The Socio-economic impact of the phasing out of plantations in the Western and Southern Cape regions of South Africa – a case study of three plantations.

by

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Thesis presented in partial fulfilment of the requirements for the degree of
Master of Science in Forestry at Department of Forest and Wood Science, Stellenbosch University.

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March 2012

DECLARATION

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ABSTRACT

This study sought to determine the possible socio-economic impacts of the phasing out of nearly 22 500 ha of plantations within the Southern and Western Cape regions of South Africa as a result of a decision made by Government in September 2000. None of the previous studies undertaken focussed on the socio-economic impacts within the specific regions and plantations, but were based on wider environmental and economic considerations.

Data was collected in 2007 from three plantations managed by Mountain to Ocean Forestry (MTO) (PTY) LTD: one located in Grabouw (Western Cape) and two in George (Southern Cape), among three different plantation stakeholder groups. These three groups were: (i) Forest Dependent Communities, (ii) Stakeholders among the forestry value chain and (iii) Indirect stakeholders. Within the first group, a total of 70 persons representing households were interviewed. A total of 26 primary and secondary processing company respondents were interviewed. Information on all of the indirect stakeholder groups was gathered, either through interviews with the stakeholders or from data received from MTO.

This study indicated that there are significant differences between the potential impacts within the Southern Cape and Western Cape regions. The data collected showed that among communities within the Western Cape, the dependency on the plantations in terms of employment, income and fuelwood is low. This is in stark contrast to the communities within the Southern Cape, who are dependent on the plantations for their employment and income, and as a result will be affected greatly by the phasing out process. Company respondents in the Western Cape were less concerned than their Southern Cape counterparts about the future decrease in timber supply and indicated that they will source timber from elsewhere, whereas companies within the Southern Cape indicated that they would likely have to shut down. The dependency of indirect stakeholders on the plantations to be phased out, and the resulting impact was found to be minimal.

The study concluded with an evaluation of an existing nine step plan for the implementation of social and economic actions within natural resource planning. Three main aspects were identified that need to be addressed namely: (i) To increase public awareness and participation among communities and companies to be impacted on by the phasing out process, (ii) Provide necessary training and thus increased skills level of workers who face unemployment; and (iii) The identification of alternative employment opportunities for the unemployed affected by the phasing out process.

OPSOMMING

Hierdie studie het die potensiële sosio-ekonomiese impak van die uitfasering van plantasies in die Suid- en Wes-Kaap gebiede van Suid-Afrika ondersoek. Die besluit om 22 500 ha plantasies uit te faseer is in September 2000 deur die Suid-Afrikaanse Regering geneem. Geen vorige studies wat onderneem is het gefokus op die moontlike sosio-ekonomiese impakte in die spesifieke gebiede en plantasies nie, maar was gebaseer op groter omgewings- en ekonomiese oorwegings.

Data insameling het in 2007 geskied in drie Mountain to Ocean Forestry (MTO) plantasies: een geleë in Grabouw (Wes-Kaap) en twee in George (Suid-Kaap), en onder drie verskillende plantasie belangegroepe. Hierdie drie groepe was (i) Gemeenskappe afhanklik van plantasies; (ii) Belangegroepe in die Bosbou-waardeketting en; (iii) Indirekte belangegroepe. ‘n Totaal van 70 huishoudings in die eerste groep is ondervra, en 26 primêre en sekondêre verwerkingsmaatskappye in die tweede groep is ondervra. Inligting oor al die indirekte belangegroepe is ingesamel, hetsy deur middel van onderhoude of deur data wat van MTO ontvang is.

Die studie het aangedui dat daar betekenisvolle verskille tussen die potensiële impakte binne die Suid-Kaap en Wes-Kaap streke bestaan. Die versamelde data het getoon dat die afhanklikheid van gemeenskappe in die Wes-Kaap op die plantasies in terme van werk, inkomste en brandhout laag is. Dit is in skrille kontras met die gemeenskappe in die Suid-Kaap, wat afhanklik is van die plantasies vir hul werk en inkomste, en as gevolg daarvan grootliks geraak sal word deur die uitfasering proses. Maatskappy respondente in die Wes-Kaap was minder bekommerd as hulle eweknieë in die Suid-Kaap oor die toekomstige afname in die saaghoutvoorraad en het aangedui dat hulle saaghout van elders sal bekom, terwyl maatskappy respondente in die Suid-Kaap aangedui het dat hulle waarskynlik hul deure sal moet sluit. Die afhanklikheid van indirekte belanghebbendes op die plantasies wat uitgefaseer word, en die gevolglike impak blyk minimaal te wees.

