

Analysis of Rural People's Attitude towards the Management of Tribal Forests in South Africa

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Abstract

The management of forests for multiple purposes coupled with varying socioeconomic profile of forest users can result in attitudinal differences towards forest management. This study examines the attitudes of rural people in South Africa towards the management of tribal forests. Attitude towards forest management was analysed with respect to five forest management objectives: 1, forest management for rural livelihood resilience to climate change; 2, forest management for reduction and management of forest fire risk; 3, forest management for sustainable forest-based livelihood; 4, forest management for household socioeconomic wellbeing; and 5, forest management for community-based climate change adaptation initiative. A household questionnaire survey was used to elicit information from 155 rural households using the proportionate random sampling procedure. Chi-square test was used to analyse data from the household survey. Factorial analysis was used to analyse variance in attitude towards forest management. The results showed that rural people generally have positive attitudes towards the management of tribal forests. Factor analysis isolated 2 major factors that explained 61% variance in attitude. Based on the findings we conclude that centralising forest management around the four management objectives (1, 3, 4 & 5) are likely to promote inclusive forest based development in the study communities.

Keywords: Forests, socioeconomics, livelihood, sustainability, rural community

1. INTRODUCTION

Forest management in South Africa has changed over time from focusing almost exclusively on conservation during the apartheid regime to the integration of rural host communities in sustainable forest management in the post-apartheid era (DAFF 2010; Berliner 2005). To this end, the Forest Sector Transformation Charter was passed with the aim of recognizing and incorporating the rights of previously disadvantaged people in forest management and development (Macura et al., 2011). The inclusion of rural people in forest management has consequently become a key legislative imperative in South Africa (Von Maltitz et al., 2003; Bowler et al., 2010; Turpie and Visser 2013).

The South African government approach to community participation in forest management is premised on the principle of shared benefit, responsibilities, control, and decision-making over forest use and management between the state and local communities (Arrikum 2014; Holmes-Watts and Watts 2008; Nelson and Agrawal 2008). Considerable success has been recorded in the promotion of inclusivity and sustainability in the management of government-owned forests in South Africa (Holmes-Watts and Watts 2008; Lewis et al. 2005; Lewis et al. 2003). In contrast, the implementation of inclusivity and sustainability principles in the management of tribal¹ forests in South Africa has experienced several shortcomings. This is because tribal forests in South Africa are owned and managed by traditional authorities (Phadima and Lawes 2015; DWAF 1998). In most instances, the traditional authorities do not have sufficient resources to enforce adherence to rules and regulations with respect to forest exploitation and management. Consequently, these forests are often treated as open access resources with local residents rarely complying with regulations guiding their use and management (Gugushe et al. 2008; Geldenhuys 2002). This challenge has resulted in the notion that rural communities' may not have positive attitudes towards forest management programmes (DWAF 2005).

Additionally, there are notions that tribal forest management plans do not take into account the socioeconomic and attitudinal diversity of the local host communities (Chiara et al. 2016; Chirwa et al. 2015; DAFF 2010). Nevertheless, the importance of the influence of socioeconomic factors on forest management at the rural community level in South Africa is well recognised and has been investigated on a number of occasions (Holmes-Watts and Watts 2008; Shackleton et al. 2007). Insight from these studies indicate that individual, household, and community socioeconomic characteristics such as age, length of residency, gender, wealth status, educational level, proximity to forest area, and household size can significantly influence attitudes towards forest use and management (Macura et al. 2011; Holmes-Watts and Watts 2008; Shackleton et al. 2007). These studies have improved our understanding of the relationships between forest management programmes and rural communities' socioeconomic characteristics in South Africa.

However, these studies have a number of limitations as they have focused on attitudes toward forest management with respect to a specific management objective. For example, Macura et al. (2011) explored local people's attitude towards forest management with respect to forest protection. In the same vein, Ofoegbu et al. (2016) investigated local resident attitude towards forest management with respect to a forest carbon sequestration project. Additionally, these studies focused on either state or privately managed forests. The general conclusion is that rural people's attitudes towards tribal managed forests have been grossly neglected. This study aims to address this gap by

¹ The term tribal forest as used in this study refers to forests managed by the traditional authority in South Africa

focusing on tribal managed forests and investigate the local residents' attitudes towards the management of these forests.

