

**EVALUATION OF FORESTRY MODELS FOR FUTURE SETTLEMENT OF FORESTRY  
PLANTATIONS UNDER LAND CLAIMS: THE CASE OF JESSIEVALE AND ROBURNA  
FOREST PLANTATIONS IN MPUMALANGA, SOUTH AFRICA**

**by**

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In the Faculty of Natural and Agricultural Sciences  
University of Pretoria**

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## DECLARATION

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### DECLARATION

I hereby certify that this thesis is my own work, except where duly acknowledged. It is submitted in partial fulfillment of the requirement for the Masters of Science degree in Forestry Economics at the University of Pretoria. I also certify that no plagiarism was committed in writing this dissertation and it has never been submitted before for any degree.

Signed \_\_\_\_\_

Samkelo Mamba

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I would like to dedicate this paper to my daughter Alwandze and her mom Nolwazi T. Shiba.

## ABSTRACT

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### ABSTRACT

Some forestry industry operations in South Africa are currently on land that is under claim. This case study was aimed at identifying the most suitable model for future engagement of communities in forestry with forest land under claim in Mpumalanga. In total, 231 households were purposively sampled at Jessievale (n=100) and Roburna (n=131) where the primary data was collected through interviews and interactions with household heads. In general, 70% of the respondents indicated that they would opt for a settlement model that involves forestry. About 26.8% chose the joint venture model, whereas 18.6% chose the lease agreement model and 19.4% chose at least one of any other forestry settlement model among those that were given. The joint venture model was the most preferred due to its ability to transfer the land to the claimants and to transfer management skills, create jobs and empower communities. In addition, the study showed that age and forestry skills significantly contribute to the choice of a different model. The study also showed that while communities were interested in getting their land back, they are not fully utilizing the small portions of land currently available to them for agriculture and that the demand for land may be driven more by other land use options such as land for expanding new homes and grazing. In conclusion, communities are still interested in forestry as a land use option. However, future forestry models should clearly address land ownership and accommodate other land use options.

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## CHAPTER 1

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### CHAPTER 1: INTRODUCTION

#### 1.0 BACKGROUND INFORMATION

South Africa is a country lying in the southern hemisphere and covering a total land area slightly more than 121-million ha (DWAF, 2010). It is known for its natural resources which include forestry with activities taking place in Limpopo, Mpumalanga, KwaZulu Natal, Eastern Cape and Western Cape. These plantations are mostly located where the climatic conditions are favorable for afforestation with the largest plantation areas in Mpumalanga (624,000 ha) and KwaZulu Natal (532 000ha) (Bethlehem & Dlomo, 2007).

Forestry in South Africa has expanded gradually playing a role on both domestic and international markets. The forest industry supplies the country's needs of wood and fibre products and has contributed to the export earnings and employs more than a million people who depend on forestry both directly and indirectly (FAO, 2009). According to the Department of Agriculture, Forestry and Fisheries (DAFF, 2011), plantations in South Africa cover an estimated area of 1 200 000 ha. An estimated 40% of privately owned plantations are subject to land claims, and approximately 70% of State-owned plantations are either under claim or have well-established agreements in place that recognize access or ownership rights for local communities (Clarke, 2008).

However, plantation area in South Africa is subject to reduction due to land disputes and land claims giving crucial evidence that forestry is normally located in rural areas (FAO, 2004). These areas are currently under land reform whereby most people are lodging claims towards repossessing the land. This is because of arguments that South African native people were unlawfully dispossessed from their land by early European settlers. This was as a result of the Land Act of 1913 which was introduced to distribute land to individuals discriminating by the colour of the skin (Pasensie, 2010). This marginalization of the black majority population had serious consequences on access and control of land and resources by the native people.

However, the new act of 1994 brought changes and intended to reverse the Land Act of 1913. The new evidence on land ownership has posed serious threats to land availability for forest plantations because most of this land is under land disputes (Clarke, 2006).

Forest companies were involved and affected by the land problems because their operations take place on the land some of which is also under land claim. Pulp and Paper International's (PPI) article (2008) states that with more than half of the national timber estate currently subject to land claims, it is in the interests of industry stakeholders to ensure that timberland transferred to claimant communities continues to be managed sustainably and productively. Concurrently, according to Clarke (2007), land transfers through restitution and redistribution has a great potential to change the patterns of forest resources ownership and management and also bring a lot of impoverished communities into development. Therefore, FSA devised a generic model which was designed to have a peaceful transfer of claimed forest land, with a transfer of skills and empowerment of the claimants in future forestry production engagements. However, different forestry companies used different approaches to the generic model as presented in Table 2.2.1 to address the land issue.

### **1.1 PROBLEM STATEMENT AND JUSTIFICATION**

Due to land disputes and unfair land ownership in South Africa which affected land availability among forestry and other agricultural practices as well as other sectors of the country's economy, the forestry industry has experienced problems towards sustainable timber supply for future development actions (Wehrmann, 2008). These problems resulted in the need for land reform in South Africa to distribute the land fairly. Since 1994, this country has one of its objectives as being Land Reform, involving redistribution of land to the rightful people (Diale, 2010) and also for the rightful land use practices (United Nations - UN, 2005). Moreover, forestry companies such as SAFCOL, Sappi and Mondi who have since been affected by the Land Claim Act decided to formulate models that were aimed at addressing the issue of land. A generic model was developed from which other settlement models were devised for different

claims (refer to table 2.2.1). These models were structured in a way that they would not compromise the production of forest in the land and also would not affect the communities' social well-being (DWAF, 2005). Attempts have been made to assess how beneficial these models are for the affected communities but there still seems to be a great deal of disagreements regarding the "real benefits" for affected communities.

There was therefore a need to carry out this study to assess the implementation of policies in terms of these models used by forest companies and the problems associated with these models. In addition, such problems as poor Strategic Environmental Assessment (SEA) that were experienced during early development programs have to be taken into account in relation to the process of model accomplishment.

Forestry South Africa (FSA) introduced the generic model in forestry land reform which is a standardized lease/settlement model that intends to bring positive changes to the industry without compromising community and economic development. Companies such as SAFCOL/KLF are yet to get the most appropriate model that is based on the generic model to rectify the land dispute problem. Therefore this research sought to evaluate the effectiveness of the various proposed models in forest land under claim in SAFCOL/KLF plantations. It was hoped, based on communities' perceptions, the most effective and appropriate model would be developed. This model would be able to address the land redistribution problem and also bring positive changes in the developments of both forestry and the rural community members.

## **1.2 OBJECTIVES OF THE STUDY**

The overall aim of the study was to assess the different models used as settlement packages by commercial forestry companies, get the perception of communities regarding proposed future land use practices and evaluating perceptions of communities on benefits from current set-up. The specific objectives of the study were:

**Specific Objective 1:** Determine the best model that the communities would prefer for the settlement of claims on forested land.

*Research question 1:* What are the factors influencing the choice of the models by the communities?

*Research question 2:* What form of engagement in forestry development would the communities prefer?

**Specific Objective 2:** Ascertain the perception of the communities on the future land use option for forestry land under claim.

*Research question:* What is the best land use option that communities prefer on the forestry land under claim?

**Specific Objective 3:** Evaluate the perception of the communities on the benefits from the forestry.

*Research question:* What are the benefits that communities are getting from the forestry companies running business in the claimed land?

## CHAPTER 2

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### CHAPTER 2: LITERATURE REVIEW

#### 2.0 BACKGROUND

Grundy and Wynberg (2001) state that forestry has occurred for decades in South Africa but information on how this industry has benefited its citizens in terms of economic growth, empowering the South Africans and also alleviating poverty is lacking. In line with this is what is postulated by Hjortso et al. (2006) who found that the forest industry is lacking research on how it has impacted on the countries well-being in terms of environmental sustainability. Moreover, Bradley and Jones (1995) commented that a lot of researchers have dwelt more on the forestry silviculture than on the socio-economic benefits. On the other hand, Bethlehem and Dlomo, (2003) differ in their observations and have indicated that most social scientists have contributed vast information that deals with economic development issues through forestry especially in the Eastern Cape of South Africa.

According to Ham and Chirwa (2007), most households in Southern African region depend on wood for fuel, timber production and support for improvements in livelihood standards. Concurrently, understanding environmental sustainability as a key element of equity brings clear understanding of the need for redistribution of land in South Africa (UNDP, 2009). Ham and Chirwa (2009) have provided some available data on the importance of forestry in South Africa through forestry revenue that had been generated. In addition, sustainable development calls for environmental sustainability, economic sustainability and socio-political sustainability (Brundtland, 1988; Gebreselassie, 2010). At the same time, the post land settlement arrangements must fulfill the developmental objectives of the Forest Sector Charter by allowing community members through community empowerment, capacity building, the transfer of skills and the creation and realization of business opportunities (Dubbelman, 2010). This is in line with the intentions of the generic model which aims at developing forestry while improving communities with land claims on forest land.

## **2.1 FOREST DEVELOPMENT AND LAND REFORM**

### ***2.1.1 Land Reform***

Land Reform deals with claims lodged in terms of the Restitution of Land Rights Act, 22 of 1994. A person or community dispossessed of property after 19 June 1913 (du Plessis, 2006) is entitled to lodge a claim for restitution of that property or comparable redress. It is concerned with redistributing land fairly to the people of South Africa without favoritism or anyway of discriminatory allegations. It is necessary because of the way the land of the native people of South Africa was repossessed from them in the mid years of the sixteenth century (Lahiff & Cousins, 2005). Moreover, Hoole (2008) stated that a number of Bantu people were unlawfully dispossessed and moved from their land to the Bantustans which are areas with very low productivity and little space to support livelihood. Also agreeing with this notion was Steenkamp and Uhr (2000) who mentioned that these Bantustans were usually very small in size to carry the large number of the then dispossessed population which included the Black population, Colored and the Indians.

According to Thornton (1998), before land dispossession, native South Africans had access to the amount of land they would want to use for their own desires before 1652; which was the arrival of the first European colonialists. This implies that the native people were able to utilize indigenous forests for any purpose they desired for just like any resource that stretched out in their land. In line with this, Lyne and Darroch (2003) discusses that South Africa had different tribes who had access to land without any concerns for boundaries and restrictions but had their own ways of allocating land which was through the use of traditional authorities. Any family in a community could cultivate any amount of land it would require to be able to supply enough food for its members guided by policies that were common in their communities (UN Human Rights Council, 2007).

