefully selected for the study, in which 140 and 175 household beneficiaries were randomly sampled, respectively. Focus group discussions were also conducted with key informants from both communities' registered legal entities. The chi-square results showed a significant ($p \leq 0.001$) relationship between the household beneficiaries' responses regarding the recommendation of pulp and paper and fuelwood as preferred wood products end-use alternatives from both communities. Binary logistic regression analysis revealed that household beneficiaries who are not educated are significantly less likely to influence wood usage for building material ($p \leq 0.038$) and sawn timber ($p \leq 0.033$) compared to those who are educated, respectively. Most household beneficiaries in Amabomvini recommended pulp and paper (63.6%), while those from Cata community (84.6%) recommended fuelwood. Additionally, the study shows that the provision of wood product market for the community-managed enterprises would be vital for the sustainability of their forest-based business. Furthermore, prioritizing access roads could assist in construction of new or nested markets for timber products trade and

improving their well-being and socioeconomic status. This would ensure that community beneficiaries value the economic role forest, forest products and the significance of strengthening community governance structures in an endeavour to reduce conflicts amongst beneficiaries. Most importantly, government support towards strengthening of community beneficiaries' institutional arrangement or governance of the legal entities is critical to create an enabling environment for the community beneficiaries.

Keywords: Rural development; Land reform; Community beneficiaries; Public-private partnership; Wood product end-use

Abbreviations

FBLR - Forest-Based Land Reform
SLB - Sales and Leaseback
CME - Community Managed Enterprise
CPA - Communal Property Association
CT - Community Trust
PPP - Public-Private Partnership
BLR - Binary Logistic Regression
NGO - Non-governmental Organization
FGD - Focus Group Discussion
VIF - Variance Inflation Factor

1. Introduction

Since the inception of the first democratic government in 1994, Rural Development in South Africa like in other developing countries received unprecedented political attention (Mayers and Vermeulen, 2002, b; Vermeulen and Cotula, 2010), with forestry development playing a significant role in redressing the socio-economic disparities caused by the apartheid regime through recognition of rural community dwellers in the collective management and use of forests for the improvement of their livelihood. The South African forestry sector over several decades has played a critical role in the country's economic growth and contribution to rural development (Godsmark, 2017). Other studies indicated that the forestry industry provided opportunities to community members including employment (Ofoegbu, 2014; Tshidzumba et al., 2018a) and, to some extent, income generation through forest contracting opportunities, annual rental and stumpage fees from lease agreements (Makhathini, 2010; Chamberlain and Anseeuw, 2017). Furthermore, the implementation of the Forestry Transformation Sector Charter targets forestry contribution to rural development through the provision of preferential economic opportunities to local people's business initiatives (DWAF, 2007). Notably, the Charter plays a vital role in the land reform programme, which faces the challenging task of amicably settling land claims submitted by those previously dispossessed on forested land owned by private sector (Aliber and Maluleke, 2010).

Literature has systematically analyzed and compared the implications of the approved forest-based land reform public-private partnership (FBLR PPP) models as an approach towards achieving sound rural economic development (Chamberlain and Anseeuw, 2017;

Tshidzumba et al., 2018b). With the consideration of the slow pace experienced in settlement of submitted land claims affecting agricultural farms and forestry plantations (Makhado, 2012; Xaba and Roodt, 2016) as well as the commitment of the government to achieve its land reform policy objectives (Lahiff, 2008; Hall, 2009), commercial agriculture and forestry stakeholders had an obligation to expedite the land claims settlement process (Mayers et al., 2001; Makhathini, 2010; Tshidzumba et al., 2018b). As a result, the South African forestry private sector embarked on the process, from which various generic models were developed for use as land claim settlement approaches (Godsmark, 2008). As pointed out in Aliber and Cousins (2013), the South African FBLR PPP models are characterized by a priority to sustainably manage the existing land use in the land under claim. However, drawing from the unprecedented collapse of many previously highly productive agricultural land reform projects, it was important to pursue forest-based partnership models that had mutual benefits for both community beneficiaries and forest industry in land claim settlement. This is in agreement with what Kane-Berman (2016) reported, that saving land reform legacy is fundamental. In pursuit of resolving forest-based land restitution claims, both forestry industry and government recognized the reality that majority of the claimant had no financial and technical capacity to continue managing commercial based operations independently. This necessitated the establishment of partnerships between the private sector and land claimant beneficiaries to ensure both partners accrue benefits mutually (Spierenburg et al., 2012).

However, some studies suggested that majority of land reform projects in South Africa failed due to structural design of the partnership (Davis and Lahiff, 2011) and poor socioeconomic status of community beneficiaries (Chamberlain and Anseeuw, 2017; Godsmark, 2010). This trend has led to slow rural development or completely no improvement in the livelihood of community beneficiaries (Hall, 2009). Other authors argued that the element of elitism also played a significant role in causing conflicts (Chirwa et al., 2015; Chamberlain and Anseeuw, 2017; Tshidzumba et al., 2018a), as such, compromising rural development. In support of this argument, Tshidzumba et al. (2018a) highlighted that the main challenge remains lack of clear benefit-sharing mechanisms in the FBLR PPP governance models, which eventually lead to unequitable and unfair accrual of benefits amongst community beneficiaries (Tshidzumba et al., 2018b).

Our framework for improving the benefits of the forestry development to land claimant beneficiaries in South Africa is centred on land reform program that is linked to rural development, forest-based partnership and timber markets (Hall, 2009; Godsmark, 2017) (Fig. 1). This is premised on advocating involvement of community beneficiaries in commercial forestry activities (wood-products/timber markets) (Davis and Lahiff, 2011) and embracing forest-based partnerships approaches (Makhathini, 2010; Godsmark, 2008). However, in line with Vermeulen and Cotula (2010), forging a partnership between private companies and land claimant beneficiaries should always consider the socio-economic disparities of involved stakeholders to avoid negative influence on rural development. In support of this argument, Pretzsch et al. (2014) suggested that substantial economic opportunities intended to improve the livelihood of local community beneficiaries and rural development depend on a mutual partnership.

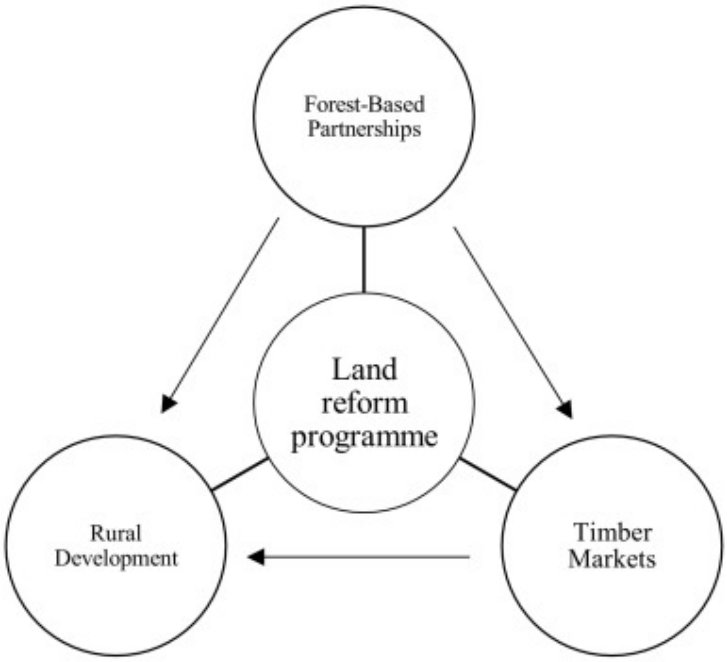

Fig. 1. Conceptual framework showing land reform linkages with rural development, forest-based partnership and timber markets.

With respect to the PPP models advocated, the Sales and Leasback (SLB) FBLR partnership is based on the premise that community beneficiaries (land claimants) own the land and the trees belong to the private company. According to the SLB agreement, it is stipulated that various benefits would accrue to the beneficiaries including employment or jobs, income generation through annual lease rental fees (2% of the total value of the land), 7% stumpage fees for the timber tonnages deliver to the mill, bursaries and entrepreneurial opportunities (Chamberlain and Anseeuw, 2017; Makhathini, 2010). Also, there is a guaranteed timber market to the benefit of the beneficiaries as a consequent of engaging in or opting for the SLB partnership (Makhathini, 2010). Additionally, community beneficiaries get technical mentorship from the private company to capacitate them to be able to pursue the management of the plantation beyond the lease agreement period of twenty years (two rotations). Furthermore, based on this agreement, there is an executive committee structure established to monitor and evaluate the progress and implementation of the agreement involving representation from the community beneficiaries, private company and government.