Die studie is afgesluit met 'n evaluering van ‘n bestaande nege stap plan vir die implementering van maatskaplike en ekonomiese kwessies in natuurlike hulpbron beplanning. Die drie belangrikste aspekte is geïdentifiseer wat aangespreek moet word naamlik: (i) Die verhoging van openbare bewustheid van en deelname tussen gemeenskappe en maatskappye wat deur die uitfasering proses geraak sal word, (ii) Die verskaffing van nodige opleiding en dus die verhoging van die vaardighede van werkers wat werkloosheid in die gesig staan; en (iii) Die identifisering van alternatiewe werksgeleenthede vir die werkloses wat deur die uitfasering proses geraak sal word.

AKNOWLEDGEMENTS

Firstly, I wish to thank my family, friends and especially my husband Neil for all their support, encouragement and understanding. It has been a long road!

I am also grateful to all of the employees at MTO Forestry for their help in obtaining information, a special word of thanks to Braam du Preez who was always more than willing to assist and share ideas. While collecting my data, I stayed at the Concordia Training Centre, and I would like to thank the friendly staff working there. Mark February and Koos Roziers accompanied me on my data collection trips, I wish to thank them for their help and support. I am thankful for the assistance that I received from Prof. Daan Nel at the Centre for Statistical Research with regards to data analyses and statistics.

To the community members of Dennekruin, Rooidakkies, Phillipsvale and Sonskyn and the company respondents within Grabouw and George, thank you for your co-operation and for the friendly manner in which I was received.

Finally a word of thanks to my supervisor Cori Ham, co-supervisor Dr. Dirk Längin and Mr Pierre Ackerman of the Forestry and Wood Science Department. I appreciate all your patience, help and support.

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ACRONYMS

ANOVA	Analysis of Variance
CCC	Cape Conversion Committee
CPIH	Cape Pine Investment Holdings
CSIR	Council for Industrial and Scientific Research
CSM	Cape Sawmills
CTR	Cape Timber Resources
DAFF	Department of Agriculture, Forestry and Fisheries
DBSA	Development Bank of Southern Africa
DWAF	Department of Water Affairs and Forestry
FSA	Forestry South Africa
GDP	Gross Domestic Product
GSM	George Sawmill
MTO	Mountain to Ocean Forestry
NTFP	Non-Timber Forest Products
SAFCOL	The South African Forest Company Limited
SC	Southern Cape
SEA	Strategic Environmental Assessment
WC	Western Cape

CHAPTER ONE

INTRODUCTION

1.1 General Introduction

Plantation forestry and related forest products contributed R20 376 million to the South African gross domestic product (GDP) in 2008/9 (FSA, 2010a). A study by Chamberlain *et al*. (2005) has shown that this contribution is most significant in areas with limited economic alternatives. Forestry in South Africa is also a major employer of underprivileged people living in rural areas (DWAF, 2005a; Shackleton, 2004). With an official unemployment rate of 25% (Statistics SA, 2011) in South Africa, any action that could result in the potential loss of income and employment, must be of importance to both the local and national governments.

On the 14th of September 2000, the South African Government announced the phasing out[1] of certain commercial plantations belonging to The South African Forestry Company Limited (SAFCOL). The reason given for the decision at the time was that plantation forestry was not economically viable on these plantations. The plantations were seen as marginal for forestry production with a high business risk for SAFCOL and therefore forestry was deemed to be the incorrect land-use option. The areas earmarked for phasing out were (Ministry of Public Enterprises, 2000; VECON, 2006):

- 15 000 ha in the Boland area of the Western Cape;
- 30 000 ha in the Southern Cape;
- 12 000 ha on the Eastern and Western shores of Lake St. Lucia in KwaZulu-Natal.

This decision was revised in 2008, when the Government approved a proposal to retain nearly 22 500 ha of the original 45 000 ha in the Western and Southern Cape regions (both located in the Western Cape Province) (Government of South Africa, 2008). The remaining 22 500 ha of plantations are still to be phased out.

From a socio-economic point of view, the phasing out of the 22 500 ha in the Western and Southern Cape regions, which accounts for nearly 38% of the Western Cape Province's total commercial forest plantation area, is of concern (adapted from FSA, 2010b). These plantations are currently leased by Mountain to Ocean Forestry (MTO). The affected areas are located within rural and more

[1] The phasing out process is also referred to as the exit, exit strategy or exit policy (used by MTO and within the VECON report [VECON, 2006]) but within this study, the terms used within the original Government Statement (Ministry of Public Enterprises, 2000): "phasing out" and "phasing out process" will be used.

economically depressed regions of the country and are characterized by high unemployment and continued poverty (DWAF, 2005a).