## 2.2 FOREST MODELS AND LAND REFORM

A number of authors (e.g. Sikor & Apel, 1998; Robinson & Kajembe, 2009; Larson & Ribot, 2007) show that some households, especially poorer ones, have less access today to forest products for subsistence use and income than they had before the community forestry intervention, and that income from the forest is minor and realized only after a long time. The few income-generating activities that involve the poor and women have had little impact (Malla, 1992). The models introduced by forest companies in rectifying the land issue in South Africa were formulated in a way that they take into consideration the livelihoods and development of the community members and thus instilling an impact on the economy. This research thus draws attention to a need to reconsider the approach to forestry models in the light of its socio-economic impact and objectives in the communities. Impact is precisely defined by Ajakaiye (1999) as an economy-wide (macroeconomic) effect on employment and incomes produced by a decision, event, or policy.

Community forestry was observed as the main serving activator of opportunities. A report by Cousins (2000) found that the tenure system was revealing an unusual symbiosis of reform between the land and forestry sectors in alleviating poverty in South Africa. The benefits to community rights and to forest conservation were considerable. Nonetheless, the trend is still new and uncertain, the mechanisms awkward, and even where attained, formalized common property rights are not always accompanied by sufficient decentralization of forest management authority to prompt local commitment to forest conservation.

One of the more basic objectives of land reform is giving the right to own the existing forest itself on the land under claim by the community members (Meinzen-Dick et al., 2008). This is an incentive that may be expected to increase local powers to manage and afford the needed long-term horizon for decision-making (Cruz, 2010). In addition, according to Lahiff and Cousins (2005), land reform is carried out to transform the discrepancies in land ownership and correct errors on uneven distribution of productive land. Therefore, it can be argued that land reform in South Africa intends to redistribute the land evenly and efficiently to all its citizens (Lahiff,

2008). In terms of resource use, Lyne and Darroch (2003) suggested that it should be given to those who will effectively make good use of it for production and contribute towards improving the economy.

According to Barrow et al. (2002), there are coastal forest areas left in southern Africa which are still unresolved. With such problems, it is not easy to resolve the land problems in the forestry industry (Kartodihardjo & Supriono, 2000). An estimated 40% of privately owned plantations are subject to land claims, and approximately 70% of State-owned plantations are either under claim or have well-established agreements in place that recognize access or ownership rights for local communities (Clarke, 2008). Makhathini (2010) stated that by the year 2010, there were only about 10 claims to privately owned forests that had been settled by Mondi. He further stated that the problems that had to be addressed were likelihoods of land restitution on 40% (100 000 hectares) of the Mondi forest plantations. Furthermore, there had to be a general agreement on forest sustainability and community development. These forest areas which were under claim needed support in order to ensure a sustainable business for the new owners, as well as to maintain the economic status of the processing industry. However, attempts including formulated models to settle the land claims in areas where they have been tried have shown inconclusive results (Mondi, 2004).

A typical example to negotiate for proper land allocation in a land used for forestry was with the Dukuduku people that resulted in more complications (AFRA, 2002). This was an initiative by the Department of Land Affairs and Forestry (DLAF) in this area wherein the early 1990s the department was involved in negotiations with the traditional leaders in the area to relocate people living in the forest (see Chellan and Khan, 1995). The notion was to resettle them in another area outside the forest which provided the community with newly built houses to stay. In this process, according to Nustad (2011), 565 families were moved to the new place of Khula in 1995. However, people went back to the land used for forestry and continued to live in the area where they had been requested to leave for operations of forestry which resulted in massive chaos in the Khula village (AFRA, 2004). This whole scenario resulted in huge problems



for both the people who had earlier left the place and also for those who had decided to remain behind. Moreover, according to Gumede (2009), another attempt at moving people out of the forest took place in 1998, also with the consent of the traditional leaders. The following year, several families were moved to a new village, Zwelisha. However, this also failed to reduce the number of people living in the forest (Nustad, 2011). The main complaint voiced in such issues were that there would be no agricultural land that would be provided to accompany the new houses, so people simply had no livelihoods (AFRA, 2002).

Most forest companies were involved and affected by the land problems because their operations take place on the land of which some is also under land claim. Pulp and Paper International's (PPI) report (2008) states that with more than half of the national timber estate currently subject to land claims, it is in the interests of industry stakeholders to ensure that timberland transferred to claimant communities continues to be managed sustainably and productively. According to Clarke and Lapata (2007), land transfers through restitution and redistribution have got a wide potential to change the patterns of forest resources ownership and management and also bring a lot of impoverished communities into development. Therefore, different companies have used different approaches (Models) to address the land issue in a way that would result in community developments without jeopardizing environmental protection measures and also keeping the mission of forestry unchanged (Ojwang, 2000).

### **2.2.1 Models**

The transfer of two farms comprising about 4000 ha of timber to two communities; amaBomvu and amaHlongwa) in the Kranskop area of KwaZulu-Natal gave Mondi an opportunity to test its land restitution settlement model. This was the first agreement to be signed between a corporate grower and a community through the use of land restitution model formulated by Mondi. Mondi, which did not contest the Kranskop claims (and has not contested any land restitution claims to date), was introduced to the claimant communities through the Land Claims Commission in April 2007. Mondi's immediate objectives were to ascertain the

communities' needs and expectations and to come up with a management model that met the needs of all the stakeholders. Two key imperatives were involved; to secure a sustainable fibre supply coupled with capacity building, skills transfer and income generation for the community.

The model that was introduced by Mondi intended to bring mutual benefits for both the company as well as the communities involved (see Table 2.2.1). Both Mondi and the communities were keen to prepare the groundwork prior to the settlement of the claim. Moreover, both claimant communities; amaBomvu and amaHlongwa had been assisted by the Land Claims Commission to set up Trusts, which serve as a legal entity for the purposes of owning land and co-coordinating development initiatives on behalf of the respective communities. For a successful progression of the entire process, Mondi had to hold needs analysis workshops with both communities. The amaBomvu workshop, facilitated by Lima, took place in July 2007. The community indicated that they wanted to continue with forestry and favoured a lease agreement with Mondi in terms of which Mondi would manage the forestry operations while providing business opportunities and other benefits to the community. They indicated their desire to become more involved in running the business in a joint venture with Mondi at the end of the lease period.

Sappi on the other hand encourages higher levels of inputs and advances larger loans per hectare through settlement models as shown in Table 2.2.1. They have formulated their own models based on the generic model. The models were formulated in a way that they would consider grower's/claimant's risks. The growers' risks may be measured in terms of the opportunity costs of their land and labour (SAPPI, 2008). Moreover, Sappi's collaboration with the South Africa Wattle Grower's Union (SAWGU) has shown that negotiations with strong associations, enables growers to place great emphasis on protecting their investments (fencing, fire and life insurance and provision to pay back early) and prefer to reduce the burden of interest on loans as soon as possible. However, small growers still produce less than 5% of the KwaZulu Natal pulp mills' throughput and grower associations are as yet weak in supplying

timber and other wood products (Cairns, 2000). Cairns further states that the balance of power is evidently still in favour of the companies.

Finally, SAFCOL according to a report by the South African Parliament (2008), in collaboration with the Office of the Chief Land Claims was working on a generic model for the resolution of land claims over forestry. According to SAFCOL (2010), the generic model sets to address the land issue through resolving techniques that result in community development without jeopardizing economic gains from forestry that is on land under claim. This model brings community members together for discussions on how the forest that is on land under claim could be run and operated for both the company and the community to attain proficient gains. Proposed possible models for restitution were then formulated to be in line with the generic model and comprise: Joint Venture, Resumption Lease, Total Package, Funded Purchase of Tree and the Conventional Lease (see Table 2.2.1). SAFCOL has a total of 29 claims in KLF plantations but there have not been any claims transferred to the rightful owners so far (SAFCOL, 2010).

*Table 2.2.1: The various models used by SAPPI, Mondi and SAFCLOL*

<b>Model</b>	<b>Arrangement involved</b>	<b>Challenges/outcomes</b>
Joint venture <sup>1</sup>	<ul style="list-style-type: none"> <li>-community contributes the land and KLF contributes the trees.</li> <li>-joint venture would be formulated thereafter in this process</li> <li>- operating company would be established to represent community's interests and to operate the business</li> </ul>	<ul style="list-style-type: none"> <li>-household income, skills and empowerment would be transferred to the community members</li> <li>-community would have leverage in the partnership as they owned the land</li> </ul>
Resumption lease <sup>1</sup>	<ul style="list-style-type: none"> <li>-community would own the land and forest company would have to lease the land for a rotation</li> <li>-at maturity company would harvest the plantations - community can decide to continue leasing the land for forestry or use it for other purposes</li> </ul>	<ul style="list-style-type: none"> <li>-model more in favor of the community than the forest company</li> <li>-advantages of this model are that supply was certain for one rotation</li> <li>-communities would see the benefits of using the land for forestry</li> <li>-rental would provide a regular income for the duration of the</li> </ul>