Regarding the Cata community managed enterprise (CME) forest-based partnership structure, the community beneficiaries have full access and ownership to the land they acquired through land restitution programme. As such, the Cata community integrated development plan with the assistance of the non-governmental organization (NGO) (*i.e.*, Border Rural Committee) was developed focusing on forestry, agriculture and ecotourism projects for the purpose of improving beneficiaries' livelihood. On this note, the Cata Communal Property Association (this is a legal entity tasked to manage the land on behalf of the beneficiaries) and the local government (Amathole District Municipality) pursued the implementation and management of the projects. Consequently, a forestry consultant

expert was engaged to provide technical support in the rehabilitation of 70 ha of the *Acacia mearnsii* trees compartment as well as in the establishment of 500 ha of pine plantation (Howard, 2008). The pulpwood and biomass markets for the *A. mearnsii* timber project was identified in KwaZulu Natal and Eastern Cape. The purpose of this arrangement was to ensure that community beneficiaries at Cata are empowered (to acquire enterprise development and business administration skills) to continue with the management of their forestry and other projects independently in the future.

Based on the central framework of this study, we consider the forest-based partnerships that embrace construction of new nested timber products end-use and services markets (Hebinck et al., 2015). According to Schneider et al. (2016), these markets are called new or nested markets as they represent the market space that is deregulated and/or independent of conventional markets, which are dominated by large corporations. In this study, the potential contribution of FBLR PPP approaches in spurring future rural development through the provision of various timber-based end-use alternatives and in particular, the contribution thereof to the socio-economic status of the land claimant communities, was explored. This study therefore assessed the perception of community beneficiaries of timber-based product end-use alternatives and socioeconomic factors influencing timber product end-use alternatives on both the SLB and CMEFBLR PPP approaches. The study thus addressed the following research questions: 1) What are the perceptions of the community beneficiaries on the preferred alternative timber end-use products? 2) What are the socioeconomic factors impacting the community beneficiaries' alternative timber end-use products? 3) Is there a potential for the FBLR PPP to provide opportunities for community beneficiaries to explore timber-based markets?

2. Methodology

The methodological approach of this study explores the description of study communities, household heads' characteristics, perception of timber products end-use alternatives (markets) and socio-economic factors influencing beneficiaries' timber products end-use options.

2.1. Description of the study communities

The study was conducted in Amabomvini community, situated in the midlands rural area of KwaZulu Natal province and Cata community, located in the Amathole mountain escapement in Eastern Cape province (Fig. 2). In addition, these two communities had a common factor in that they both had benefited from the land reform programme through the land restitution claim process. They were both also involved in different forest-based partnerships resulting from land restitution finalized claims. According to Border Rural Committee (2013), the Cata community was the first to submit the betterment claim, which was successfully settled and transferred with a titled deed issued to the Communal Property Association (CPA) established to manage the claimed land on behalf of the general land claimant's household beneficiaries. Consequently, the Cata community decided to pursue CME to manage their acquired forest land by themselves with the technical and financial support from the local government and NGO. On the other hand, the Amabomvini community successfully claimed their land from the private company and subsequently

adopted the forestry industry developed "*SLB*" and government-approved FBLR PPP governance model. In the process, the Amabomvini Community Trust (CT) registered a private company (*Ingudle*), which through the FBLR PPP agreement, was contracted to perform silvicultural operations and management of their leased plantation. Both the CPA in Cata and CT in Amabomvini communities had the legal entities established in line with respective legislation, which enabled both communities to successfully lodged land claims.

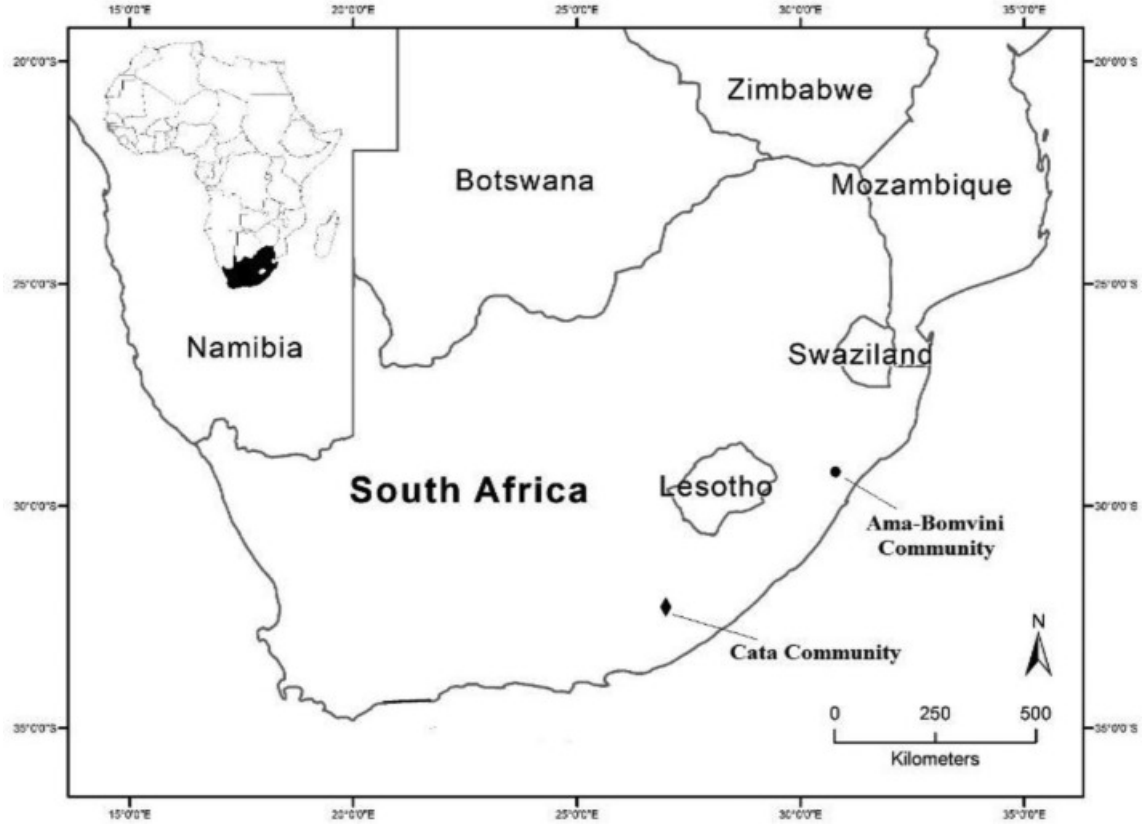

Fig. 2. The South African map showing the study areas.

2.2. Sampling and data collection

In line with Bhattacherjee (2012), the mixed-mode research design approach was used and this was to ensure that all responses were represented (Kelley et al., 2003). In order to avoid biases, probability simple random sampling was used in both study areas (Onwuegbuzie and Collins, 2007). As suggested by Mathers et al. (2007), a sampling frame “is the pool of potential participants which share similar criteria for entry into a study”; this can also be known as a population. Consequently, the sampling frame in this study entails the household beneficiaries who were dispossessed from their land, and through the process of a formal land claim submission, collectively acquired their land back and were captured in the official CT/CPA beneficiaries' list. In line with the Mathers et al. (2007), simple random sampling was adopted in this study to ensure that every household beneficiary had an equal probability of inclusion in the sample. Considering the total population of household beneficiaries at Amabomvini (220) and Cata (320), the sample size of 140 (Amabomvini) and

175 (Cata) household beneficiaries were sampled at 95% confidence level and 5% confidence interval (*margin of error*).

The randomization procedure to identify households to be interviewed was conducted using the list of household beneficiaries obtained from the CT (Amabomvini community) and the CPA (Cata community). According to Bhattacherjee (2012) and Ishak and Abu Bakar (2014), the randomization process helps in assuring external validity as well as allowing the findings from the sample to be generalized to the population from which the sample is selected. Online computer random number generator software (Krosnick, 2018) was used to randomize the households sample size for the survey. The number per set (140 and 175) and the range from 1 to 220 and 1–320 were inserted into the software to generate results, respectively. Consequently, one set of 140 and 175 random number tables was generated for Amabomvini and Cata communities, respectively. In addition, considering that the total population or number of household beneficiaries was known, the following formula was used:

$$\mathrm{S} = \frac{X^2\, NP(1-P)}{d^2(N-1)+X^2P(1-P)}$$

Where:

S = Required Sample size.

X = Z value (e.g., 1.96 for 95% confidence level).

N = Population Size.

P = Population proportion (expressed as decimal) (assumed to be 0.5 (50%)

d = Degree of accuracy (5%), expressed as a proportion (0.05), It is margin of error.