2. Conceptual Framework - attitudes and forest management objectives

Ever since early industrialization, forests have played an important role in economic development. Initially, forest management objectives were primarily for timber production, and later for pulpwood and pulp production (Nordlund and Westin, 2011). In recent years in South Africa, livelihood sustainability, and environmental concerns such as climate protection, biodiversity conservation, etc. have become an integral part of forest management objectives (Arrikum, 2014; DAFF, 2012). The multipurpose nature of forest management objectives have resulted in forests becoming, to an increasing extent, an arena for conflicting interests and diverging opinions on how forests should, and should not, be managed (Nordlund and Westin, 2011). Moreover, attitudes are constantly evolving, presenting a challenge for the design of interventions for sustainable manage forest resources.

Because forests can be managed for a variety of purposes, attitudinal differences towards management objectives by stakeholders are to be expected (Nordlund and Westin, 2011; Walters et al., 1999). Such diverging attitudes towards forest management may impact individuals or community participation in forest management (Nordlund and Westin, 2011; Manning et al., 1999). Similarly, differing socioeconomic status at rural community level can cause attitudinal differences towards forest management ((Meijer, Catacutan, Sileshi, & Nieuwenhuis, 2015; Thacher, Lee, & Schelhas, 1997). The poorer non-educated rural people are likely to be more favourable towards forest management for sustainable livelihood than forest conservation/preservation.

From an applied perspective, the inclusion of socioeconomic characteristics in the analysis of attitudinal differences towards forest management provides a framework for understanding the context of use and management of tribal forests in South Africa. As noted by Gifford and Sussman (2012), socioeconomic characteristics, including population parameters such as age and gender, are key factors for explaining attitudinal variation in forest management. It is thus envisaged that by analysing this relationship between attitudes and respondents' socioeconomic characteristics, we will be able to predict the future evolution of these attitudes (Wiener 2012). By evaluating the variation between rural peoples' attitudes to tribal forest management practices, we can assess how individuals or households of different socioeconomic profile are impacted by forest management decisions, and gain insight into likely changes in the future (Kant et al., 2009).

In the present study, attitude is defined as a person's favourable or unfavourable evaluation of the forest management objectives (Borges et al. 2016; Ajzen and Fishbein, 1980). We specifically focused on five forest management objectives: 1, forest

management for rural livelihood resilience to climate change (AB1); 2, forest management for reduction and management of forest fire risk (AB2); 3, forest management for sustainable forest-based livelihood (AB3); 4, forest management for household socioeconomic wellbeing (AB4); and 5, forest management for community-based climate change adaptation initiative (AB5). The study thus examines rural people’s attitude towards these five forest management objectives, and how the attitudes are being influenced by the respondents’ socioeconomic profile. We tested the hypothesis that:

H1: Attitude towards tribal forest management is positively influenced by forest management objectives and the participant socioeconomic profile