As a result of the plantation phasing out process, considerable strain could be placed on forestry dependant households as well as communities and local economies if no alternative means of livelihoods, to compensate for lost employment and subsequently loss of income, are found. The loss of planted area due to the phasing out of the plantations could further decrease the availability of timber to primary processors, such as sawmills and board plants (MTO Forestry, 2007). These plants will either have to source timber from elsewhere at increased cost, or reduce their intake resulting in potential closure. According to Visser (2007a), South Africa had an estimated annual saw timber shortage of 27% in 2007, and this will increase to 53% over the next 26 years.

The phasing out of plantations could further negatively influence secondary and tertiary processors. Therefore, not only those people working in the primary sector of the forest industry will be affected by the phasing out of the plantations, but also those in the sectors further along the forestry value chain. The effect and impact along the whole forest and forest products value chain, as a result of the phasing out process, could lead to a significant lowering of economic and employment potential in the Western Cape Province (MTO Forestry, 2005).

1.2 Study Rationale

After the announcement of the phasing out of plantations by the Government in 2000, the Cape Conversion Committee (CCC) was established to oversee the conversion process. The CCC commissioned a study by two consultants to assess the land use options in the original SAFCOL proposal. The focus of this study was to determine the economic feasibility of alternative land-use options, but did not take into account the potential socio-economic impacts and the impacts along the forestry value chain. In 2001 the CCC submitted their findings, incorporating the proposal of the consultants, to Cabinet (Norman & Horn, 2001). Government, taking these findings into account, then announced that the 45 000 ha, earmarked for phasing out in the Western Cape, will be converted into the following: (i) 29 000 ha for conservation, (ii) 9 000 ha for agriculture, (iii) 6 000 ha for community forestry and (iv) 200 ha for housing (VECON, 2006).

In August 2000, the Council for Industrial and Scientific Research's (CSIR) Environmentek division was contracted by SAFCOL to perform a Strategic Environmental Assessment (SEA) to evaluate the potential future land-use options of the areas to be phased out. The study did provide guidelines for

the implementation of the new land use options within the plantations but no local community assessments were undertaken (Sulaiman & Lochner, 2000).

Due to developments over the past 10 years in the forestry sector, such as the growth in the demand for timber and timber products, and the concerns of various stakeholders, the Department of Water Affairs and Forestry (DWAF) financed a study by the VECON Consortium to re-asses the original proposal, to evaluate alternative land uses and to draw recommendations regarding the phasing out process (VECON, 2006). The social impacts evaluated in the VECON study were based on a broader regional level and did not focus on possible impacts on a local community level.

In a subsequent action, MTO submitted a revised land conversion strategy proposal to Government in 2006 in order to partially reverse the exit decision. The objective was to include and examine the environmental and socio-economic impacts on the communities and processing companies (MTO, 2007). This was however again done in a broader socio-economic context.

The partial reversal decision made in 2008 has had little effect on the gravity of the situation. In 2010 Global Environmental Fund purchased a majority shareholding of Cape Pine Investment Holdings Ltd (CPIH), the company who currently owns MTO. The main focus of CPIH is on social and economical sustainability (MTO, 2010). By 2011, however, the Government has still not given permission for any replanting to take place, although they have allowed harvested areas to be naturally regenerated. The reality is that the hope of retaining the 22 500 ha earmarked for plantation forestry is fading away, and that as of 2020 the only MTO plantation remaining in the Western Cape will be Jonkershoek (Du Preez, 2011).

The possible impacts mentioned above and the fact that within the four major studies undertaken, none focussed on in depth local social or socio-economic impacts of the phasing out process, highlight the necessity of this study. The focus of this study is to identify and where possible quantify the socio-economic impacts of the phasing out of forestry on stakeholders along the forestry value chain, through local case study assessments in the Western and Southern Cape. The results gained from the case studies are then examined to form a picture of the potential impact on the whole area to be phased out and to provide recommendations on how to deal with similar situations in the future.

1.3 Study Objective

The research focus of this study is to identify the social and economic impacts of the phasing out of plantations on three groups of sector stakeholders along the forestry value chain in the Western and Southern Cape regions.

The objectives of this study are to:

- Determine the social impact on three major stakeholder groups. These groups are: (i) Forest Dependent Communities (ii) Stakeholders along the Forestry Value Chain and (iii) Indirect Stakeholders.
- Determine the loss of income and business within the stakeholder groups.
- Discuss recommendations and alternatives for the specific case study areas. These recommendations and alternatives can then be used to aid government policy makers, and forest companies, to identify and quantify the potential negative socio-economic impacts of similar future decisions.

The objectives will be met by answering the following research questions:

- What will be the social and economical impacts of the phasing out process, on:
  - The local communities?
  - Companies along the forest and forest products value chain?
  - Indirect stakeholders?
- What mitigation steps need to be taken in order to lessen the impact on the stakeholder groups?