2.2.1. *Household survey*

A household survey was conducted in both study communities for six weeks. Randomly selected household beneficiaries represented by household heads in each community (Chirwa et al., 2015) were interviewed using a generic structured questionnaire (Sjetne et al., 2011). The questionnaire was fourteen pages long with 43 individual questions. Additionally, the questionnaire was structured into three sections including household respondent biographic information to understand their socioeconomic status or profile, perception on benefits accrued and requirements for community legal entities to sustain the adopted FBLR partnership. Most importantly, the questions used in the design of the questionnaire included those with nominal, ordinal (five Likert scales) and categorical responses. Therefore, there were more quantitative (closed-ended) questions compared to qualitative (opened-ended) questions. Concerning the closed-ended questions, the respondents were required to choose one response from the list of predetermined responses, while opened ended questions intended to gather detailed responses without restricting respondents.

A pilot study was conducted at the Amahlongwa community in KwaZulu Natal to pretest the questionnaire to ensure that it has covered the scope intended for this study (Collins, 2003; Mathers et al., 2007; Nyariki, 2009). The pilot survey involved 28 household beneficiaries and one focus group discussion (FGD) with 10 trustee participants. In line with Van Teijlingen and Hundley (2002), the pilot study provided information regarding the interview schedule for both qualitative (*FGD interview*) and quantitative (*household interviews*). Furthermore, before household interviews, for maintenance of originality and understanding of questions, as well as ease of administration (Boynton et al., 2004; Nguyen et al., 2020), the questionnaire was translated into both isi*Zulu* for the Amabomvini community and isi*Xhosa* for the Cata community by the researcher and senior research assistants identified in the study areas. In line with Nyariki (2009), the local enumerators were used for the administration of the questionnaire as well as for easy identification of households randomly selected. In addition, the selection of research assistants primarily focused on education level (possession of Grade 12, tertiary qualification, or in progress with tertiary studies) and proficiency in local languages used in both study communities, respectively. At the same time, the research assistants were trained by the researcher on the administration of the questionnaire two-days before the data collection process. Consequently, the research assistants were taken through each question in the questionnaire to clarify any gap before commencing with the actual data collection to ensure that the reliability and validity of data is addressed.

2.2.2. *Focus group discussion*

FGD is a vital qualitative data collection approach since it allows the researcher to gather in-depth information from the key informants (Gill et al., 2008; Wong, 2008; Nyumba et al., 2018; Thompson, 2020). For this study, one apiece FGD was conducted with the trustees in Amabomvini, and CPA committee members. The purpose of FGD in this study was to understand CPA/CT leadership's viewpoint on various timber-product/timber market end-use alternatives that could improve their livelihood and sustain the adopted forest-based partnership, respectively. Therefore, each FGD was conducted with a minimum of six participants (Onwuegbuzie and Collins, 2007), for one and a half hour. Noteworthy, the FGD participants were purposefully selected being members of the CPA/CT committees. The gender distribution of the participants for the FGDs comprised of two females and five males in Amabomvini community as well as four males and two females in Cata community, respectively. The main question posed was whether household beneficiaries considered timber products/timber end-use alternatives in their adopted FBLR PPP plantation?

2.3. Data analysis

The coding and analysis of data were conducted using the Statistical Package of Social Science (SPSS), version 20. The analysis of quantitative data was performed using descriptive statistics through which frequencies and percentages were generated. Additionally, the inferential statistical analysis using the chi-square test of independence (Anon., 2012), to test if there was a significant relationship between responses of the household beneficiaries in Amabomvini and Cata households regarding possible timber products end-use alternatives in their implemented FBLR PPP model was performed. Furthermore, the Binary Logistic Regression (BLR) analysis was performed to understand the household beneficiaries'

socioeconomic factors that have a significant influence on the household beneficiaries' anticipated timber products end-use alternatives (Fragerland and Hosmer, 2012). The use of both the chi-square and BLR analysis was considered due to the dependent variables dichotomy (Hosmer Jr et al., 2013).

In line with Ofoegbu et al. (2017), the household beneficiaries' anticipated timber products end-use alternatives (fuelwood, pulp and paper, furniture, building material and sawn timber) were used as the dependent variables with responses No = 0 and Yes = 1. On the other hand, the gender (male = 0; female = 1), age (18–25 = 0; 36 and above = 1), marital status (not married = 0; married = 1) and education status (not educated = 0; educated = 1) were used as the independent variable (Table 1). However, the multicollinearity test using the variance inflation factor (*VIF*) was employed to test whether the association between independent variables existed or not (Yuningsih and Saliningsih, 2019). As a result, the *VIF* value of 1 showed that there was no relationship or collinearity between all independent variables (Craney and Surles, 2002). In addition, Hosmer and Lemeshow goodness of fit test was also considered to check if the model was correctly specified (Bartlett, 2014). Therefore, the independent or explanatory variables were found to be suitable or satisfying the assumption to perform BLR model analysis. Friedman's test ranking analysis was performed to determine the significance of potential forest-based opportunities significant for future rural development and sustenance of timber markets.

Table 1. Independent variables used in the binary logistic regression.

Independent Variables	Responses	Coding
Gender	Male	0
	Female	1
Age Category	18–35	0
	36 and above	1
Marital Status	Not married	0
	Married	1
Education	Not educated	0
	Educated	1

As highlighted by Thomas (2003) and Thompson (2020), managing complex raw text or qualitative data into brief or summarized data using inductive approach is vital. In this study, the data collected through FGD were processed using the inductive content analysis method in which responses from the interviews and discussions were arranged or coded into various key ideas, themes or categories to create an understanding of participants' perspectives on issues discussed (Kansteiner and König, 2020). The themes identified from the content analysis procedure included in-depth information on forest-based opportunities, timber products end uses and socioeconomic factors including skills and employment benefits. In addition, the transcribed data was read multiple times by the research assistants while the researcher recorded common ideas from the data (Thomas, 2003; Makhubele et al., 2020).

2.4. *Ethical consideration*

As emphasized by Kaiser (2009), the research ethical consideration to protect the interests and confidentiality of respondents were prioritized in this study. In this regard, the researcher approached the CPA (at Cata community) and CT (at Amabomvini) committee

members to secure permission or consent to conduct the interviews from the selected community beneficiaries. Most importantly, the purpose of the study was communicated to each selected household before conducting an interview to ensure that their consent to voluntarily participate in the research or not was granted (Manandhar and Joshi, 2020). To address the respondent's participation consent issue, the common question was asked whether they were familiar with the forest-based partnership adopted in their community as well as whether they would be interested to participate in the research interview process for data collection.

Table 2. Demographic description and socioeconomic factors of beneficiaries.

Characteristics	The proportion of respondents (%) in two communities	
	Amabomvini (n = 140)	Cata (n = 175)
Gender		
Male	41.4	36.6
Female	58.6	63.4
Age Category (Year)		
18–35	11.4	7.4
36 and above	88.6	92.6
Marital Status		
Not married	44.3	19.4
Married	55.7	80.6
Socioeconomic factors		
Education status		
Not educated	33.6	14.9
Education	66.4	85.1
Employment Status of Household Member		
Not Employed	42.9	30.3
Employed	57.1	69.7

3. Results

3.1. Demographics and socioeconomic characteristic of beneficiaries

Table 2 shows the proportion of the household beneficiaries' socioeconomic characteristics in the study communities. Majority of interviewed households in Amabombvini (58.6%) and Cata (63.4%) communities were headed by females. In both study communities, majority of household heads interviewed were adults in the age category of 36 and above accounting for 92.6% in Cata and 88.6% in Amabomvini. About 80.6% of the interviewed household heads in Cata community were married compared to 55.7% of those from Amabomvini community. Furthermore, fewer household heads revealed that they had no formal education accounting for 14.9% and 33.6% in Cata and Amabomvini, respectively. Nevertheless, during the FGD at Cata, participants indicated that "*due to the forest project implementation, majority of us especially the youth have gained a set of skills in silvicultural operations including pine plantation establishment, firefighting, planting and rehabilitation"* while those from Amabomvini indicated that "*all four of our youth that were given bursaries to study formal qualifications in forestry and business management field of studies dropped out"*. Equally, more household beneficiaries in Amabomvini highlighted that they had no employment accounting for 42.9% compared to 30.3% of those from Cata community.

Regarding the employment benefits, the Cata FGD participants indicated that "*Through the forestry project, 41 employment opportunities were created for us the beneficiaries out of which 21 were responsible for the establishment of the pine plantation and the other 20 responsible for the rehabilitation of Wattle compartment (A. mearnsii)"* while the Amabomvini have indicated that "*About 12 beneficiaries were employed to perform silvicultural operation under our trust's registered forestry contracting company. However, most of our people, especially the youth, do not want to work in the forest citing that the job is heavy"*.