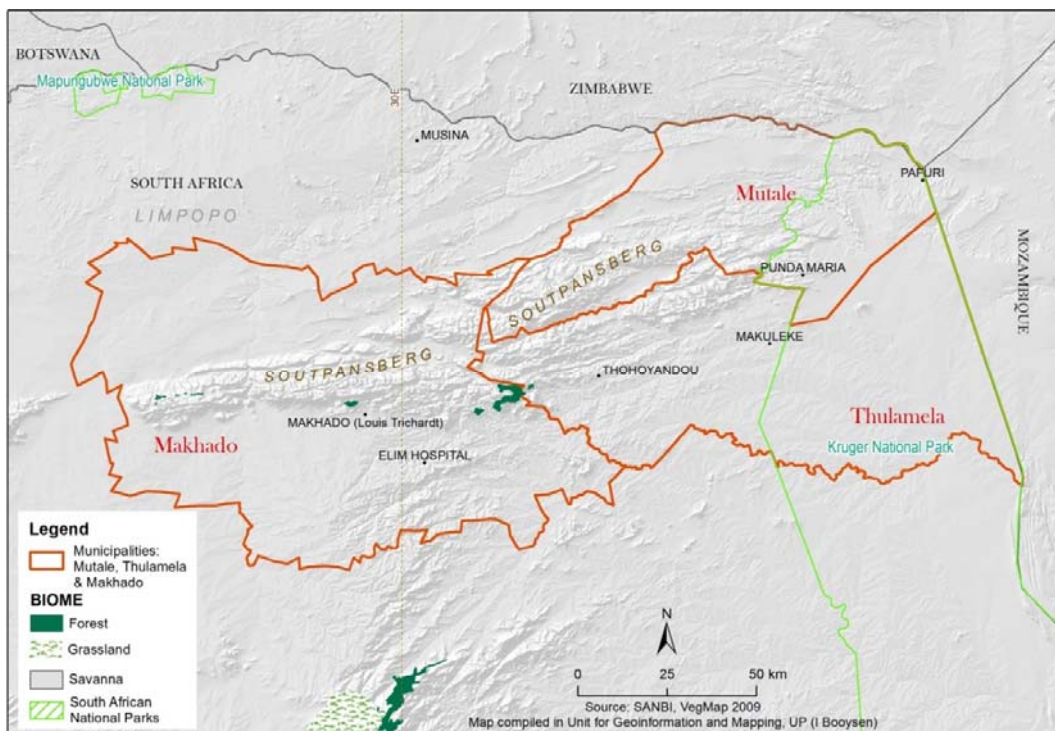


Figure I: Biomes of Mutale and Thulamela Municipalities, South Africa

3. METHODOLOGY

3.1 Study area

Eleven communities were randomly selected in the Vhembe Biosphere Reserve in Limpopo Province South Africa (Figure 1). The landscape of the selected communities in Makhado and Thulamela is made up of savannah and woodland vegetation, respectively (Rosmarin 2013). Rainfall received in Makhado occurs mainly in the summer months, extending from November to March (Quinn *et al.*, 2011; Vhembe Biosphere Reserve: VBR, 2012; Turpie and Visser, 2013). In Thulamela municipality, most of the rainfall occurs between October and January (VBR, 2012). Unemployment rates in both

municipalities are high and most rural households depend on social grants (VBR, 2012), and forest-based livelihoods (CoGTA 2012). Five of these communities were in Makhado municipality while the remaining six communities were in Thulamela municipality. The field survey was carried out from January-March 2016.

Socioeconomic profile

Most of the respondents in this study were within the age range of 41- 50 and 51 -60. Thulamela had more male respondents while the opposite was the case in Makhado. Furthermore, the majority of the respondents in both municipalities were unemployed and had no formal education. This normally limits the people’s capacity to participate in the formal economic sector. Hence, the majorities of households are involved in the informal economic sector and are mostly engaged in subsistence agriculture and forest-based livelihoods (Table 1). There is also widespread poverty in the area.

Table 1: Demographic profile of respondents (Ofoegbu et al., 2016)

Demographic characteristics	Total number of respondents (n=155)	
	Thulamela (%)	Makhado (%)
Age (Years)		
≤ 30	15	4
31-40	23	21
41-50	25	30
51-60	24	15
61 and above	13	30
Gender (%)		
Male	57	43
Female	43	58
Marital Status (%)		
Single	40	24
Married	40	50
Divorced	20	26
Employment Status		
Unemployed	52	60
Retired	7	9
Self Employed	13	21
Employed	27	10
Student	1	0
Highest level of Education (%)		
No formal education	23	53
Grade 11 or Lower	19	13
Grade 12(Matric, std. 10)	20	19
Post-matric diploma or certificate	20	9
Post-Matric Diploma Baccalaureate degree	15	8
(s)		
Postgraduate degree(s)	4	0

The study areas fall within the Savannah Biome (Mucina & Rutherford 2006). The dominant livelihood strategies in the study communities are based on farming, livestock-keeping and forest-product use (Turpie & Visser, 2013; Paumgarten & Shackleton, 2011). Unemployment rates are high in Vhembe and most rural households depend on social grants (VBR, 2012). Additionally, these communities are characterized by a high mobility, subsistence-level existence, and informal settlement housing (DEA, 2011). The people use forests resources to supplement their subsistence living. In this regard firewood, forest fruits, thatch grass etc. are some of the commonly used forest products for subsistence living. The trade in forest products in the rural communities are mostly informal. The trade mostly occurs in the community's market. Oftentimes buyers come from neighbouring communities and urban places (nearby big towns and cities). Historically, informal trade in forest products has relied on harvest of products from tribal forests. These communal forests are under the custodianship of tribal and traditional authorities.