	-they had an option also to decide to lease with another company	arrangement -the disadvantage was that there was long term uncertainty regarding the supply of the resource
Total package <sup>1</sup>	-Land Claims Commission (LCC) buys the land and trees for the community -claimants get full ownership -have the ability to sell timber on the open market	-disadvantage of this model was the high risk of failure if the business was not well supported by (SAFCOL/KLF/MONDI/SAPPI/DWAF) -high cost to the state of purchasing both trees and land
Funded purchase of trees <sup>1</sup>	-community owned the land and purchase the trees -an institution funds the purchase of the trees and a forestry company manages the plantation on behalf of the community -claimants receive full ownership and have the ability to sell timber on the open market	-disadvantage is that the acquisition of trees was funded and claimants would therefore have to pay interest on the purchase -tree growers would lose the benefit of being part of a large concern such as KLF
Conventional lease <sup>1</sup>	-community owned the land and leased it back to the forest company -the LCC buys the land; forest company retains ownership of the trees and pays a market rental for the use of the land	-claimants are guaranteed an annual income at market rental -this could be expanded to ensure empowerment, employment, skills transfer and socio-economic development -the disadvantage would be limited empowerment of communities unless a well-structured programme was in place. -little involvement in the operations unless well structured.
Sale and lease back <sup>2</sup>	-model involved the transfer of the land ownership to the claimant communities -the payment of market price for the land from the South African government to a forest company -company's leasing of the land from the claimant communities based on a contract between company and the communities -this model was chosen for this	-this model was chosen for this settlement because of its ability to respond to the aspirations of the negotiating parties and of the government -appetite of claimants to resettle the land, geographic location of claimants, the need to continue the business, claimed land extent, nature of the plantation, real needs of claimant communities, land as an emotional issue, claimant

	settlement because of its ability to respond to the aspirations of the negotiating parties and of the government	business capacity and levels of skills and sophistication
Business model <sup>1</sup>	<ul style="list-style-type: none"> <li>-community owns the land on which trees are planted but the company retains ownership of the trees.</li> <li>-unsuitable land for forestry such as unplanted and implanable land within the forest plantations can be used by the community for activities such as grazing cattle but this has to be in compliance with forestry standards</li> </ul>	<ul style="list-style-type: none"> <li>-community has an obligation not to disturb the operations in the forests</li> <li>-the forestry business is owned by the forest company who uses the contracting company owned by the community for operations</li> </ul>
Outgrowers scheme <sup>3</sup>	<ul style="list-style-type: none"> <li>-company by entering into partnership arrangements with growers who have access to land where timber can be grown</li> <li>-land owners in turn provide land and labour thereafter sell the trees to the processing company at a market related price</li> </ul>	<ul style="list-style-type: none"> <li>-forest company in this case provides technology, in the form of improved genetic seedlings or clones</li> <li>-technical forestry advice, a cash loan, in the form of an advance against completed silvicultural operations and local timber collection points where the growers can deliver their timber and complete the sales transaction</li> </ul>
Project grow <sup>4</sup>	<ul style="list-style-type: none"> <li>-an existing program to support smallholder growers in tree farming</li> </ul>	<ul style="list-style-type: none"> <li>-where money earned from trees is paid to an individual farmer</li> <li>-technical assistance, provision of free seedlings, interest-free payment for silviculture work completed prior to harvest and a guaranteed market</li> <li>-in return, the community signs an agreement committing the harvest to Sappi who pays market related prices for the timber</li> </ul>
Plantation management plan <sup>1</sup>	<ul style="list-style-type: none"> <li>-land is owned by the community as well as the trees</li> </ul>	<ul style="list-style-type: none"> <li>-the forestry company manages the plantations on behalf of the</li> </ul>

	-community does not have management expertise and financial resources to manage the forest enterprise	community for a minimum period of one rotation, at a fee agreed upon.
Management assistant plan <sup>1</sup>	-assumption is that the community owns the land and also the timber and it has got expertise and business management to manage the plantation	In this case a forest company would provide only the technical assistance. -if necessary the company will provide seedlings for the community, and they would then get a market for the timber -the company may as well provide financial assistance at an arranged payback period of a loan
Timber supply agreement <sup>1</sup>	-community has the technical assistance, business assistance and sufficient funds -forest company in this case will enter into a business with the community in agreement of purchasing their produce	-company provide technical assistance if there is a need -would supply the community with seedlings for a long term arrangement
Lease agreement <sup>1</sup>	-commissioner decides to purchase the land for the community; -forest company would then enter into a lease agreement with the community -that lease agreement would be for a period of at least two rotations with lease fees ranging from 6% to 10% of the value of the permitted land	-community would also receive a risk free, annual lease income -the community members are eligible to even utilize the open areas on the plantation for multiple land-use activities

<sup>1</sup>SAFCOL (2010), <sup>2</sup>Makhathini (2010), <sup>3</sup>Howard et al. (2005) and <sup>4</sup>SAPPI (2008)

These models are in line with the generic model because they sought to provide settlement solutions for communities with claimed land under plantations while simultaneously support continuity in timber supply.

## CHAPTER 3

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### CHAPTER 3: METHODOLOGY

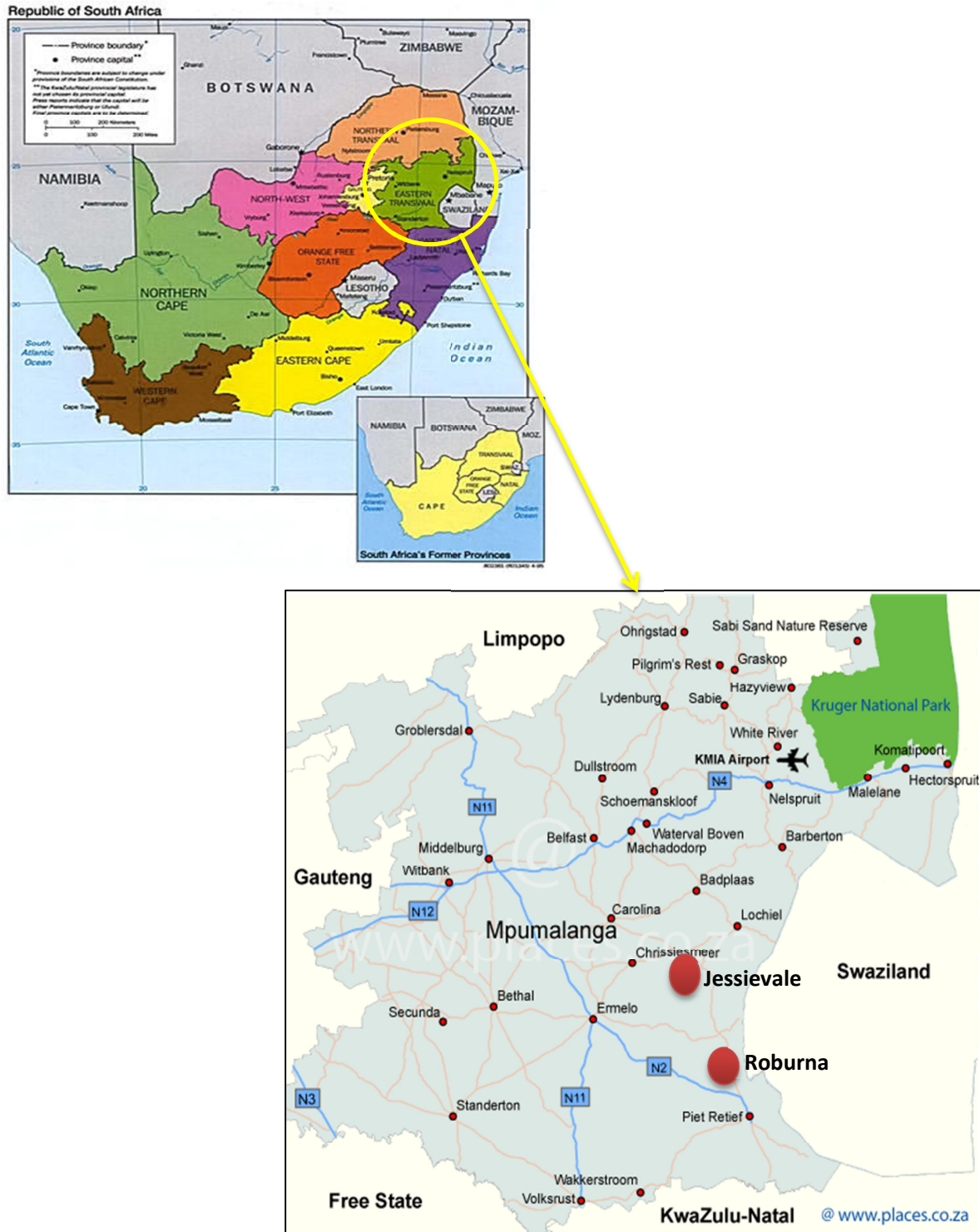
#### 3.0 INTRODUCTION

This chapter provides information of the study site and describes the method used to collect data and the formulation of questionnaires. The statistical analysis and associated tests to obtain the best possible settlement model have also been explained in this section.

#### 3.1 SOCIO-ECONOMIC PROFILE OF STUDY AREA

There are 14 community claims under forest plantations that are run by SAFCOL in the Mpumalanga province. The Dhladhla clan (Roburna community) and Eludlambedlwini tribe (Jessievale community) have been dispossessed from the claimed land for more than thirty years. Both communities were dispossessed of their land between the years 1974 and 2010. By September 2002, the Dhladhla clan (Dladla community) had lodged their claim of the Roburna land that is currently under KLF plantation land. The Eludlambedlwini tribe (currently living at the Mayflower Township) who claim the Jessievale land had also lodged their claim by September 2002

Roburna and Jessievale are neighborhood areas adjacent to one another. Most people in these areas survive through social grants. The two areas have most of their household members involved in forestry directly and indirectly. They depend on the plantations for jobs, business-contract offers and fuel for household consumption purposes. There are few households that depend on agricultural practices with an average of 8.4m<sup>2</sup> of agricultural land per household. They also have very few livestock to supplement their livelihood. Figure 3.1.1 represents the Republic of South Africa map, the location of Mpumalanga province and the position of the two study areas (Jessievale and Roburna).



Source; Adapted from [www.googlemap.com](http://www.googlemap.com), 2012

Figure 3.1.1: Mpumalanga map where Jessievale and Roburna areas are located in South Africa



### **3.2 SAMPLING DESIGN**

Jessievale covers a total land area of 11017.08 ha of which 9839.37 ha is under claim. It has a total population of 4 000, clustered into 7 sub-communities (Ferniehaugh, Umpilusi, Issabelladale, Middeldrift, Craigielea, Mount Denny, and Rinkink). On the other hand, Roburna has 5 sub-communities (Marrieklof, Indlovudwalile, Stafford, Chue and Northdene) with 362 households. The total land under claim in Roburna is 8002.86 ha and the total land under plantation is 7989.64 ha.

More than 15% of the total population was covered to represent the communities. This sampling intensity was in line with the recommended Ad-Hoc sample size ranging from 10% to 30% for a best representation of the total population (see Shackman, 2001). The sample size in Roburna was 131 and 100 in Jessievale.

### **3.3 DATA COLLECTION**

A close working relationship was established with SAFCOL for evaluation of the different proposed models and it allowed access to secondary data that was used as a baseline data for the study area. For further inferences, these data provided the rate of increase of the number of farmers who were willing to embark on forestry in the period during which a suitable model would be implemented.