3.2. Perception of beneficiaries on timber products end-uses

Table 3 shows the proportions of the household perceived end-use for the timber-based products acquired from communities' forest land. The results showed a statistically significant relationship ($p \leq 0.001$) between household from both communities regarding the use of timber for fuelwood, pulp and paper and building material, respectively. Majority of household in Cata community (84.6%) compared to those from Amabomvini community (55.7%) indicated fuelwood as their preferred end-use. Furniture making in Amabomvini community was perceived as a necessary timber-based end-use by many (55.0%) in contrast to those from Cata community where 55.4% did not value furniture making timber end use. The perception of many (above 60%) household beneficiaries from Cata community consider building material and sawn timber as an appropriate timber end-use compared to those from Amabomvini community (below 60%). Additionally, during the FGDs in both communities, participants strongly emphasized on the economic significance and willingness for them to venture into various timber product markets to improve the livelihood standards of all the beneficiaries of the adopted FBLR PPP models.

Table 3. Preference (%) for wood-based products end-use required from FBLR PPP by community beneficiaries.

Forest products	Proportions (%) of Community beneficiaries				Inferential statistics		
	Amabomvini (n = 140)		Cata (n = 175)		X^2	df	*p*-value
	Yes	No	Yes	No			
Fuelwood	55.7	44.3	84.6	15.4	31.951	1	0.000
Pulp and paper	63.6	36.4	41.7	58.3	14.875	1	0.000
Furniture making	55.0	45.0	44.6	55.4	3.384	1	0.066
Building material	59.3	40.7	76.0	24.0	10.082	1	0.001
Sawn timber	56.4	43.6	61.7	38.3	0.901	1	0.343

During FGD at Cata, participant emphasized that *"considering that we are staying in the rural area, access to the forest resources is critical to our livelihood and it has the potential to provide us with various benefits such as collection of fuelwood either for sales (income) or energy generation in the households, timber used for construction of houses, fencing of yards or kraals". At least for us, there is portion in our Wattle compartment that has been allocated for access by anyone who may wish to collect timber products for individual household or sales benefits purposes"* while those at Amabomvini highlighted the following *"We have a challenge that trees do not belong to us and as such, our access to the timber products is compromised but it could have been better if the land and trees were belonging*

to us". Furthermore, Participants from both case studies' FGDs anonymously highlighted that *"the absence of government post-settlement support has directly compromised our plans to expand our local forestry businesses which we so much need to enable us to participate in various timber-products markets. Moreover, the government promised to pay us discretionary grants as part of the land claim settlement agreement but unfortunately this support has not been entirely fulfilled and as a result, we are unable to access the much-needed financial resources to run and start new projects including timber beneficiation"*. However, they also highlighted the significance of them being able to construct nested market to sell their own timber products without the role of middlemen. As revealed during the FGDs, CPA/CT members emphasized that *"the removal of middlemen or consideration of communities in free-market during the sales of our timber or timber product is critical as this will allow us to create more opportunities for our community beneficiaries while nurturing rural-based economy."* For their endeavors to succeed, the participants opined that there should be improved governance of the CPA/CT through consistent government and private stakeholder support, financially and otherwise. In this regard, Amabomvini participant during the FGD stressed that "*we feel that the government has compromised us since they are not attending executive committee meetings and as such, we are unable to report and address our dissatisfaction concerning the trustee's mismanagement and benefits sharing. Furthermore, we also feel that this partnership is not entirely assisting us since the few elites are the ones benefiting in the expense of ordinary beneficiaries.*

3.3. Socioeconomic factors influencing preference of beneficiaries for alternative timber end-use products

Table 4 presents the odds ratios of the socioeconomic factors influencing household beneficiaries' preference for timber end-use products from the adopted FBLR PPP governance model. The odds ratio shows that there is more likelihood for the male (1.110), youth (1.243) and those not married (1.020) household beneficiaries to prefer wood to be used for furniture making compared to those who are female, older and married, respectively. Equally, the odds ratios of being male and young (1.193 and 1.207) respectively, indicate more likelihood to influence the household beneficiaries' preference for fuelwood and pulpwood compared to those who are female and older. On the contrary, the household beneficiaries who are not educated (0.170) and married (0.907) are less likely to prefer timber to be used for fuelwood and pulpwood purposes compared to those who are educated and not married. Furthermore, the young beneficiaries aged 18–35 years are more likely (1.204) to use timber for building material. Additionally, household beneficiaries who are not educated are significantly less likely to influence timber usage for building material ($p \leq 0.038$) and sawn timber ($p \leq 0.033$) compared to those who are educated, respectively.

Table 4. Socioeconomic factors (explanatory variables) influencing preference of beneficiaries for wood end-use products.

Dependent variables	Independent variables	p-Value	Odds ratio	95% for C.I. for Odds Ratio	
				Lower	Upper
Fuelwood	Gender (*Male*)	0.509	1.193	0.707	2.011
	Age (*18–35*)	0.414	1.207	0.768	1.898
	Marital status (*Not Married*)	0.907	0.984	0.744	1.300
	Education (*Not Educated*)	0.170	0.787	0.559	1.108
Pulp and paper	Gender (*Male*)	0.438	0.832	0.522	1.325
	Age (*18–35*)	0.188	1.305	0.878	1.938
	Marital status (*Not Married*)	0.831	0.973	0.753	1.256
	Education (*Not Educated*)	0.804	0.962	0.709	1.306
Furniture making	Gender (*Male*)	0.661	1.110	0.696	1.769
	Age (*18–35*)	0.279	1.243	0.838	1.844
	Marital status (*Not Married*)	0.879	1.020	0.790	1.318
	Education (*Not Educated*)	0.458	0.891	0.656	1.209
Building material	Gender (*Male*)	0.815	0.942	0.570	1.556
	Age (*18–35*)	0.402	1.204	0.780	1.861
	Marital status (*Not Married*)	0.394	0.887	0.673	1.169
	Education (*Not Educated*)	0.038*	0.701	0.502	0.980
Sawn Timber	Gender (*Male*)	0.474	0.841	0.523	1.352
	Age (*18–35*)	0.259	0.793	0.531	1.186
	Marital status (*Not Married*)	0.608	1.071	0.825	1.389
	Education (*NENot Educated*)	0.033*	0.709	0.517	0.973

∗denote significance at 0.05.

3.4. Perception of beneficiaries on FBLR PPP opportunities for rural development and timber markets

The results showed that there was a significant difference (p = 0.001) between the forest-based business opportunities perceived by the respondents as vital in pursuing rural development as well as sustenance of timber markets. According to the results, the respondents ranked road construction and maintenance highly significant (2.90) to facilitate timber trades from rural communities to various markets for the purpose of improving rural economy and effective development (Table 5). Other forest-based opportunities ranked to be significant were silvicultural operations (3.23) and furniture making (3.54) with harvesting (3.60) and transport (3.69) operations regarded less significant compared to others, respectively.

Table 5. Significance ranking of forest-based opportunities for rural development and sustenance of timber markets.

Opportunities	Significance Ranking	X^2	df	P-Value
Furniture making artisan development	3.54			
Transport	3.69			
Road construction and maintenance	2.90	121.776	5	0.000
Harvesting	3.60			
Silvicultural	3.23			

Highly significant = 1 and less significant = 5.

4. Discussion

4.1. Socioeconomic characteristic of the household respondents

The study found that Amabomvini community had 10% more beneficiaries without employment compared to Cata community. This finding could be due to the CME FBLR PPP model adopted in Cata community compared to the SLB FBLR PPP in Amabomvini community. According to Tshidzumba et al. (2018b), the CME in Cata provided substantial employment opportunities to beneficiaries through various CPA committee managed agricultural and forest plantation projects as well as government-linked initiatives, which include Community Works Programme (CWP) and Working on Fire (WOF). On the contrary, the Amabomvini adopted SLB FBLR PPP governance model provided limited employment opportunities to the beneficiaries through the CT registered forestry contracting company (Makhathini, 2010; Chamberlain and Anseeuw, 2017). Moreover, although most beneficiaries had some level of education, few possessed tertiary education, which may have contributed to the considerably higher unemployment rate in both communities, especially in Amabomvini.