3.2 Questionnaire design and survey

The study used household questionnaire survey to address the research questions. The use and management of tribal forests in South African rural communities are regulated and administered to by tribal/traditional authorities (Gugushe et al., 2008; Berliner, 2005). These tribal forests are often treated as open access resources with local residents rarely complying with regulations guiding their use and management (Gugushe et al., 2008; Geldenhuys, 2002). This challenge warrants the need for an assessment of rural people attitude towards the management of tribal forests with respect to the existing management objectives. Thus in this study, forest management was operationalised as compliance with regulations guiding forest use and management at rural community level in South Africa. The study used 11 of the national forest management principles and criteria that apply to communal forests and woodlots management as indicators of sustainable forest management -SFM (Table 2). Thus questions on social inclusiveness in forest management were focused on respondents participation in activities (implemented within the framework of these indicators of SFM) targeted at controlling the use or exploitation of forest resources either from tribal forests or woodlots in their community.

We asked respondents how they perceived the outcome of their compliance with rules and regulations governing the use of tribal forests with respect to the five predetermined management objectives. Respondents' attitudes were rated on a three-point scale (positive, neutral, and negative). We used a proportionate random sampling technique to sample 75 and 80 households in Thulamela and Makhado municipalities, respectively. The sampling unit was the household with household heads as the respondents. Households were chosen according to the "random route procedure". This was done by sending two interviewers to randomly selected intersections through the community

from where they started sampling every two households (Moslera et al. 2006; Clewer and Scarisbrick 2001). To avoid bias, the questionnaire was translated to Tshivenda (the local language of the community), this was to ensure that the respondents understood the questions being asked. During the interview, care was taken to avoid lead up questions that might influence the respondent's answers. As recommended by Bless and Smith (1995), the survey process was thoroughly and critically carried out in order to avoid possible bias either from respondents or interpreter.

Table 2: Criteria and Indicators for fostering sustainable forest management in South Africa

No	Criteria
1	Forest ecosystem structures are conserved and processes maintained
2	Forests are protected from negative effects of fire, pests, diseases and alien plants.
3	Production potential is maintained or improved
4	Forests make a positive contribution to the economy
5	The forest economy is resilient
6	Cultural, ecological, recreational, historical, aesthetic and spiritual sites and services supplied by forests are maintained.
7	The distribution of employment benefits from forests is fair
8	The distribution of the costs from forestry is fair
9	There is effective stakeholder participation in forestry management
10	Forests are developed and managed so that persons or categories of persons previously disadvantaged by unfair discrimination are advanced.
11	People participate in forestry policy development and review

Adapted from the South Africa national level principles, criteria, indicators and standards (DAFF 2016)

3.3 Statistical analyses

The data from the questionnaire survey were processed through the Statistical Package for the Social Sciences (SPSS) version 21. The data were analysed using a series of statistical analyses in order to address the study research questions. Summary statistics were used to describe the variables. Distributions of variables were presented with frequency tables. Medians/means were used as the measures of central location for ordinal and continuous responses and standard deviations and quartiles as indicators of spread (Keller and Warrack, 2003).

Respondent's attitude was analysed by grouping the respondents in three attitudinal clusters; positive, neutral or negative attitudes. Factor analysis was used to describe the variance in attitude towards the investigated five forest management objectives. A chi-squared test was used to analyse the relationship between respondents' socioeconomic characteristics and their forest management attitude. The selected socioeconomic characteristics were: respondents' age, education level, gender, and employment status.

4. RESULTS

4.1 Differences in attitude clusters to forest management between municipalities

The respondents' attitudes towards the management of tribal forests with respect to five management objectives were analysed (Table 3). We observed significant differences ($p < 0.05$) in attitudes towards forest management attitudes in the two municipalities with respect to forest management for: 1) livelihood resilience, 2) forest fire risk reduction and, 3) socioeconomic wellbeing. However, we did not observe any significant difference ($p > 0.05$) in respondents' attitudes towards forest use and management with respect to 4) climate change adaptation at the community level, and 5) sustainability of forest-based livelihood.

There was a high level of positive (over 70%) attitude towards management of tribal forests with respect to the investigated five management objectives. The only exception is the people's attitude towards forest management with respect to forest fire risk reduction in Thulamela, where we observed low (23%) positive attitude. This is likely because forest fire rarely occurs in Thulamela. Thus the people do not consider forest fire to be a threat to their livelihood.