#### ***3.3.1 Primary Data***

These data were collected from the households selected for this study. Purposively selected areas where SAFCOL have land under claim and areas that have reached the stage of settlement were used. The primary data were collected through interviews and interaction with claimants' household heads/elder members. Information that was collected included the land area due to land reform, demographic socioeconomic information; sources of income, challenges and problems, sources of support, sources of production inputs, and changes in livelihood.

### **3.3.2 Household Interviews and Surveys**

The households were used as sampling units of study and the household heads or an elder were interviewed as household representatives. A questionnaire was used to collect the data from sampled households. The questionnaire covered the perception of the communities on the future land use option for forestry land under claim and the evaluation of the existing relationship between claimants and forestry companies. Additional information included socioeconomic profile of the study area.

### **3.4 ANALYSIS**

Both statistical and econometric analyses were used to determine the impact of models on communities with land under claim. The Statistical Product and Service Solutions (SPSS) computer program was used for computing the data. Both the qualitative and quantitative data were coded and entered into the SPSS spread sheet for analysis. Descriptive analysis was run to come up with the results on general statics for household demographic information, best chosen settlement model and other domestic characteristics. The t-test was used to compare the differences between the demographic results of the two communities (Roburna and Jessievale). The t-test was also used for comparing the difference in livelihood standards for community members involved in land claims.

Comparisons of household socio-economic profiles and their settlement models between the two communities were done using Chi-squared test for independence for categorical variables and two sample t-tests for continuous variables. The outcome variable was settlement model, which was polytomous (Sales and lease back, Funded purchase of trees, Conventional lease, Project grow, Plantation and management plan, Management assistance plan, Timber supply agreement, Lease agreement, Joint venture and Other option). In order to identify independent predictors at the household level of choice of a settlement model, a multinomial regression model was used where the other-option category was used as a reference outcome value (Hedeker, 2003). The multinomial regression is an extension of the well-known logistic

regression for a binary (dichotomous ( $k=2$ )) outcome variable where the odds ratios are used to measure the effect of predictors for outcome of interest ( $Y=1$ ) versus  $Y=0$ . In a multinomial regression, we have a  $k$ -category outcome and the odds ratios compare effects of likelihood of each of the  $(k-1)$  outcome categories to the reference outcome category. In this research the multinomial regression model was used to determine the intended model by the communities and the variables that influence the choice of the model by community members. The multinomial regression model was represented by the equation;

$$l_i = \alpha_0 + \alpha_1 Z_i + \beta_j X + \epsilon_i \quad (1)$$

$$T_i = \lambda_0 + \lambda_1 Z_i + \gamma_j F + \mu_i \quad (2)$$

Where;

$i$  - represents a community;

$l$  - the indicator of investment;

$T$  - the natural logarithm of area of land under claim;

$Z$  - dummy variable representing participation in the modelling land reform programme which captures the effects of models used in land redistribution and improved tenure security;

$X$  - the vector of community and farming characteristics;

$F$  - the vector of factor inputs in natural logarithm,

$\mu$  - the other community and characteristics or attributes and

$\epsilon$  - is the error term.

The equation was converted into the function;

$$F = f(TF, B, H, X) \quad (3)$$

The above functional form can be translated into a regression model with  $F$  as a dependent variable and  $TF$ ,  $B$ ,  $H$ , and  $X$  as independent variable. It is assumed that  $TF$ ,  $B$ ,  $H$  and  $X$  are positively related to  $F$ . The theoretical regression equation in its natural log linear form will be:

$$\ln F = \beta_0 + \beta_1 \ln TF + \beta_2 \ln B + \beta_3 \ln H + \beta_4 \ln X + \mu \quad (4)$$

Where,  $\beta_s$  are the elasticity coefficient of Land Claim Model (FLCI) with respect to its determinants,  $\mu$  is the error term. The double log linear equation with household effects Forest as a dependent variable in its elaborated form and respective dummy variables is given below.

$$\text{FLCI}_{(a,b,c,d,e,f,g,h,i,j)} = \beta_0 + \beta_1 \text{HHA} + \beta_3 \text{EDU} + \beta_4 \text{HHIF} + \beta_5 \text{HHIO} + \beta_6 \text{GENDER} + \beta_7 \text{AREA} + \beta_8 \text{HHS} + \beta_9 \text{HHI} + \beta_{10} \text{NLC} + \beta_{11} \text{LIVSTK} + \beta_{12} \text{ASST} + \mu \quad (5)$$

Where;

FLCI; form of involvement in the forest land under claim (forest model to involve the community)

a, b c, d, e f, g h, i, and j; are the different business models

HHA; household income

HHA; is age of household head

EDU; the education level of the household head

HHIF; household income from forestry

HHI; household income from other sources

GENDER; household head's gender

AREA; size of land area

LC; Land claimants

NLC; Non land claimants

LIVSTK; livestock size

ASST; assets

$\mu$ ; error term

The t-test for equality of means was also used to determine any effect that would be a result of any other additional attribute from the household activities. This was done to compare if the income generating sources would have any significant variation between households involved

in forestry and households that are not involved in forestry. This further helped to check if forestry occurring in the two areas of study has contributed to an increase in livelihood standards or whether there was still need for interventions to contribute to the well-being of the community members with forest land under claim. The results on perceptions of communities towards the current arrangement of model set-up and future choices were computed using the percentages of the best rank option for the preferred land use possibility. Moreover, the cross-tabulation was also used and the chi-square tests were run to measure significant differences in data that contained ranged values.

## CHAPTER 4

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### CHAPTER 4: RESULTS

#### 4.0 INTRODUCTION

This chapter presents the findings of the study including the community socio-economic profile and choice of model under different criteria to determine the form of involvement in forestry development in Roburna and Jessievale plantations. Furthermore, the perceptions of the communities regarding the possible models for the settlement of claims on forested land as proposed by FSA and the draft models from SAFCOL have been evaluated. In addition, results on the perception of the communities on the future land use option for forestry land under claim and perception of the communities on the benefits from the forestry are presented in this chapter.

#### 4.1 HOUSEHOLD CHARACTERISTICS

Table 4.1.1 shows comparisons of distributions in the household characteristics between the two communities. There was a significant difference ( $p < 0.01$ ) in household heads age between the two sites. Roburna had 12.6% heads with age range of 18-29 years while Jessievale had about 16.9% heads with this age range. About 25.1% household heads in Roburna were within age range of 30-59 years whereas in Jessievale there were about 17.3% household heads with this age range. Roburna had 19% household heads that were 60 years old and above compared to only 9.1% heads in Jessievale. For both sites, there were about 46.3% households headed by males. In addition, there was a significant difference ( $p < 0.05$ ) between the two areas in the education levels of the household heads. About 26.4% household heads in Roburna had no formal education whereas only about 9.1% household heads in Jessievale had no formal education. About 18.2% household heads in Roburna had some primary education compared to 21.6% household heads in Jessievale with primary school education. Moreover, 7.8% heads in Roburna had a secondary school education compared to only 5.2% heads in Jessievale had a secondary school education. About 2.6% heads in Roburna went to high school while 5.6%

heads in Jessievale reached high school. In both sites there were 1.7% heads who reached tertiary school education level. There was no significant difference in household size between the two study areas and on average each household had 7 members. The results further show that there was a significant difference ( $p < 0.01$ ) in size of land used for agricultural purposes such as small gardening and/or plots for vegetables. Jessievale had more ( $13.5\text{m}^2$ ) land available for gardening than Roburna ( $2.2\text{m}^2$ ). However, only 39.8% of the available land was utilized efficiently in both areas. In both sites there were 66.7% households possessing forestry skills and there were 64.1% possessing farming skills. Furthermore, there was a significant difference ( $p = 0.02$ ) in the amount of income received through employment between the two sites. An average of R 1056.11 was received in Roburna while only an average of R 490.40 was received in Jessievale. Both sites receive an average income of R 388.48, R203.03 and R 808.88 from family business, other income generating activity and social grants, respectively.

*Table 4.1.1: Comparative socio-economic profiles of Roburna and Jessievale*

Characteristics	Roburna (n=131)	Jessievale (n=100)	Total	p-value
% (n) household heads age:				
18-29	12.6(29)	16.9(39)	29.4(68)	<0.01
30-59	25.1(58)	17.3(40)	42.4(98)	
60 and above	19.0(44)	9.1(21)	28.1(68)	
% (n) male headed household	28.1 (65)	18.2(42)	46.3(107)	NS
% (n) household head education level				
0	26.4(61)	9.1(21)	35.5(82)	<0.01
Primary school	18.2(42)	21.6(50)	39.8(92)	
Secondary school	7.8(18)	5.2(12)	13.0(30)	
High school	2.6(6)	5.6(13)	8.2(19)	
Tertiary school	1.7(4)	1.7(4)	3.5(8)	
Mean (SD) household size	7.2 (13.4)	6.7 (10.8)	7.0 (12.1)	NS
Average (SD) agricultural land ( $\text{m}^2$ )	13.5 (46.5)	2.2 (3.2)	8.4 (24.8)	0.04
% (average) agric. land under use	46.6 (2.7)	33.0(0.07)	39.8(1.39)	NS
% (n) households with forest skills	35.9(83)	30.7(71)	66.7(154)	NS
% (n) households with farming skills	39.4(91)	24.7(57)	64.1(148)	NS
Mean (SD) employment income	1056.11(2198.84)	490.40(955.42)	811.21(1790.21)	0.02
Mean (SD) family business income	425.88(2627.35)	339.50(1425.07)	388.48(2187.78)	NS
Mean (SD) generating activity income	222.14(2187.74)	178.00(634.02)	203.03(1696.09)	NS
Mean (SD) social grant	796.18(577.21)	818.60(642.91)	808.88(605.27)	NS

NS = no significant difference  
 Standard Deviation (SD)  
 Number of respondents (n)

## 4.2 THE CHOICE OF SETTLEMENT MODEL IN THE COMMUNITIES

The respondents were asked to choose the best settlement model they would prefer for future involvement in forestry on the current land under claim. There was no significant difference in choice of a settlement model between the two areas of study (Table 4.2.1). Table 4.2.1 shows that 26.8% of the households at both sites preferred the Joint Venture model. About 18.6% households chose the Lease Agreement model. The rest of the settlement models (sales and lease back, funded purchase of trees, conventional lease, project grow, plantation and management plan, management assistance plan and timber supply agreement) accounted for 19.4% of the households. These models in subsequent analyses were therefore condensed into one option and were collectively termed “other forestry settlement model” (see Table 4.2.3). Finally, 30.3% of the respondents preferred other options than any form of involvement in forestry through the listed settlement models.