The limited number of highly educated beneficiaries posed a governance challenge to the legal entities and therefore incapacitated the making of relevant and informed decisions that are pro-general beneficiaries' needs. As argued by Ofoegbu and Chirwa (2019) and Ofoegbu et al. (2019), the lack of skills and technical knowledge are severe barriers for local communities to promote the growth of their forestry initiatives. However, the element of elitism has been reported to persist in the CPA/CT governance structures (Chirwa et al., 2015), thus in the process leaving the rest of the beneficiaries' accrual of various benefits compromised or failing to contribute inputs and necessary decisions to improve the state of the partnership and its governance. As highlighted by participant at Amabomvini during the FGD, "*Since the implementation of our SLB partnership, we have noticed that the chief's wife and her cronies were the once benefiting financially from our money that is generated to the trust through lease rental money and forest contracting company silvicultural services rendered to the private company that is leasing the land from us. We have not accrued substantial benefits from this partnership except that only 12 beneficiaries are employed to work in the plantation under the Trusts' Forest company as well as that R2000 cash payout were given to household beneficiaries of which many of us did not receive such benefit.* This

could be attributed to the element of elitism that occurred at the level of chief's lineage, trustees and within the household beneficiaries wherein the funds generated by the Trust through lease rentals and forestry contracting company was not mutually distributed amongst the beneficiaries. Beyond the distribution of funds, the elite were the once who were privy of the opportunities and information presented by the private company. On this note, the Royal Family members and those close to them through their conduct instigated high level of conflict within the Amabomvini community and a breakdown of trust between the leadership and community members. This conflict tragically resulted in a brutal murder as well as a case of arson whereby the house of the youngest wife of the Chief was burnt to the ground in retaliation for suspected involvement in embezzlement and in the murder of a whistleblower (Tshidzumba, 2019). The cultural and traditional arrangements of the *Zulu* (Amabomvini community) and *Xhosa* (Cata community) tribes dictates for the community members to respect the royal families, the practice, which perpetuated the element of absolute entitlement and elitism.

Noteworthy, various timber product use options could be realized resulting in several rural nested markets and economic benefits for the local communities. However, this would require constant support from the government, non-governmental organizations (NGOs) and other relevant private companies in terms of market identification, sourcing of financial support as well as the establishment of transport networks to enable conveyance of their products to the near and far markets (Ham, 2000; Marshall et al., 2003; Van Loggerenberg and Mandondo, 2008). Equally, Mutenje et al. (2011) argued that the identified markets should not be exploitative of local communities in nature and as such, government should play a significant role in ensuring this benefit. In the case of Amabomvini community, the available timber market was corporate forest company's pulp mill which accrued substantial benefit to the private forest company. In addition, literature further emphasized that it is important to strengthen extension services (Al-Subaiee, 2016) and provision of quality post-settlement support (Binswanger-Mkhize, 2014). Hebinck et al. (2015) highlighted the significance of diversifying products and services (multifunctional farming or production) as the cornerstone for rural development. In line with this assertion, the Cata CPA decided in its integrated development plan considered to pursue agricultural and ecotourism projects as an approach to supplement the benefits anticipated from forest projects. Therefore, beyond accruing employment benefits from the forestry projects, the Cata community beneficiaries were able to harness employment and income generation benefits.

4.2. Perceptions of the community beneficiaries on the preferred alternative timber end-use products

The production of the timber-based products from the community-managed plantation under the FBLR PPP governance models is of utmost importance for the rural economy and livelihood of the household beneficiaries (Schaafsma et al., 2014). Most importantly, the household beneficiaries' comprehension of various possible alternatives for the end-use of the timber is critical to nurturing the adopted FBLR PPP governance model. In this regard, the findings revealed that the beneficiaries recommend the use of timber from their FBLR PPP for fuelwood, pulpwood, furniture making, building material and sawn timber. According to Ramage et al. (2017), the use of timber products for building construction has, in recent decades, gained popularity around the world. Consequently, this provides a vital

market opportunity for both small and large timber producers (Clarke, 2018). However, the construction of new or nested markets rather than focusing on conventional markets that are occupied by larger corporations may prove critical for the community beneficiary's social and economic development (Van der Ploeg et al., 2012; Berti and Mulligan, 2016). Most significantly, in both Amabomvini and Cata communities, the use of fuelwood was highly regarded as the timber product end-use alternative by many respondents. This finding could affirm the dependency and market demand of many rural communities' dwellers for fuelwood as the source of energy for cooking (Ham, 2000; Lenfers et al., 2018). In this case, there is vast potential for the beneficiaries to pursue sustainable management of their community managed forest plantation under FBLR PPP given varied alternative timber markets. In line with this assertion, Schneider et al. (2016) emphasized that nested markets are characterized by socio-material infrastructure which is controlled by those participating in it (producers and consumers). At the same time, these alternative market opportunities could widen and present more business and employment opportunities to the beneficiaries (Van der Ploeg et al., 2012; Hebinck et al., 2015). In the same vein, Clarke and Foy (1997), Bleyer et al. (2016) and Clarke (2018) also suggested that forest plantation businesses have the potential to impact the livelihood of local communities positively, but this is possible when attention is focused on reducing negative impacts (Nawir, 2012). As highlighted by Schneider et al. (2016), it is important that community beneficiaries consider gaining autonomy and decision-making capacity to pursue alternative markets for various timber end-use products since this could positively have an impact on rural development practices and processes. For instance, the level of autonomy and decision-making capacity enjoyed by Cata community beneficiaries in running the affairs of their community managed enterprise could explain the decision that the CPA undertook to allocate a portion of the Wattle compartment to the general community beneficiaries for access and use. This decision to segregate the Wattle compartment opened access to the timber products and opportunities for individual beneficiaries to venture in timber products nested markets and at the same time improve their livelihood. As articulated by FGD participant at Cata community, "*Every member of the Cata community is allowed to harvest or collect timber from the area that is apportioned for the general access and use. For example, those of us who owns cars (bakkies) can collect and sell timber products such as fuelwood, timber for house construction as well as poles for fencing and kraals building. We sell these products in our community and those neighbouring communities. Some of the people use livestock to carry the timber products from our wattle compartment".* As argued by Hebinck et al. (2015), the other most part of the Wattle compartment trees is managed for access by Cata CPA forestry company or any other local contract harvesting enterprises (this refers to any person or private company that purchases the rights from the CPA to access or harvest) to acquire timber for sales to the pulpwood conventional markets for which the realization of lucrative income is often highly compromised.

4.3. Socioeconomics factors influencing timber product end-use alternatives

Kimengsi and Balgah (2021) have argued that the right to education is a basic livelihood driving factor. In this study, education status of the household beneficiaries significantly influenced the use of timber for building materials and sawn timber, respectively. Notably, the educated used significantly more timber for building materials and sawn timber than the uneducated. Similarly, Timko et al. (2010) highlighted that timber processing businesses

were pursued more by those with some form of education. This finding simply affirms that education status is critical in determining specific business options from a wide range of timber products (Underwood et al., 2007). Nguyen et al. (2020) has also argued that attainment of additional knowledge concerning the benefits of potential forest products enterprises could be easily realized by those members of the community with improved level of education. However, according to Mitra and Mishra (2011), the improvement in the level of education could also equip or present people with more opportunities enabling them to forego forest products dependency for other means of livelihood. Findings from the two case studies revealed that the low level of education negatively affected the beneficiaries' comprehension of the possibilities in the forest-based partnership engagement and management benefits. For example, the Amabomvini land claimant beneficiaries have chosen to engage on the sales lease back partnership model designed by the forestry industry, which greatly compromised their opportunities to construct nested timber markets.

4.4. Perception of beneficiaries on FBLR PPP opportunities for rural development and sustenance of timber markets

The road infrastructure in rural areas plays a crucial role in connecting the local people with various market (Oraboune, 2008). In this study, community beneficiaries' perception of FBLR PPP pointed out that road construction and maintenance are highly significant in stimulating rural development and sustenance of timber markets in the study communities. However, the poor condition of the access roads from the community to the nearest towns or timber markets remain the main factors affecting the marketing of the timber from the rural communities or nurturing the establishment of nested markets (Oraboune, 2008; Ledger, 2017). Considering the poor conditions of the access road leading to their community, the Cata beneficiaries immediately after their claim was settled used as part of the post-settlement grant money for the construction of a five-kilometer tarred road. This road project was essential and aimed at facilitating permanent easy access to the CPA managed hiking trails, museum, lodge services for the tourists and most importantly making the potential transportation of timber products to the markets in around and distant localities possible (Oraboune, 2008; Kazungu et al., 2020). Hence, it is critical that well-constructed road networks leading to the forest to facilitate access to timber products at an affordable price are prioritized in the rural setting (Soloviy et al., 2019).