Table 3: Attitudinal clusters of respondents in the study communities

Attitude to diverse forest use and management objectives	Attitudinal clusters	Proportion of respondents (%) in	
		Thulamela	Makhado
Attitude to forest use with respect to livelihood resilience to climate change	Positive	87	98
	Neutral	8	1
	Negative	5	1
Attitude to forest use with respect to forest fire risk reduction	Positive	23	90
	Neutral	5	6
	Negative	72	4
Attitude to forest use with respect to socioeconomic wellbeing	Positive	60	82
	Neutral	7	10
	Negative	33	8
Attitude to forest use with respect to community-based climate change adaptation initiative	Positive	75	63
	Neutral	16	29
	Negative	9	9
Attitude to forest use with respect to forest-based livelihood sustainability	Positive	87	95
	Neutral	5	4
	Negative	8	1

Factorial analysis was used to explore the variance in attitude towards the five forest management objectives. A two factor model explained 61% of the variance. The result (table 4) showed that attitude towards forest management with respect to four management objectives: forest based livelihood, livelihood resilience to climate change, community based climate change adaptation, and socioeconomic wellbeing loaded under factor 1, while attitude towards forest management with respect wildlife and forest fire

risk loaded under factor 2. Thus we can infer that centralising forest management around these four management objectives is likely going to similar stimulate attitudinal response from the local people.

Table 4: Variance in attitude towards forest management

Forest management attitude	Factor Loading	
	1	2
Attitude to forest use with respect to forest based livelihood	0.802	
Attitude to forest use with respect to livelihood resilience to climate change	0.768	
Attitude to forest use with respect to community-based climate change adaptation initiative	0.597	-0.405
Attitude to forest use with respect to socioeconomic wellbeing	0.539	
Attitude to forest use with respect to wildlife and fire risk		0.910

4.2 Effect of demographics on attitude clusters

A clear understanding of rural people’s attitudes towards forest management is required to estimate the likely impact of forestry development programs on various categories of forest users. By analyzing how people’s attitudes vary with their socioeconomic characteristics, we can assess how different types of individuals are impacted by forest management decisions and gain insight into likely changes in the future. This section presents the findings of the analyses of the relationships between the rural people socioeconomic characteristics and their attitude towards the management of tribal forests.

4.2.1 Relationships between respondent’s forest management attitudes and their educational level

Forest management attitudes’ of respondents with regard to their educational level were tested across five forest management objectives (Table 5). There was no significant difference ($p>0.05$) between educated and uneducated respondents in their attitude towards forest management with respect to livelihood resilience to climate change; socioeconomic wellbeing; climate change adaptation at the community level; and forest-based livelihood sustainability. However, we observed a significant difference ($P<0.05$) in respondents’ attitudes to forest management with respect to forest fire risk reduction. Few uneducated respondents (23%) had a negative attitude, while many educated respondents (46%) had a negative attitude. Nevertheless, in both cases, most of the respondents possess positive attitudes.

Table 5: Relationship between respondents' attitudes and their educational level

Attitude to diverse forest use and management objectives	Attitudinal clusters	Proportion of respondents (%) in	
		Uneducated	Educated
Attitude to forest use with respect to livelihood resilience to climate change	Positive	92	93
	Neutral	7	3
	Negative	2	4
Attitude to forest use with respect to forest fire risk reduction	Positive	70	50
	Neutral	7	4
	Negative	23	46
Attitude to forest use with respect to socioeconomic wellbeing	Positive	76	69
	Neutral	7	9
	Negative	17	22
Attitude to forest use with respect to community-based climate change adaptation initiative	Positive	58	75
	Neutral	32	17
	Negative	10	8
Attitude to forest use with respect to forest-based livelihood sustainability	Positive	90	92
	Neutral	9	2
	Negative	1	6