*Table 4.2.1: The choice of the different models between Roburna and Jessievale sites*

Involvement to Forestry	Settlement Model	Roburna % (n=131)	Jessievale % (n=100)	Whole sample % (n=231)
	Sales and lease back	*5.3 (7)	5.0 (5)	5.2 (12)
	Funded purchase of trees	1.5 (2)	1.0 (1)	1.3 (3)
	Conventional lease	1.5 (2)	0.0 (0)	0.9 (2)
	Project grow	0.8 (1)	7.0 (7)	3.5 (8)
	Plantation and management plan	2.3 (3)	7.0 (7)	4.3 (10)
	Management assistance plan	3.8 (5)	6.0 (6)	4.8 (11)
	Timber supply agreement	5.3 (7)	3.0 (3)	4.3 (10)
	Lease agreement	19.1 (25)	18.0 (18)	18.6 (43)
	Joint venture	29.8 (39)	23.0 (23)	26.8 (62)
	Other	30.5 (40)	30.0 (30)	30.3 (70)

\*Values in brackets are number of respondents

Through the stepwise analysis, the household effects including improved social services, carpentry skills, construction skills, traditional healing skills, plumbing skills and roofing skills, were removed from the independent variables of the regression model because they were not significantly influencing a choice of a settlement option. Table 4.2.2 shows the influence of the



different effects and the probability of choosing a settlement model over the choice of the reference model (joint venture). The results reveal that the amount of income that comes from employment, social grant amount, location, gender and mechanics skills, were highly significant ( $p < 0.01$ ) in households' choice of a settlement model. Additionally, the amount received from income generating activities, the level of education, forestry skills, farming skills were also significant ( $p < 0.05$ ) in a household's model choice. Conversely, amount received through family business, unavailable residential land and farming land were not showing any significant influence towards a choice of a model.

*Table 4.2.2: Household effects that influence a model choice*

Effect (Code)	Model Fitting Criteria	
	2 Log Likelihood of Reduced Model ( $\beta$ )	p-value
Intercept	0.05553	.
Employment amount (HHIE)	0.05902	<0.010
Family business amount (HHFB)	0.05723	0.074
Income generating activity amount (HHIG)	0.05738	0.047
Social grant amount (HHIS)	0.05848	0.001
Area (HHAL)	0.06056	<0.01
Gender (GENG)	0.05801	0.006
Age (AGE)	0.06187	<0.010
Education (EDU)	0.06157	0.020
Forestry(FORSKL)	0.05757	0.026
Farming (FAMSKL)	0.05758	0.025
Unavailable residential land (UNVRES)	0.05847	0.080
Unavailable farming land (UNVFAM)	0.05839	0.096

The 2 likelihood of reduced model represents the coefficients of the multinomial regression model that has been developed  
 Goodness of fit  $P < 0.01$ ,  $r^2 = 0.78$

Table 4.2.3: Household effects influencing a choice of a different model than joint venture

Business model	Household Effect		Odds Ratio	95% Confidence Interval		p-value
				Lower	Upper	
Lease agreement	Area	Roburna	1.020	0.156	6.679	0.984
		Jessievale	(1)			
	Gender	Male	1.220	0.248	6.012	0.807
		Female	(1)			
	Age	18-29	2.152	2.010	2.203	0.908
		30-59	2.497	2.191	2.317	0.919
		60 and above	(1)			
	Education	No formal education	0.259	0.002	4.344	0.588
		Primary	0.063	0.001	6.175	0.238
		Secondary	0.172	0.001	3.688	0.513
		High school	4.728	0.031	30.329	0.546
		Tertiary	(1)			
		Forestry skills	0.002	0.007	0.039	<0.01
		Farming skills	2.155	0.372	12.475	0.392
	Employment	1.681	0.286	9.876	0.566	
	Family business	5.304	4.480	6.278	<0.01	
	Income generating activity	2.583	0.234	28.532	0.439	
	Social grants	1.942	0.330	11.440	0.463	
	Unavailable residential land	1.022	0.904	1.156	0.727	
	Unavailable farming land	0.818	0.090	7.389	0.858	
Joint venture	Area	Roburna	3.804	1.404	10.304	<0.01
		Jessievale	(1)			
	Gender	Male	1.129	0.455	2.801	0.794
		Female	(1)			
	Age	18-29	2.297	2.430	4.362	<0.01
		30-59	4.878	4.430	6.430	<0.01
		60 and above	(1)			
	Education	No formal education	0.047	0.002	1.004	0.050
		Primary	0.293	0.015	5.919	0.424
		Secondary	0.236	0.009	6.100	0.384
		High school	0.733	0.022	24.943	0.863
		Tertiary	(1)			
		Forestry skills	0.092	0.016	0.528	<0.01
		Farming skills	1.365	0.536	3.477	0.514
	Employment	0.373	0.145	0.956	0.040	
	Family business	0.788	0.282	2.205	0.650	
	Income generating activity	0.643	0.199	2.076	0.460	
	Social grants	1.319	0.483	3.601	0.588	
	Unavailable residential land	1.022	0.904	1.156	0.727	
	Unavailable farming land	2.428	1.017	5.793	0.046	
Other settlement involving forestry	Area	Roburna	1.382	0.566	3.377	0.477
		Jessievale	(1)			
	Gender	Male	1.404	0.621	3.171	0.415
		Female	(1)			

	Age	18-29	7.300	2.232	23.872	<0.01
		30-59	5.537	1.917	15.994	<0.01
		60 and above (1)				
	Education	No formal education	0.411	0.019	8.944	0.571
		Primary	0.543	0.025	12.012	0.699
		Secondary	0.290	0.010	8.422	0.472
		High school	1.222	0.035	43.113	0.912
		Tertiary (1)				
	Forestry skills		2.066	0.824	5.181	0.122
	Farming skills		1.757	0.751	4.111	0.194
	Employment		0.633	0.275	1.455	0.281
	Family business		1.488	0.609	3.638	0.383
	Income generating activity		3.816	1.075	13.540	0.038
	Social grants		1.602	0.644	3.983	0.310
	Unavailable residential land		0.993	0.774	1.273	0.953
	Unavailable farming land		2.456	1.033	5.841	0.042

The reference category (1) is: Other options [settlement arrangement/model that does not involve forestry].

The household effects that influence a choice of a different settlement model opposed to “other-options” category were area of location, gender, age, education, forestry skills, farming skills, source of income (employment, family business, income generating activity, social grant) and availability of land both residential and for farming) (Table 4.2.3). The Odd’s ratio was used to measure the certainty of the influence of the household effect on a choice of a forestry settlement model compared to the “other-options” category. With the lease agreement model, there was a significant ( $p < 0.01$ ) influence towards a choice of the lease agreement model over the other option category due to household’s possession of forest skills but was associated with low certainty ( $\gamma < 1$ ). Similarly, household income received through family business showed significant influence ( $\gamma = 5.3$ ,  $p < 0.01$ ) towards a choice of the lease agreement model compared to the other options. For the joint venture model, household area of location, age of the household head and forestry skills effects had significant influence ( $\gamma > 1$ ,  $p < 0.01$ ) on a choice of the joint venture model as opposed to the other option category. Households without formal education also showed significant ( $p = 0.05$ ) influence towards selecting of the joint venture settlement model compared to the other option category. The income received from employment and the perception of unavailability of land due to forestry had significant ( $p < 0.05$ ) influence towards the choice of joint venture compared to the other options. When the other settlement models involving forestry were considered, the age of household head was shown

to have a significant ( $p < 0.01$ ) influence towards a choice of other forest settlement models compared to selecting the other option (without forestry) category. The income generating activity also significantly ( $\chi^2 > 1$ ,  $p = 0.038$ ) influenced the choice of other forestry settlement models compared to the other options. The perception of unavailability of farming land due to forestry was also shown to have a significant influence ( $\chi^2 > 2$ ,  $p = 0.042$ ) towards choosing other forestry settlement model than selecting other options category.

#### **4.3 BENEFITS FROM FORESTRY ON LAND UNDER CLAIM**

Table 4.3.1 presents the results of the benefits respondent attain through forestry. There was a significant difference ( $p < 0.05$ ) in perception on job creation from forestry between the two areas. In Jessievale, about 71% households revealed that there was job creation due to forestry compared to only 48.1% in Roburna. However, there were no significant differences between the two areas on the contribution of forestry development to food security with only 27.3% respondents showing that that forestry provides food security. There were also significant differences ( $p < 0.01$ ) between the two areas on the perceived benefits obtained from forestry such as improved infrastructure, increased social services, etc. In Jessievale, less than 50% of households revealed that forestry resulted in improved infrastructure and increased social benefits compared to only 25% in Roburna. There were significantly more ( $p < 0.01$ ) respondents in Roburna (25.2%) who felt that they do not get any benefit through forestry than those in Jessievale (9%). In both areas there were about 15.15% of household who possessed other benefits from forestry.

Table 4.3.1: Households (%) benefiting from forestry occurring in land under claim

Benefits	Roburna (%) (n=131)	Jessievale (%) (n=100)	Whole sample (%) (n=231)	p-values
Job creation	48.1 (63)	71.0 (71)	58.0 (134)	0.02
Food security	24.4 (32)	32.0 (32)	27.3 (64)	0.03
Improved infrastructure	23.7 (31)	48.0 (48)	27.7 (79)	<0.01
Increased social services	17.6 (23)	43.0 (43)	15.5 (66)	<0.01
No benefits	25.2 (33)	9.0 (9)	18.1 (42)	<0.01
Other benefits	15.3 (20)	15.0 (15)	16.0 (35)	NS

Chi-square is the Pearson's p value (level of significance)

#### 4.4 SKILLS POSSESSED BY HOUSEHOLDS

Table 4.4.1 shows skills that are possessed by households for the two areas. There were no significant differences in forestry skills possessed between the two areas of study. In both areas there were about 63.9% of the respondents possessing forest skills. In contrast, farming skills were significantly higher ( $p < 0.01$ ) in Roburna than in Jessievale represented by 54.2% and 30% of the households respectively. On average, possession of skills such as carpentry (0.4%), construction (5.5%), traditional healing (2.3%), fishing (0.4%), mechanics (3.9%), plumbing (0.8%) and roofing (0.4%) were not significantly different between the two areas. There was a significant difference ( $p < 0.01$ ) in the possession of other skills between the two areas. In Roburna there were about 10.7% of the households possessing other skills while in Jessievale there were only about 6.0% of the households.