Additionally, value addition in the form of furniture making was as well regarded as significant for the future rural development and sustenance of timber markets. At the same time, the Cata community had an uptake agreement with the private company to serve as middlemen to market their *Pinus elliottii* timber to wood chipboard processing plant upon trees reaching the age of maturity. The reason for Cata CPA engaging in this agreement was since the community had less negotiating power as well as limited stock of timber due to the small size of the plantation. Furthermore, the Cata community lacked financial power to establish their own value addition businesses where they would be able to process their own timber. As a result, the nonexistence of local timber processing plants owned by the CPA has a negative ripple effect on the possibility of constructing new nested timber markets for the benefit of the beneficiaries and on the efforts to pursue effective rural development possibilities. On the other hand, it is interesting that silviculture has been

regarded as a significant strategy to facilitate future rural development and sustenance of timber markets. For example, the Cata community pursued an integrated development plan in which about 600 ha of *P. elliottii* plantation was approved for establishment and 70 ha of *A. mearnsii* for rehabilitation (Howard, 2008). In contrast, the Amabomvini community considering the nature of their SLB partnership could merely continue with the management of the *Eucalyptus spp* through their contracted Trust's registered forestry company. In this case, the Amabomvini community had a single market secured for the timber produced in their land leased back to the private company from which they received annual rentals and 2% stumpage fee per tonnage delivered to the markets (Makhathini, 2010; Chamberlain and Anseeuw, 2017; Tshidzumba et al., 2018b). It is also clear that transport and harvesting operation were ranked less significant amongst the community beneficiaries due to the high capital required secure and manage timber harvesting equipment and tools. In both case studies, it was recognized that highly specialized technical knowledge and skills as well as capital to manage harvesting and transport operations are required to ensure sustainable flow of timber from the forest to market. In this case, substantial support from the partnering stakeholders including private company, NGOs and government departments and agencies should play a major role in providing the necessary support to ensure future rural development and sustenance of timber markets (Tshidzumba et al., 2018b; Pokwana et al., 2021).

4.5. Requirements for future community forest governance in adopted FBLR PPP approach

Considering the significant relationship between the responses of the beneficiaries from both case studies regarding the alternative timber-based end-use products, nomination of CPA/CT committee members who are, to a certain extent, educated would ensure proper representation of general beneficiaries in the governance of adopted FBLR PPP model. This would enable the CPA/CT committee members to ensure compliance with the constitutions, relevant governance structures and legislations through which they are constituted (Centre for Law and Society, 2015). Hence, strengthening of FBLR PPP governance structures in the study communities is critical to achieve an anticipated sustainable solution, which promote mutual contribution and participation of all stakeholders (Vega and Keenan, 2016). According to Pagdee et al. (2006), strong leadership with capable local organizational skills is a significant ingredient to the success of community forestry project. In the study communities, the leadership structures (CT at Amabomvini and CPA at Cata) should greatly strive towards adherence to the constitutional mandate under which they are established to effectively pursue and achieve rural development agenda.

Studies by Baynes et al. (2015) and Davenport and Hassan (2020) emphasized that processes of long-term and intense trust building are key elements in ensuring success of the collective action within communities and external stakeholders. For community beneficiaries to meaningfully participate and benefit in FBLR PPP business, tailor-made training in forest-based production systems and product beneficiation is critical (Manenzhe et al., 2016; Tshidzumba, 2019). This is important because community beneficiaries lack financial resources, technical and leadership capacity. To overcome these barriers and ensure sustainability of legal entities' forest-based business ventures, there should be constant support by government and other stakeholders (Nawir, 2012). Belt and Spierenburg (2013) emphasized that such support would ensure that the adopted FBLR PPP

governance approaches are effective and rewarding in terms of production of tangible anticipated results. It is therefore strongly recommended that necessary support to FBLR PPP approaches should be adopted in study communities to spur rural development and sustain timber-based products markets in South Africa in the future. This is supported by Phillips (2016) who highlighted that the support from government forestry department and development corporation agencies and NGO is vital to achieve successful community projects capable of empowering communities through a conception of various sustainable business endeavors. Therefore, this could ensure community beneficiaries achieve complete control and ownership of forest-based businesses and the use of forest resources for their economic benefits and development (Scheba and Mustalahti, 2015).

From the foregoing discussion, it could be deduced that community forest enterprises have the potential to improve rural development and livelihoods of community beneficiaries through their active participation in various timber product/timber markets (Howard, 2008). At the same time, it could be noted that the adoption of appropriate legal entity may be critical, as this could ensure proper management of the acquired land and equitable disbursement of future benefits to all beneficiaries. Furthermore, the emphasis on crafting benefits sharing mechanisms may ascertain the reduction of unnecessary conflicts amongst the community beneficiaries (Makhubele et al., 2020) and external stakeholders (private companies, government, NGO) that could hamper the objectives of the project. In this case, the nature of the community beneficiaries adopted legal entity and forest-based partnership governance approach in both case studies could somehow explain the differences in timber products end-use preferences or approaches and benefits, respectively. In line with Nambiar and Sadanandan (2015), it is important to note that achieving rural development and accessing of timber products/timber markets towards ensuring local communities' livelihood is improved entirely depends on government forging a solid and sound partnership with forestry industry. Thus, the consideration of introducing or strengthening existing forest sector transformation policy reforms to widen the scope of timber products or timber markets for the improvement of community beneficiaries' livelihoods is highly recommended. Consequently, this could ensure that community beneficiaries value the economic role of forest good governance, forest products as well as the significance of augmenting community governance structures to address potential conflicts amongst beneficiaries.

5. Conclusion

The results of this study revealed that community beneficiaries from both case studies have shown interest to venture into alternative timber markets. However, it is important to recognize that there are unprecedented differences in the two forest-based partnerships adopted in these case studies in terms of leadership and operating community institutional structures. In the case of Cata, community beneficiaries and/or the CPA committee members enjoyed autonomy and decision-making authority concerning the access and use of their timber products. This provided all the beneficiaries with an opportunity to improve their livelihood through construction of new or nested markets unlike those from Amabomvini. It is noteworthy that education is a vital socioeconomic factor which should be prioritized to uplift the beneficiaries' knowledge and influence in their forest-based partnership. Therefore, it would be very critical that community beneficiaries are

empowered and protected to enter forest-based partnership that guarantee rural development and sustenance of timber markets opportunities. Hence, it is recommended that the government rural development policies will have to be proactive to limit the negative impact on community beneficiaries' livelihood through safeguarding their interest and benefits anticipated from the forest-based partnerships. In this case, the strengthening of existing forestry sector transformation charter policy to guarantee consistent preferential market support or open timber markets avenues could assist to influence rural development. Lastly, the improvement of poor road access leading to the rural communities need to be prioritized if effective rural development and sustenance of construction of new nested timber markets must be achieved. Further research to understand the contribution of South African FBLR PPP on construction of nested timber markets to achieve rural development is recommended.

Declaration of Competing Interest

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

Acknowledgements

The authors would like to extend the greatest words of appreciation to all the funding institutions, including the South African Forest Company Limited (SAFCOL) and National Research Foundation (NRF). In addition, we acknowledge the support that the Community Trust in Ama-Bomvini and the Community Property Association in Cata provided during our survey in their localities.

References

Aliber, M., Cousins, B., 2013. Livelihoods after land reform in South Africa. J. Agrar. Chang. 13 (1), 140–165.

Aliber, M., Maluleke, T., 2010. The role of “black capital” in revitalising land reform in Limpopo, South Africa. In: Institute for Poverty, Land and Agrarian Studies (PLAAS). University of the Western Cape.

Al-Subaiee, F.S., 2016. Socioeconomic factors affecting the conservation of natural woodlands in Central Riyadh Area–Saudi Arabia. Saudi Journal of Biological Sciences 23 (3), 319–326.

Anon., 2012. SPSS: Descriptive and Inferential Statistics for Windows. Department of Statistics and Data Sciences, the University of Texas at Austin. Available at. https://stat.utexas.

Bartlett, J., 2014. The Hosmer-Lemeshow Goodness of Fit Test for Logistic Regression. Retrieved from The Stats Geek. http://thestatsgeekcom/2014/02/16/the-hosmer-lemeshow-goodness-offit-test-for-logistic=regression (Accessed on 29 May 2020).

Baynes, J., Herbohn, J., Smith, C., Fisher, R., Bray, D., 2015. Key factors which influence the success of community forestry in developing countries. Glob. Environ. Chang. 35, 226–238.

Belt, J., Spierenburg, M., 2013. Public-Private Partnerships in Rural Development, Down Playing the Role of Politics and Power Relations–DPRN Two. Rozenberg Quarterly. The Magazine. http://rozenbergquarterly.com/dprn-two-public-private-partnerships-in-rural-developmentdownplaying-the-role-of-politics-and-power-relations.

Berti, G., Mulligan, C., 2016. Competitiveness of small farms and innovative food supply chains: the role of food hubs in creating sustainable regional and local food systems. Sustainability 8 (7), 616.