Table 6: Relationship between respondents' attitude and their age category

Attitude to diverse forest use and management objectives	Attitudinal clusters	Proportion of respondents (%) in		
		Youths	Adults	Elderly
Attitude to forest use with respect to livelihood resilience to climate change	Positive	92	90	97
	Neutral	4	6	3
	Negative	4	4	0
Attitude to forest use with respect to forest fire risk reduction	Positive	50	59	65
	Neutral	6	6	6
	Negative	44	36	29
Attitude to forest use with respect to socioeconomic wellbeing	Positive	69	71	77
	Neutral	10	4	15
	Negative	21	25	9
Attitude to forest use with respect to community-based climate change adaptation initiative	Positive	65	74	62
	Neutral	27	16	29
	Negative	8	10	9
Attitude to forest use with respect to forest-based livelihood sustainability	Positive	92	89	94
	Neutral	2	6	6
	Negative	6	6	0

4.2.2 Relationships between respondent's forest management attitudes and age group

We did not observe any significant difference ($P > 0.05$) between the attitudes of youths, adults and the elderly in the study communities (Table 6). In general, a majority of youths,

adults and elderly had a positive attitude towards forest use and management. In most cases, most of the respondents had positive attitudes, except for the case of forest management with respect to forest fire risk reduction and household socioeconomic wellbeing where many respondents tended to have a negative attitude.

4.2.3 Relationships between respondent’s forest management attitudes and employment status

Attitudes of respondents with regard to their employment status were tested across the five forest management objectives (Table 7). There was no significant difference ($p>0.05$) between the responses of retired, unemployed and employed respondents. In all cases, a majority of respondents possessed a positive attitude.

Table 7: Relationship between respondents’ attitude and their employment status

Attitude to diverse forest use and management objectives	Attitudinal clusters	Proportion of respondents (%) in		
		Unemployed	Retired	Employed
Attitude to forest use with respect to livelihood resilience to climate change	Positive	91	100	93
	Neutral	6	0	4
	Negative	3	0	4
Attitude to forest use with respect to forest fire risk reduction	Positive	61	58	54
	Neutral	8	0	1
	Negative	31	42	45
Attitude to forest use with respect to socioeconomic wellbeing	Positive	69	92	71
	Neutral	9	8	7
	Negative	22	0	22
Attitude to forest use with respect to community-based climate change adaptation initiative	Positive	63	75	74
	Neutral	29	25	13
	Negative	8	0	13
Attitude to forest use with respect to forest-based livelihood sustainability	Positive	87	100	94
	Neutral	7	0	2
	Negative	6	0	4

4.2.4 Relationships between respondent’s forest management attitudes and gender

Attitudes of respondents with regard to their gender status were tested across five forest management objectives (Table 8). There was no significant difference ($p>0.05$) in the responses of males and females. In all cases, the majority of respondents possessed a positive attitude.

Table 8: Relationship between respondents' attitudes and gender

Attitude to diverse forest use and management objectives	Attitudinal clusters	Proportion of respondents (%) in	
		Male	Female
Attitude to forest use with respect to livelihood resilience to climate change	Positive	94	91
	Neutral	4	5
	Negative	2	4
Attitude to forest use with respect to forest fire risk reduction	Positive	53	61
	Neutral	3	9
	Negative	44	30
Attitude to forest use with respect to socioeconomic wellbeing	Positive	68	76
	Neutral	9	7
	Negative	23	17
Attitude to forest use with respect to community-based climate change adaptation initiative	Positive	75	61
	Neutral	16	30
	Negative	9	9
Attitude to forest use with respect to forest-based livelihood sustainability	Positive	94	89
	Neutral	1	7
	Negative	5	4

5. DISCUSSION

The debate regarding how forests should be managed can occur because different groups hold differing attitudes regarding appropriate management actions. As reported by Vaske et al (2001), people's attitudes are the foundation for their acceptance of specific management goals and action (Vaske et al., 2001). This reality makes it important to understand the influence of demographic variables and attitudinal differences on forest management at rural community level. The study findings indicate that rural people mostly have a positive attitude towards the management of tribal forests. It can thus be inferred that rural people possess the fundamental factor required for implementation of actions for sustainable management of tribal forests.

The study findings provide partial support for the hypothesis that attitude towards tribal forest management is positively influenced by forest management objectives. Rural people are more likely to show same attitudinal trend to forest management with respect to the four management objectives: (1) forest based livelihood, (2) livelihood resilience to climate change, (3) community based climate change adaptation, and (4) socioeconomic wellbeing. They are however more likely to show a different attitude to forest management for forest fire risk management. The cue therefore is that centralising tribal forest management around these four management objectives is likely going to stimulate a broader interest from local actors to participate in tribal forest management. Such avenue can therefore be explored in promoting forest based development at rural community level in South Africa.