Table 4.4.1: Households possessing different skills

Household skill	Roburna			Jesseivale			Whole sample			P - value
	%	n	Mean (SD)	%	n	Mean (SD)	%	n	Mean (SD)	
Forestry	57.3	75	1.36 (0.48)	62.0	62	1.38 (0.49)	63.9	152	1.36 (0.48)	0.45
Farming	54.2	71	1.46 (0.50)	30.0	30	1.70 (0.46)	42.9	105	1.57 (0.50)	<0.01
Carpentry	0.0	0	2.00 (0.00)	1.0	1	1.99 (0.10)	0.4	1	2.00 (0.65)	0.50
Construction	8.9	11	1.92 (0.28)	2.0	2	1.98 (0.14)	5.5	13	1.95 (0.23)	0.08
Traditional healing	1.5	2	1.98 (0.29)	0.0	0	2.00 (0.00)	2.3	2	1.99 (0.09)	0.44
Fishing	0.8	1	1.99 (0.87)	0.0	0	2.00 (0.00)	0.4	1	2.00 (0.65)	0.66
Mechanics	5.3	7	1.95 (0.23)	2.0	2	1.98 (0.14)	3.9	9	1.96 (0.19)	0.25
Plumbing	0.0	0	2.00 (0.00)	2.0	2	1.98 (0.14)	0.8	2	1.99 (0.09)	0.36
Roofing	0.0	0	2.00 (0.00)	1.0	1	1.99 (0.10)	0.4	1	2.00 (0.65)	0.50
Other skills	10.7	14	1.89 (0.31)	6.0	6	1.98 (0.14)	8.4	20	1.92 (0.23)	<0.01

Other skills include computer skills, artisans, engineering, etc.

#### 4.5 BENEFITS TO COMMUNITY WITH THE FUTURE SET-UP

Table 4.5.1 represents findings on how the respondents ranked benefits that would be realized from future forestry operating on the claimed land. In Roburna, about 42.7% households have highly ranked increment in income due to forestry compared to only 25% in Jessievale. Only 6.9% households in Roburna articulated 2<sup>nd</sup> rank towards increased income while in Jessievale 29% household gave 2<sup>nd</sup> rank for this attribute. There were 4.6% households in Roburna that articulated 3<sup>rd</sup> rank for this option whereas in Jessievale there were 17% households. About 45.8% households in Roburna articulated no rank position towards the notion that forestry would result in increased income while in Jessievale about 29% households gave no rank position for this notion.

Only 5.3% of households in Roburna agreed that forestry would bring better infrastructure for their community while 21% households in Jessievale indicated that there would be better infrastructure in their area due to forestry. About 17.6% and 26% households in Roburna and Jessievale articulated a 2<sup>nd</sup> rank towards better infrastructure due to forestry, respectively. In Roburna, 10.7% households ranked improved infrastructure due to forestry 3<sup>rd</sup> position while in Jessievale 18% households articulated 3<sup>rd</sup> rank towards this improvement action. About 66.4% households in Roburna gave no rank position towards improved infrastructure whereas in Jessievale about 35% households did not rank this option.

There was a very low perception on the availability of fuel due to forestry in both areas. Only 3.1% and 1% households have articulated the 1<sup>st</sup> rank position for available fuel due to forestry in Roburna and Jessievale, respectively. About 12% households in both Roburna and Jessievale have given this option 2<sup>nd</sup> position. Only 9.9 households in Roburna and 13% households in Jessievale articulated 3<sup>rd</sup> rank for fuel availability due to forestry. More than 66% and 75% households in Roburna and Jessievale, respectively did not rank fuel availability due to forestry.

About 31.3% households in Roburna articulated 1<sup>st</sup> rank for the notion that forestry result in no benefits for their area whereas in Jessievale about 25% households gave this notion 1<sup>st</sup> rank. There were no households giving this notion the 2<sup>nd</sup> rank position. There were only 0.8% households in Roburna giving this option 3<sup>rd</sup> rank position while in Jessievale there was no household giving this option the 3<sup>rd</sup> rank position. Approximately 67.9% households in Roburna did not rank this option while about 75% households in Jessievale did not rank this option.

Other benefits such as aesthetics, environmental conservation, improved landscape, etc. were ranked 1<sup>st</sup> position by 9.9% households in Roburna while in Jessievale they were ranked 1<sup>st</sup> position by only 6% households. About 16% households in Roburna ranked this option 2<sup>nd</sup> compared to the 3% households in Jessievale. Less than 1% households in both areas ranked this option 3<sup>rd</sup>. More than 73% households in Roburna did not rank this option whereas in Jessievale approximately 91% households did not rank this option.

*Table 4.5.1: Perceptions of the communities on livelihoods and development in the future*

Improvements	Area	1st Rank (n)	2nd Rank (n)	3rd Rank (n)	No Rank (n)
Rank increase income	Roburna	42.7(56)	6.9(9)	4.6(6)	45.8(60)
	Jessievale	25.0(25)	29.0(29)	17.0(17)	29.0(29)
Rank better infrastructure	Roburna	5.3(7)	17.6(23)	10.7(14)	66.4(87)
	Jessievale	21.0(21)	26.0(26)	18.0(18)	35.0(35)
Rank availability of fuel	Roburna	3.8(5)	12.2(16)	9.9(13)	74.0(97)
	Jessievale	1.0(1)	12.0(12)	13.0(13)	74.0(74)
Rank no benefits for household	Roburna	31.3(41)	0.0(0)	0.8(1)	67.9(81)
	Jessievale	25.0(25)	0.0(0)	0.0(0)	75.0(75)
Rank other benefits	Roburna	9.9(13)	16.0(21)	0.8(1)	73.3(96)
	Jessievale	6.0(6)	3.0(3)	0.0(0)	91.0(91)

Roburna n=131

Jessievale n=100

#### 4.6 SOURCES OF INCOME AND LIVELIHOOD

Households were also asked about their sources of income and livelihood practices. Most households in both communities have some animals. In Roburna, the average number of cattle was 1.68 while in Jessievale there were only 0.75 animals per household (Table 4.6.1). The other livestock available included goats, sheep, donkeys, pigs and relatively higher number of chickens in Roburna than in Jessievale.

*Table 4.6.1: Livestock owned by the households*

Livestock	Roburna Mean (SD)	Jessievale Mean SD)	Whole Sample Mean (SD)
Cattle	1.68 (6.47)	0.74 (2.36)	1.25 (5.05)
Goats	0.37 (1.59)	0.54 (2.48)	0.83 (1.48)
Sheep	0.06 (0.70)	0.22 (1.12)	0.13 (0.90)
Donkey	0.11 (0.52)	0.13 (0.54)	0.54 (0.03)
Pigs	0.56 (3.44)	0.81 (3.01)	0.11 (0.52)
Chicken	5.48 (19.15)	1.71 (4.79)	3.77 (14.59)

#### 4.7 LAND USE OPTION FOR FUTURE USE

Households were required to rank forestry and production of various cash crops to determine the most likely future land use option in the forestry land under claim. The rankings ranged from 1 – 5 whereby the 1<sup>st</sup> rank position indicated best option and 5<sup>th</sup> position was worse option. On average, 63.59% of the households did not respond/and did not rank any option for future land use. Therefore Table 4.7.1 shows the average ranking of a preferred land use option for the two areas represented by the 37.4% households. There was a significant difference ( $p=0.02$ ) in ranking forestry between the two sites. In Roburna, households gave an average ranking of 4.58 rank compared to 3.02 in Jessievale. There was no significant difference in the ranking of maize as a future land use option between the two sites with a mean ranking of 3.02. Similarly, there were no significant differences between the two sites in the ranking of bean and vegetable production as future land use options with mean rankings of 4.8 and 2.3, respectively. However, there was a significant difference ( $p < 0.01$ ) in the ranking of fruit production between Roburna (2.0) and Jessievale (3.4).



*Table 4.7.1: Future land use option on forest land under claim in Roburna and Jessievale*

<b>Land use option</b>	<b>Roburna</b>	<b>Jessievale</b>	<b>Whole sample</b>	<b>p-value</b>
Forestry	4.58(4.91*)	3.02(3.57)	3.80(4.24)	0.02
Maize	2.94(3.01)	3.19(4.26)	3.06(3.64)	NS
Beans	4.96(4.02)	4.60(4.99)	4.78(4.51)	NS
Vegetables	2.15(3.46)	2.43(3.07)	2.34(3.27)	NS
Fruit	1.97(2.55)	3.39(3.69)	2.68(3.12)	<0.01

\*Numbers in brackets are standard deviations

## CHAPTER 5

### CHAPTER 5: DISCUSSION

#### 5.0 INTRODCUTION

This chapter discusses the results of the research study and compares the findings to other studies from literature relating to perceptions about forestry on land under claim, future form of engagement expected by communities.

#### 5.1 LAND USE OPTION ON FOREST LAND UNDER CLAIM

Households in both Roburna and Jessievale had an average of 7 members. In Jessievale, they mainly depended on social grants including the pension fund and the child support whereas the large income source in Roburna is from formal employment. The large number of household members implies that the current available land (13.5m<sup>2</sup> in Roburna and 2.2 m<sup>2</sup> in Jessievale) is insufficient for crop production to support households. However, the study showed that both areas utilize only about 39.8% of this land because of its poor productivity being marginal land. This has driven the need for more residential and farming land bringing this in direct conflict with forestry land areas which is currently the only available productive land in the area. Hoole (2008) stated that the native people of South Africa were unlawfully dispossessed and moved from their land to the Bantustans which are areas with very low productivity and limited space to support the families.