Bhattacherjee, A., 2012. Social science research: principles, methods, and practices. In: Textbooks Collection 3. University of South Florida.

Binswanger-Mkhize, H.P., 2014. From failure to success in south African land reform. African Journal of Agricultural and Resource Economics 9 (4), 253–269.

Bleyer, M., Kniivil¨a, M., Horne, P., Sitoe, A., Falc˜ao, M.P., 2016. Socioeconomic impacts of private land use investment on rural communities: industrial forest plantations in Niassa, Mozambique. Land Use Policy 51, 281–289.

Border Rural Committee, 2013. Six Monthly Report. January to June. East London. South Africa.

Boynton, P.M., Wood, G.W., Greenhalgh, T., 2004. Hands-on guide to questionnaire research: reaching beyond the white middle classes. BMJ. Br. Med. J. 328 (7453), 1433.

Centre for Law and Society, 2015. Community Property Associations (CPAs). Rural Women's Research Programme. University of Cape Town.

Chamberlain, W.O., Anseeuw, W., 2017. Contract farming as part of a multi-instrument inclusive business structure: a theoretical analysis. Agrekon 1–15.

Chirwa, P.W., Mamba, S., Manda, S.M., Babalola, F.D., 2015. Assessment of settlement models for engagement of communities in forest land under claim in Jessievale and Roburna communities in Mpumalanga, South Africa. Land Use Policy Journal 46, 65–74.

Clarke, J., 2018. Job Creation in Agriculture, Forestry and Fisheries in South Africa: An Analysis of Employment Trends, Opportunities and Constraints in Forestry and Wood Products Industries, Working Paper 52. PLAAS, UWC, Bellville.

Clarke, J., Foy, T., 1997. The role of the forest industry in rural development and land reform in South Africa. Commonwealth Forestry Review 76 (3), 175–178.

Collins, D., 2003. Pretesting survey instruments: an overview of cognitive methods. Qual. Life Res. 12 (3), 229–238.

Craney, T.A., Surles, J.G., 2002. Model-dependent variance inflation factor cutoff values. Qual. Eng. 14 (3), 391–403. https://doi.org/10.1081/QEN-120001878.

Davenport, M., Hassan, R.M., 2020. Social capital and self-organised collective action: lessons and insights from a south African community project. Dev. South. Afr. 37 (2), 232–246.

Davis, N., Lahiff, E., 2011. Joint Ventures in South Africa's Land Reform Programme: Strategic Partnerships or Strategic Resource Grab? Paper Presented to the Global Land Grabbing Conference, Brighton, 6-8th April.

DWAF, 2007. Forest Sector Transformation Charter: First Draft for Presentation to Stakeholders. Republic of South Africa.

Fragerland, M.W., Hosmer, D.W., 2012. A generalized Hosmer-Lemeshow goodness-of-fit test for multinomial logistic regression models. Stata J. 12 (3), 447–453.

Gill, P., Stewart, K., Treasure, E., Chadwick, B., 2008. Methods of data collection in qualitative research: interviews and focus groups. Br. Dent. J. 204 (6), 291.

Godsmark, R., 2008. Forestry Land Reform Post-Settlement Support Models. Pietermaritzburg, Forestry South Africa.

Godsmark, R., 2010. The South African Forestry and Forest Products Industry 2009. Forestry South Africa.

Godsmark, R., 2017. South African Forestry and Forest Products 2016. Forestry South Africa.

Hall, R., 2009. A Fresh Start for Rural Development and Agrarian Reform? Policy Brief 29. PLAAS, University of Western Cape.

Ham, C., 2000. The Importance of Woodlots to Local Communities, Small Scale Entrepreneurs and Indigenous Forest Conservation– A Case Study. Instruments for sustainable private sector forestry, South Africa series. International Institute for Environment and Development and CSIR-Environmentek, London and Pretoria.

Hebinck, P., Schneider, S., Ploeg, J.D., 2015. The construction of new, nested markets and the role of rural development policies: some introduction notes. In: Hebinck, P., Ploeg, J.D., Schneider, S. (Eds.), Rural Development and the Construction of New Markets. Routledge, London, UK, pp. 1–15.

Hosmer Jr., D.W., Lemeshow, S., Sturdivant, R.X., 2013. Applied Logistic Regression, Second edition vol. 398. John Wiley and Sons.

Howard, M., 2008. Eastern Cape Community Forestry Project. In SA Forestry Online.

Ishak, N.M., Abu Bakar, A.Y., 2014. Developing Sampling Frame for Case Study: Challenges and Conditions. World Journal of Education 4 (3), 29–35. https://doi.org/10.5430/wje.v4n3p29.

Kaiser, K., 2009. Protecting respondent confidentiality in qualitative research. Qual. Health Res. 19 (11), 1632–1641.

Kane-Berman, J., 2016. From Land to Farming: Bringing Land Reform down to Earth. South African Institute of Race Relations (IRR), Johannesburg.

Kansteiner, K., König, S., 2020. In Forum Qualitative Sozialforschung/Forum: Qualitative Social Research (Vol. 21, No. 1).

Kazungu, M., Zhunusova, E., Yang, A.L., Kabwe, G., Gumbo, D.J., Günter, S., 2020. Forest use strategies and their determinants among rural households in the Miombo woodlands of the Copperbelt Province, Zambia. Forest Policy Econ. 111, 102078.

Kelley, K., Clark, B., Brown, V., Sitzia, J., 2003. Good practice in the conduct and reporting of survey research. Int. J. Qual. Health Care 15 (3), 261–266.

Kimengsi, J.N., Balgah, R.A., 2021. Colonial hangover and institutional bricolage processes in forest use practices in Cameroon. Forest Policy Econ. 125, 102406.

Krosnick, J.A., 2018. Questionnaire Design. In: Vannette, D., Krosnick, J (Eds.), The Palgrave Handbook of Survey Research. Palgrave Macmillan,, Cham.

Lahiff, E., 2008. Land Reform in South Africa: A Status Report 2008. Programme for Land and Agrarian Studies.

Ledger, T., 2017. Case Study on the Forestry Regional Value Chain in Southern Africa: South Africa. Mozambique and Tanzania. TIPS Report for the Department of Trade and Industry. https://www.tips.org.za/research-archive/trade-and-industry/item/download/1484_36a9bd13fdcf1da1436fdbc55ac0eb31.

Lenfers, U.A., Weyl, J., Clemen, T., 2018. Firewood collection in South Africa: adaptive behavior in social-ecological models. Land 7 (3), 97.

Makhado, R., 2012. South Africa's land reform debate: progress and challenges. SSRN Electron. J. https://doi.org/10.2139/ssrn.2181379.

Makhathini, M., 2010. Mondi "sales and leaseback" model in South Africa. In: Cotula, L., Leonard, R. (Eds.), Alternatives to Land Acquisitions: Agricultural Investment and Collaborative Business Models: Highlights from an International Lesson-Sharing Workshop (Maputo, 17th–18th March 2010). IIED.

Makhubele, L., Tshidzumba, R.P., Chirwa, P.W., 2020. What are the alternative options for diversifying land use under forestry land restitution: the case of Limpopo Province Forestry Land Restitution, South Africa. J. Sustain. For. https://doi.org/10.1080/10549811.2020.1822872.

Manandhar, N., Joshi, S.K., 2020. Importance of consent in the research. International Journal of Occupational Safety and Health 10 (2), 89–91. https://doi.org/10.3126/ijosh.v10i2.33284.

Manenzhe, T.D., Zwane, E.M., Van Niekerk, J.A., 2016. Factors affecting sustainability of land reform projects in Ehlanzeni District Mpumalanga Province, South Africa. South African Journal of Agricultural Extension 44 (2), 30–41.

Marshall, E., Newton, A.C., Schreckenberg, K., 2003. Commercialisation of non-timber forest products: first steps in analysing the factors influencing success. Int. For. Rev. 5 (2), 128–137. https://doi.org/10.1505/IFOR.5.2.128.17410.

Mathers, N., Fox, N., Hunn, A., 2007. Surveys and Questionnaires. The NIHR RDS for the East Midlands/ Yokshire and the Humber. Available at. https://www.rds-yh.nihr.ac.uk/wp-content/uploads/2013/05/12_Surveys_and_Questionnaires_Revision_2009.pdf (accessed 02 March 2018).

Mayers, J., Vermeulen, S., 2002. Company-Community Forestry Partnerships: From Raw Deals to Mutual Gains? Instruments for Sustainable Private Sector Forestry Series. International institute for Environment and Development, London.

Mayers, J., Evans, J., Foy, T., 2001. Raising the stakes–impacts of privatisation, certification and partnerships in south African forestry. IIED and CSIR.