In very few instances, however, a significant relationship was observed between socioeconomic characteristics and forest management attitude. This relationship was observed particularly with respect to tribal forest management for reduction of forest fire risk. Many educated respondents were observed to have a negative attitude towards tribal forest management for fire risk reduction in Thulamela. This could be because forest fire risk rarely occurs in the region hence the people tend to view forest fire as a non-existent threat and are subsequently unwilling to participate in management activities aimed at reducing forest fire risk. Additionally, educated respondents generally depend less on the forest for their livelihood because of the fact that they earn their income from non-forest based activities. Apart from forest management for forest fire risk reduction, the respondents generally have positive attitudes towards tribal forest management with respect to the rest of the forest management objectives investigated.

Contrary to what has been observed in the management of state, private and community-owned forests in South Africa and elsewhere in the developing countries, the study findings indicate that rural people's socioeconomic characteristics do not have any significant effect on their attitude towards the management of tribal forests in South Africa. In this study, the investigated socioeconomic variables: gender, age, employment status, and educational status do not have any significant effect on the people's forest management attitude. Coulibaly-Lingani et al (2011) observed that gender was a significant influencing factor in their study of people's participation in forest management programs in Burkina Faso. Similarly, Dolisca et al (2006) observed that local people's participation in forest management is influenced by the socioeconomic and demographic backgrounds, such as gender, household size, educational level, the age of the head of the household, marital status, and household size. In the same vein, Owubah et al (2001), and Lise (2000) reported that education influenced local people's participation in forest management and conservation, and stimulates social participation.

Unlike the trend that has been observed in forest management in several developing countries, where gender-based discrimination has been reported as a significant challenge in forest management (Agarwal, 2001; Agarwal, 2009), findings from this study showed that gender-based discrimination is not associated with the management of tribal forests. The uniqueness of the trends observed in the relationship between people's forest management attitude and their socioeconomic characteristics with respect to the management of tribal forests in South Africa can be attributed to the management structure and user groups associated with tribal forests. While most community forests are jointly managed by government agencies and community representative groups, tribal forests are solely managed by the local traditional authority. In addition, the users of tribal forests are predominantly local people from the host communities who use the forests predominantly for subsistence. Thus tribal forest management can serve as a platform for promoting inclusive development in forest management.

The major challenge facing the use and management of tribal forests in South Africa is a weak management structure for the delivery of both environmental sustainability and

inclusive tangible long-term benefits for the rural people. In this study, we observed that the present management structure is non-discriminatory to all social groups in the communities. Hence, all categories of people-- the educated and uneducated, the employed and unemployed, male and female, and elderly and youths --tend to have a positive attitude towards management of tribal forests. Therefore, enhancing the capacity of tribal authorities to deliver sustained management of tribal forests can play a crucial role in sustainable development at the rural community level in South Africa.

This study contributes to the on-going debate concerning the sustainable management of forests in South Africa. The impressive role of tribal authorities to foster a positive attitude towards the management of tribal forests by all categories of rural people is worth noting. This insight presents an important lesson regarding the strategic role that tribal authorities might play in the management of forests in South Africa. These findings have implications for project implementation, policy and future research on tribal managed forests in South Africa.

6. CONCLUSION

This study explored rural people's attitudes and attitudinal differences due to socioeconomic characteristics with respect to the management of tribal forests. Three specific insights are outlined in terms of their relevance to the management of tribal forests for sustainable development at the rural community level in South Africa:

1. Rural people generally have positive attitudes towards the management of tribal forests.
2. Socioeconomic variables such as gender, age, employment status and educational status do not have significant effects on the attitudes of people towards forest management with respect to the following management objectives: 1) livelihood resilience to climate change; 2) sustainability of forest-based livelihood; 3) household socioeconomic wellbeing, and 4) community-based climate change adaptation initiative.
3. Although in the current setting socioeconomic variable do not have any meaningful impact on attitude towards the management of tribal forests, there is a need for forest management agencies to continue to monitor the relationship between changing demographics and the management of tribal forests. This is because there is a possibility that the scenario will change in the future due to changing socioeconomic status in the communities.
4. Educated people are the most likely to have negative attitudes towards the management of tribal forests with respect to management for reduction of forest fire risks.

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