About 63% of the respondents did not rank any agricultural option for future land use on the current land occupied by forestry plantations. In fact, forestry was among the poorly ranked when compared to the other options such as production of fruit, vegetables and maize (see Table 4.7.1). There was an apparent poor relationship between communities and the companies emanating from the influence of past land disputes. Households in both areas were reported to have been dispossessed from their land since 1974 until 2010. This in general has negatively impacted on collaborative working relationship between companies in forest land

under claim and the communities. Borrás and Franco (2010) have stated that land disputes in South Africa have led to poor relationships between land users and land claimants because of the way land was dispossessed from the communities in the past.

## **5.2 CONTRIBUTION OF FORESTRY TO COMMUNITIES**

Respondents in Jessievale perceived that there were more benefits with respect to job creation, improved infrastructure and social services due to forestry than in Roburna. The poor perceptions regarding the contribution of forests towards development in Roburna may be due to the lack of a Community Property Association (CPA) which facilitates the development strategies with the forest company in the Jessievale (KLF). According to Lahiff et al. (2012), the use of community development structures such as committees (Community Property Associations – CPAs), trusts or representative committees have resulted in ease of transference of development strategies to most communities. In the contrary, Anseeuw and Mathebula (2008) contend that the community Trusts or CPAs have caused more problems and lack transparency on beneficiaries' funds and socio-economic transfers in land reform cases. Consistently, according to De Villiers and Van Den Berg (2006), Hazyview farms in Mpumalanga Province were returned to the Giba community in 2003. They were able to avoid land transfer problems through participatory approaches in the subsequent operations on the land with the land authorities and CPA. The management was formed by the community members, and the labour force is entirely from the community. The focus is on training beneficiaries to manage run the businesses. The community has a company of which the shareholding is divided among the CPA, the strategic partner and the workers' trust.

Moreover, the significantly increased income from employment in Roburna compared to Jessievale shows that other sectors of employment are better alternatives for livelihood thus the poor perceptions regarding forestry on land under claim. This implies that there is a need for introduction of diverse sectors in the land under claim for better job opportunities and job creations for individuals that are not interested in forestry.

### 5.3 THE CHOICE OF A MODEL

With almost 70% of the households preferring at least some form of engagement in forestry through a settlement model shows that there is a great interest towards forestry. This was more apparent in Jessievale where there was a perceived benefit from forestry. This concurs with the findings of Phiri et al. (2012) who showed that communities are willing to participate in some form of joint management of the forest resource as long as there is an apparent benefit. Furthermore, Ham and Chirwa (2008) have indicated that the introduction of the Broad-Based Black Economic Empowerment (B-BBEE) has enabled more communities to get interested in forestry; thus ensuring a possibility of future sustainability and economic empowerment of the communities. However, due to poor forestry skills and lack of knowledge, this opportunity (BBBEE) seems to have been captured more by the elite than the rural communities. There is therefore a strong need to disseminate the strategy and aims of the BBBEE especially to the rural communities where there are lands under claim.

The study found that most households preferred the joint venture model compared to the other options (Table 4.2.2). This model suggests that the community contributes the land and the forest company contributes the trees. A joint venture would be formulated thereafter in this process; and then an operating company would be established to represent community's interests and to operate the business. There would be increased household's livelihood standards, skills transferred and empowerment would be given to the community members. The community would have leverage in the partnership as they owned the land. Most community members opted for this model because they want to own their land and acquire benefits from the current forestry taking place in their land. For example, the case of Makuleke in Limpopo province of South Africa that has successfully used the joint venture model whereby the community gets benefits on arrangements that they own the land (Marja et. al, 2006).

The joint venture was followed by the lease agreement and sales lease back models with regards to preference by the communities. However, these two models were preferred less

than options of getting compensation, alternative land or/and given back the land, etc. (categorized as other option). It can be hypothesized that these three models were preferred because of their ability to allow the claimants to possess full ownership of the forest land; but also allow continuation of forestry while at the same time giving communities access to the land for other land use options. A study by Clarke (2006) found that repossession of land by claimants requires transference of full control over the land and increased benefits for the communities. An example was the case of the Bjatladi community in Limpopo where they were willing to enter into a development program through the use of their land for citrus plantations while being allowed to use part of the land for other livelihood activities (De Villiers and Van Den Berg, 2006).

#### **5.4 FACTORS INFLUENCING THE CHOICE OF A SETTLEMENT MODEL**

The study found that choice of a forestry development model that takes into consideration the involvement of communities may be influenced by various household effects including area of location, gender, age, level of education, income, skills possessed and available land. Similarly, Sanchez et al. (2006) showed that relevant variables that contribute towards households' decisions over given dependent variable were: household head's age, level of education, skills possessed, agriculture land size, location and benefits. In line with these findings are results by Reyes (2002) that indicated that relevant variables that contribute towards households' decisions over given dependent variable are: household head's age, level of education, skills possessed, agriculture land size, location and benefits.

The old aged group had more interest in other options than, for example, the joint venture forestry model (see Table 4.2.3). This maybe because of the low level of education and also the need for an immediate solution such as compensation or alternative land use options to derive their livelihood. A choice of a model that would merge the operation of the forestry company (KLF) with the communities for a sustainable forest production and community development was found to be influenced by the various household effects. The age of the household head

was highly associated ( $\gamma=7.3$ ) with the choice of other forest settlement model compared to the choice of other option category.

The other settlement model constitutes of the different models which would assume that the community owns the land and also the timber and it has got expertise and business management to manage the plantation. In this combination of models, the forest company would provide technical assistance. Some companies, if necessary, will provide seedlings for the community, and would then get a market for the timber. The company may provide financial assistance at an arranged payback period of a loan. Therefore with experience in working with forestry and forest companies the old age group is more likely to choose the other settlement models because they would have acquired the managerial skills in forestry but lack finances and leverage to run the business. Moreover, there was a significant ( $p<0.01$ ) influence of age towards a choice of other options rather than any form of involvement in forestry. The odds of this inference to occur was significant ( $\gamma=2.3$  and  $\gamma=4.9$ , for both age groups of 18-29 and 30-59, respectively) meaning that old group age is more likely to choose other options rather than the given settlement models. This would be that the settlement models to be implemented by the forestry company (KLF) would not favour the old aged group because they lack strength and now have a short life span. Older age groups would not be able to work under forest operation conditions, long working hours and harsh conditions than the middle aged group.

On the other hand, those with different skills including forestry tended to have a positive consideration for forestry in some of the proposed settlement models. Interestingly, there were no apparent association of residential land availability and the choice of a model (Table 4.2.3), implying that the need to have the land back may not be the main driver of the land claims in forestry plantations. The main reason could be the resentment of the fact that land was previously dispossessed in a wrongful manner (Kahn, 2007). Consistently, according to Lahiff (2007), in South Africa, most people were dispossessed and relegated to poor designated areas and were forced to leave in overcrowded land for many years compared to other countries. Moreover, according to DLA (2005) the black people were strapped and dispossessed to the

Bantustans land where there would be no access to essential resources and agricultural land. This shows that most people want to repossess their land not mainly on bases of utilizing it for production but because of the past grief and anger over land.

The source of income had mixed influence on the choice of the model. For example, social grants may have had a negative influence as there was an assured source of income for some respondents whereas those respondents who derive their income through forestry were more likely to have opted for a settlement model that allows forestry to continue in the land under claim. Employment income is one of the major sources of income in the two areas of study. However, this source is highly associated with a choice of the Joint Venture model rather than other options. The Odd's ratio shows a low association ( $\gamma=0.373$ ) of this attribute towards the preference of the model (Table 4.2.3).

Moreover, the significant influence of area of household towards the positive choice of a model suggests that most people were forced to live in areas of unproductive land for agricultural purposes during dispossession (Kahn, 2007). The households are squeezed together alongside the vast plantation area. This has led to more deprived communities resulting in very small area of land for agricultural practices, and thus the poor skills for land use and farming. With most households located in the marginal land yet they see alongside the productive land where forests lie, thus they will have negative perceptions towards forestry. However, the job creation prospects still remains their main reason for allowing forestry to take place in their land.

The level of education is one essential variable that influence a choice of a settlement model by the respondents. Individuals with a low level of education are more likely to not opt for any settlement model which involves forestry. They would suggest that they have no idea on how a forest business is run and they are so skeptical that the company wants to bargain through their efforts. There seems to be a positive correlation between high level of education and the choice of model. This has led to a large number of households choosing at least a forest settlement model. Therefore the low level of literacy has a negative effect towards forestry sustainability.

## **5.5 PERCEPTION ON FUTURE LAND USE FOR FORESTRY LAND UNDER CLAIM**

There seemed to be no interest in any form of land use for future purposes with regards to the options that were listed for choice. About 67% households did not rank any option for future land use. However, among the 33% households who seemed to have participated towards ranking a future land use option, the results show that most households would want to practice vegetable production in their land that is under claim. They ranked vegetables, fruits, maize and forestry as best land use options. In line with this is the postulation by Lahiff (2003) that the case of South Africa is the most difficult and unique problem to solve. The way in which people were dispossessed and the also the concept that it has been the longest land dispossession in the history of land disputes in the world; thus the unique result towards future land use options.

## **5.6 THE RELATIONSHIP BETWEEN CLAIMANTS AND FORESTRY COMPANIES**

While the forestry company claimed that they have contributed to the social economic empowerment in Roburna and Jessievale communities, this was only apparent in Jessievale. In Jessievale 78% of the respondents revealed that plantations have created jobs for most people in their area compared to only 48% in Roburna who indicated that there is still no approval of such programmes in their community.

The use of Trust by the forestry company (KLF) in the communities has not worked efficiently in solving and bringing development for the “real beneficiaries” or owners of the land under claim. There seems to be poor relationships between communities and the companies caused by the influence of past land disputes. Households in both areas have been reported to be dispossessed from their land since 1974 until 2010. This has resulted in challenges hindering collaborative working relationship between companies in forest land under claim and the communities. In line with this, Borrás Jr. and Franco (2010) stated that land disputes in South Africa have led to poor relationships between land users and land claimants because of the way it occurred. Moreover, unavailability of fuel (firewood), timber for construction, land for



agricultural production (see the low figures of livestock in Table 4.6.1) and poor social services in the communities has caused more households to have negative perceptions about the importance of forestry. Due to false promises and unreliable Trust representatives of the communities, most of the contributions towards community development remain unknown to the real beneficiaries. This has resulted in most forest plantations being burnt down and encroachment of the communities who build their homesteads next to the forests. Thus about 30% of the households opted for compensation other than involvement in forestry through the proposed settlement models.