Mitra, A., Mishra, D.K., 2011. Environmental resource consumption pattern in rural Arunachal Pradesh. Forest Policy Econ. 13 (3), 166–170.

Mutenje, M.J., Ortmann, G.F., Ferrer, S.R., 2011. Management of non-timber forestry products extraction: local institutions, ecological knowledge and market structure in south-eastern Zimbabwe. Ecol. Econ. 70 (3), 454–461.

Nambiar, A.O., Sadanandan, E.K., 2015. Forestry for rural development, poverty reduction and climate change mitigation: we can help more with wood. Aust. For. 78 (2), 55–64.

Nawir, A.A., 2012. Towards commercially oriented community forestry management: Coping with economic globalisation and commercialisation. In: Conference proceedings: IUFRO 3.08. 00 Small-Scale Forestry Conference 2012: Science for Solutions, 24–27 September 2012, Amherst, Massachusetts USA.

Nguyen, H.T., Ariyawardana, A., Ratnasiri, S., 2020. Forest plantation owners' willingness to pay for hybrid nursery stock: the case of Acacia hybrids in Central Vietnam. Forest Policy Econ. 116, 102184.

Nyariki, D.M., 2009. Household data collection for socioeconomic research in agriculture: approaches and challenges in developing countries. Journal of Social Sciences 19 (2), 91–99.

Nyumba, T., Wilson, K., Derrick, C.J., Mukherjee, N., 2018. The use of focus group discussion methodology: insights from two decades of application in conservation. Methods Ecol. Evol. 9 (1), 20–32.

Ofoegbu, C., 2014. The contribution of tree plantations to household welfare: case study of Piet Retief and Iswepe. Int. For. Rev. 16 (2), 172–179.

Ofoegbu, C., Chirwa, P.W., 2019. Exploring the potential for green growth uptake in the south African forest sector. Reg. Environ. Chang. 19 (5), 1469–1480.

Ofoegbu, C., Chirwa, P.W., Francis, J., Babalola, F.D., 2017. Socioeconomic factors influencing household dependence on forests and its implication for forest-based climate change interventions. Southern Forests: A Journal of Forest Science 79 (2), 109–116.

Ofoegbu, C., Chirwa, P.W., Francis, J., Babalola, F.D., 2019. Assessing local-level forest use and management capacity as a climate-change adaptation strategy in Vhembe district of South Africa. Clim. Dev. 11 (6), 501–512.

Onwuegbuzie, A.J., Collins, K.M., 2007. A typology of mixed methods sampling designs in social science research. Qual. Rep. 12 (2), 281–316.

Pagdee, A., Kim, Y.-S., Daugherty, P.J., 2006. What makes community forest management successful: a meta-study from community forests throughout the world. Soc. Nat. Resour. 19, 33–52.

Oraboune, S., 2008. Infrastructure (rural road) development and poverty alleviation in Lao PDR. IDE Discussion paper 151, 1–64. https://doi.org/10.20561/00038011.

Phillips, L., 2016. A community fights poverty through innovation: feature-empowerment. Farmer's Weekly 2016 (16034), 42–44.

Pokwana, S., Tshidzumba, R.P., Chirwa, P.W., 2021. Evaluating the potential of introducing multipurpose tree species in the rural landscapes of Weza, Ugu District municipality, KwaZulu-Natal, South Africa. Trees, Forests and People 3, 100055.

Pretzsch, J., Darr, D., Uibrig, H., Auch, E., 2014. Forests and Rural Development. Springer.

Ramage, M.H., Burridge, H., Busse-Wicher, M., Fereday, G., Reynolds, T., Shah, D.U., Wu, G., Yu, L., Fleming, P., Densley-Tingley, D., Allwood, J., 2017. The wood from the trees: the use of timber in construction. Renew. Sust. Energ. Rev. 68, 333–359.

Schaafsma, M., Morse-Jones, S., Posen, P., Swetnam, R.D., Balmford, A., Bateman, I.J., Burgess, N.D., Chamshama, S.A.O., Fisher, B., Freeman, T., Geofrey, V., 2014. The

importance of local forest benefits: economic valuation of non-timber forest products in the eastern Arc Mountains in Tanzania. Glob. Environ. Chang. 24, 295–305.

Scheba, A., Mustalahti, I., 2015. Rethinking 'expert'knowledge in community forest management in Tanzania. Forest Policy Econ. 60, 7–18.

Schneider, S., Salvate, N., Cassol, A., 2016. Nested markets, food networks, and new pathways for rural development in Brazil. Agriculture 6 (4), 61.

Sjetne, I.S., Bjertnaes, O.A., Olsen, R.V., Iversen, H.H., Bukholm, G., 2011. The generic short patient experiences questionnaire (GS-PEQ): identification of core items from a survey in Norway. BMC Health Serv. Res. 11 (1), 88. https://doi.org/10.1186/1472-6963-11-88.http://refhub.elsevier.com/S1389-9341(22)00067-3/rf0380

Soloviy, I., Melnykovych, M., Gurung, A.B., Hewitt, R.J., Ustych, R., Maksymiv, L., Brang, P., Meessen, H., Kaflyk, M., 2019. Innovation in the use of wood energy in the Ukrainian Carpathians: opportunities and threats for rural communities. Forest Policy Econ. 104, 160–169.

Spierenburg, M., Cousins, B., Bos, A., Ntsholo, L., 2012. Connecting communities and business: Public-private partnerships as the panacea for land reform in Limpopo Province, South Africa. In: The Social Life of Connectivity in Africa. Palgrave Macmillan, US, pp. 161–182.

Thomas, D.R., 2003. A General Inductive Approach for Qualitative Data Analysis. School of Population Health, University of Auckland.

Thompson, M., 2020. Farmers' markets and tourism: identifying tensions that arise from balancing dual roles as community events and tourist attractions. J. Hosp. Tour. Manag. 45, 1–9.

Timko, J.A., Waeber, P.O., Kozak, R.A., 2010. The socio-economic contribution of non-timber forest products to rural livelihoods in sub-Saharan Africa: knowledge gaps and new directions. Int. For. Rev. 12 (3), 284–294.

Tshidzumba, R.P., 2019. Evaluation of Benefits of Land Restitution Forest-Based Public-Private Partnership Models in South Africa: A Case Study of Amabomvini and Cata Communities (Doctoral dissertation. University of Pretoria.

Tshidzumba, R.P., Chirwa, P.W., Babalola, F.D., 2018a. Communities' perceptions of benefit-sharing mechanisms for forest-based land reform models in South Africa. Southern Forests: a Journal of Forest Science 80 (4), 381–389.

Tshidzumba, R.P., Chirwa, P.W., Babalola, F.D., 2018b. Are communities benefiting from land reform models? Investigating forest-based public-private partnerships in selected beneficiary communities in South Africa. Int. For. Rev. 20 (2), 220–235.

Underwood, M., Blakeway, F., Khumalo, P., L¨angin, D., Louw, J., Mack, R., 2007. South African forestry, integrating the first and second economies: a curriculum template for African forestry. In: An Invited Presentation given at the First Global Workshop on Forest Education, Nairobi.

Van der Ploeg, J.D., Jingzhong, Y., Schneider, S., 2012. Rural development through the construction of new, nested, markets: comparative perspectives from China, Brazil and the European Union. J. Peasant Stud. 39 (1), 133–173. https://doi.org/10.1080/03066150.2011.652619.

Van Loggerenberg, C., Mandondo, A., 2008. A Study of Outgrower Forestry in Southern Natal, Exploring Practice, Perceptions, and Prospects for SAPPI Project Grow.

Van Teijlingen, E., Hundley, V., 2002. The importance of pilot studies. Nurs. Stand. 16 (40), 33.

Vega, D.E.C., Keenan, R.J., 2016. Situating community forestry enterprises within new institutional economic theory: what are the implications for their organization? J. For. Econ. 25, 1–13.

Vermeulen, S., Cotula, L., 2010. Making the most of agricultural investment: a survey of business models that provide opportunities for smallholders. IIED. https://pubs.iied.org/sites/default/files/pdfs/migrate/12566IIED.pdf.

Wong, L.P., 2008. Focus group discussion: a tool for health and medical research. Singap. Med. J. 49 (3), 256–260.

Xaba, M.B., Roodt, M., 2016. South Africa's land reform efforts lack a focus on struggling farmers. Mail and Guardian. https://mg.co.za/article/2016-12-06-south-africas-land-reform-efforts-lack-a-focus-on-struggling-farmers (accessed January 2018).

Yuningsih, E., Saliningsih, E., 2019. Implementation of environmentally friendly marketing for smes featured products to strengthen competitive advantages. International Journal of Scientific and Technology Research 8 (12), 497–502.