## CHAPTER 6

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### CHAPTER 6: CONCLUSION

#### 6.1 INTRODUCTION

The research study found that over 70% of the respondent had a positive outlook on forestry provided the models were associated with clear ownership of the land. This shows that there may be a corresponding positive future sustainability of forestry development on land that is under claim. The research has found that the joint venture was chosen by most households as the best option to involve the community in forestry operations. Most results showed that the household effects contributed significantly to a choice of a forestry settlement model rather than other options. There were few attributes that showed a significant contribution (area, age, employment income, income generating activity, forestry skills and unavailable farming land). There may be a need for other explorations such as merging the models and creating a settlement model that can accommodate numerous attributes.

#### 6.2 THE PREFERRED SETTLEMENT MODEL ON LAND UNDER CLAIM

The research found that the joint venture model was the most preferred due to its ability to transfer the land to the claimants and to transfer management skills, create jobs and empower communities. The results further showed that age, forestry skills significantly contribute to the choice of a different model and should therefore be carefully considered in future where there is a consideration for introducing a forestry development settlement model in the study area.

The study showed that while communities were interested in getting their land back, they are not fully utilizing the small portions of land currently available to them for agriculture; and that the demand for land may be driven more by other land use options such as land for expanding new homes and grazing. On the other hand, there may be an opportunity for communities to be involved in forestry in the future provided they are well informed about the different models of engagement and their associated benefits. It is therefore recommended that the

Government through the BBBEE Charter and Forestry South Africa should in the future be more proactive in disseminating information on different forestry models and associated benefits of forestry development to the communities in forest plantation areas under land claim.

### **6.3 AVAIL LAND FOR OTHER LAND USE OPTIONS**

There is still a need to allocate some hectares of land for growing crops and vegetables, and grazing land for animal rearing purposes. Forest companies have to bring diversity in settlement models, that is to say, there is a need for models that will accommodate individuals who are not interested in forestry. Other business alternatives such as manufacturing companies should be introduced to hire more diversified available skills in the communities. Special attention has to be given to the primary claimants of the forest land under claim. Forest contributions towards community livelihood improvements such as jobs, firewood, grazing land and other farm inputs have to target the members of households with forest land under claim.

### **6.4 FUTURE RESEARCH NEEDS ON SETTLEMENT MODELS**

Land reform is a sensitive subject in South Africa and there is a need for further research on how to sustain resources that are currently on land that is under claim. Forestry should be among the prioritised resources that would bring socio-economic empowerment through community participation programmes. Similar studies should be done in other affected areas and this should be addressed promptly to avoid deforestation by the affected communities.

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## APPENDIX 1

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### APPENDIX 1

#### RESEACH PROJECT 2011

Questionnaire number					Research Assistant			
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<b>Name of respondent</b>	
Area	
Section	
Name and surname by which homestead is known	

#### Particulars of visit to the homestead

Particulars of visits	Date	Time started	Time ended
First visit			
Second visit			
Third visit			

## 1.0 Household Members

1.01 List names, genders, ages, and education levels of all the household members

<b>Names</b>	<b>Gender (male/female)</b>	<b>Age</b>	<b>Highest level of Education (1-14)</b>	<b>Relationship to Household Head</b>

1.02 Skills that your household possesses, and indicate those that you acquire an income from

<b>Skills</b>	<b>Check all that apply</b>	<b>Check if income generated from skill</b>
Forestry		
Farming		
Carpentry		
Construction		
Traditional healing		
Fishing		
Plumbing		
Mechanics		
Roofing		
Other: _____		

1.03 Which household members are responsible for what activities (check all that apply)?

Activity	Men	Women	Children
Tending forestry			
Tending Livestock			
Tending Vegetables			
Tending Crops			
Cutting grass			
Brick-making			
Cooking			
Collecting firewood			
Constructions			
Working off farm			
Water fetching			
Hunting			
Fishing			
Food gathering			

1.04 During which months was your household occupied with activities, (check all that applies)?

Activity	Winter	Summer	All Year
Tending forestry			
Tending Livestock			
Tending Vegetables			
Tending Crops			
Cutting grass			

Brick-making			
Cooking			
Collecting firewood			
Constructions			
Working off farm			
Water fetching			
Hunting			
Fishing			
Food gathering			

## 2.0 Options of Land Use

In the claimed land, what land use practice would you like to do? List according to your preference:

Activity	Rank
Forestry	
Farming	
Build Schools & Hospitals	
Build houses	
Start new business	
Other _____	

### 2.01 Land use and resource availability

What land use practices are most important for consumption and what are important for sale?

Plant/crop	Consumption Rank (1,2,3)	Sale Rank (1,2,3)
Forestry		
Maize		
Tobacco		
Cotton		
Beans		
Potatoes		
Vegetables		
Groundnuts		
Fruits		
Other (specify)		

2.02 Do you have enough agricultural land for your whole family? (yes or no)

\_\_\_\_\_

If no, how do you sustain your food supply?

Food supply	Check one that Most applies to your household
Purchase food	
Gather food from forest or natural resources	
Receive from grants	
Other (specify)	

2.03 What types of land does this homestead have? **(Include land that is not adjacent to the homestead)**

	Col 1	Col 2		Col 3		Col 4	Col 5	Col 6	Col 7
	1.Type of land	2. Does the homestead have this type of land?		3. Has the land been used by the homestead in the last 12 months?		4. In what year was this land first acquired by the homestead?	5. How was the land first acquired?	6. No. of plots owned?	7. No. of plots borrowed
		Yes	No	Yes	No				
1	<b>Residential</b>								
2	<b>Forestry</b>	1	2	1	2				
3	<b>Garden plot/s within homestead</b>	1	2	1	2				
4	<b>Fields</b>	1	2	1	2				
5	<b>Irrigation Fields</b>	1	2	1	2				
6	<b>Project garden plot</b>	1	2	1	2				
7	<b>Other (specify)</b>	1	2	1	2				

If land is owned but not used, please explain why:

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Claimed Land used by this homestead last year? (Include land that is not adjacent to the homestead)



### 3.0 Sources of income of homestead members

Codes Table 3.01: Income sources of homestead members

Code	
1	Employment in a formal sector
2	Family activities/business
3	Income Generating activity other than business
4	Social grant
5	Other _____

#### 3.01 Ranking of sources of income of homestead members

Please rank the most important income sources of the homestead. In order of importance, and explain why each is important.

Rank order	Name of homestead Member	Income source	Cash earned/month	Reason for Importance
1				
2				
3				
4				
5				

TABLE 3.02: DURABLE GOODS AND PRODUCTIVE ASSETS OF HOMESTEAD MEMBERS

DOMESTIC	Does the homestead have?		Number owned	TOTAL
	Yes (1)	No (2)		DOMESTIC
1 Electric stove	1	2		
2 Microwave	1	2		
3 Sewing or knitting machine	1	2		
4 Washing machine	1	2		
5 Lounge suite	1	2		
6 Gas stove	1	2		
7 Paraffin stove	1	2		
8 Fridge/freezer	1	2		

<b>ELECTRONIC /COMMUNICATION</b>				<b>COMMUNICATION</b>
9 Radio	1	2		
10 CD player	1	2		
11 Television /DVD player	1	2		
12 Computer	1	2		
<b>TRANSPORT</b>				<b>TRANSPORT</b>
13 Motor cycle	1	2		
14 Bicycle	1	2		
15 Motor vehicle in running order	1	2		
<b>AGRICULTURE</b>				<b>AGRICULTURE</b>
16 Tractor	1	2		
17 Plough	1	2		
18 Wheelbarrow	1	2		
19 Knapsack sprayer	1	2		
20 Donkey cart/ox cart	1	2		
21 Garden spade	1	2		
22 Garden fork	1	2		
23 Hoe	1	2		
24 Other (specify)	1	2		

### 3.03 LIVESTOCK OWNED BY MEMBERS OF THE HOMESTEAD

What livestock are owned by members of this homestead? (Include animals kept elsewhere and looked after by others)

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7
	Type of livestock	Number owned now	Purchases in last year	Sales in last year	Births in last year	Deaths in last year	Slaughter in last year
1	Cattle						
2	Goats						
3	Sheep						
4	Donkeys						
5	Pigs						
6	Chickens						
7	Other (specify)						

## 4.0 Forestry

4.01 Are you aware of forestry land under claim in the area? (Yes or no) \_\_\_\_\_

If yes, how do you know about it?

<b>Public Consultation</b>	
<b>Government</b>	
<b>Community</b>	
<b>Other (specify)</b>	

4.02 Given that you were involved in forestry development, what form of engagement would you prefer? \_\_\_\_\_

NB\*: link the views with the coded options below

<b>Code</b>	<b>Model / Option</b>
1	<b>Sales and leas back</b>
2	<b>Project grow</b>
3	<b>Plantation and Management Plan</b>
4	<b>Management assistance Plan</b>
5	<b>Timber supply agreement</b>
6	<b>Lease agreement</b>
7	<b>Joint Venture</b>
8	<b>Resumption Lease</b>
9	<b>Total Package</b>
10	<b>Funded Purchase of Trees</b>
11	<b>Conventional Lease</b>
12	<b>Other (specify)</b>

4.03 How do you think forestry would benefit your household and community?

Job creation	
Food security	
More money in the local markets	
Improved infrastructure	
Improved social services	
Would not benefits	
Other (specify)	

4.04 What kind of benefits were you expecting to get from the forest company with the current set up?

<b>Benefit</b>	<b>Rank (1,2,3)</b>
Increase income through indirect employment (i.e. crops, wood, construction)	
Better infrastructure (roads, schools, hospitals)	
Availability of fuel wood	
Would not benefit our household	
Other (specify)	

4.05 What do you think are the positive and negative effects of forestry plantations in your community?

<b>Positive effects</b>	<b>Negative effects</b>

4.06 How do you think plantations affect local community?

Unavailability of land for residential places	
Unavailability of crop and animal farming land	
Hinders communal development (i.e no place to build schools, hospitals, etc...)	
Does not affect the community in anyway	
Other (specify)	

4.06 What factors would make you to allow forestry plantations to continue in your area?

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4.06 How do you compare land claim/redistribution in forestry and commercial agricultural land?

Forestry on land under claim	Commercial Agricultural land under claim