Data collection within the communities and stakeholders took place through questionnaires administered face to face or via telephonic interviews. Where this was not possible information was obtained from MTO. The data was then analysed and conclusions and recommendations were made based on the results of the study.

1.4 Thesis Structure

This thesis consists of six chapters. Chapter Two focuses on the literature study, including background information on the phasing out process and possible implications if the phasing out does continue. The methodology approach that was used is outlined in Chapter Three. Chapter Four contains the results obtained from the data collection and data analysis while the results are discussed in Chapter Five. Chapter Six concludes with an overview of the findings of the study, and a nine step

plan is used to sum up the future implications resulting from the study and recommendations that need to be taken to lessen the potential socio-economic impacts of similar future processes.

CHAPTER TWO

BACKGROUND INFORMATION

2.1 The South African Forestry Industry

2.1.1 Area of Plantation Cover

South Africa covers 119.3 million hectares of land, 1.275 million hectares (1.1%) of which was covered by plantation forestry in 2009 (FSA, 2010b). Plantations are predominantly located within the provinces of Mpumalanga, Limpopo and KwaZulu-Natal, which form part of the grassland and savannah biomes, and within the Western and Southern Cape regions of the fynbos biome (Grobbelaar, 2000) (Figure 2.1).

Figure 2.1 The distribution of plantations within South Africa (SA Forestry Magazine, 2009).

Figure 2.2 illustrates the division of land uses within South Africa. It can be seen that forestry covers a very small percentage of the total land area, compared to other land uses such as grazing and arable land. The reduction in the Western and Southern Cape forestry area due to the phasing out process will have an impact on an already small land use, and will therefore put more pressure on natural forest resources and other plantations as timber will have to be sourced from there. The importance

of the sector within the above mentioned region is confirmed when looking at the description of the Western and Southern Cape forestry sector given in South Africa's National Forestry Action Programme of 1997 (DWAF, 1997): "*the sawlogs and poles produced in plantations are important to the local forestry sector, and the wood based industries resulting from it is economically important. Plantations in this Province* (Western Cape Province) *thus form an important part of the local economy and employment*".

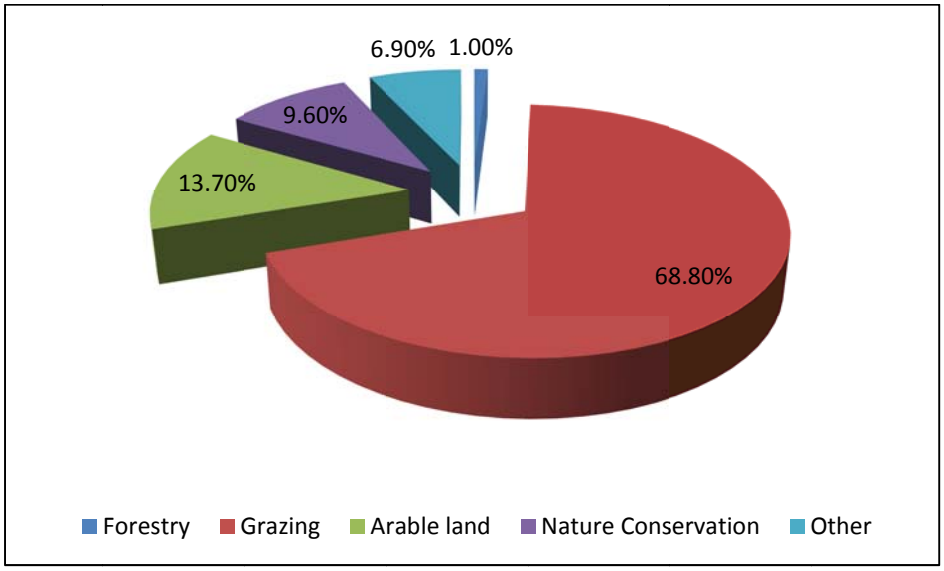

Figure 2.2 Land use percentage in South Africa (FSA, 2010b).

The species composition for South African plantations is as follows: 51% Pines, 40.4% *Eucalyptus*, 8.2% Wattle, and 0.4% other species. Companies and corporate entities (excluding SAFCOL) own 59.3%, commercial farmers 20.3%, SAFCOL 10%, Government and municipalities 6.8% and small growers 3.5% of the 1 274 869 million hectares of plantation forestry (FSA, 2010b).

Although the area covered by plantations in the exit areas are only 3.53% of the total South African plantation area, they play a significant role on a regional forestry level in the Western and Eastern Cape where they comprise 21.93% of the plantation area. The plantations that form the focus of this study (Grabouw, Buffelsnek and Jonkersberg) represent 54.01% of the total area of the exit plantations (Calculations based on data from FSA, 2010b and MTO, 2005).

2.1.2 Contribution of Plantations to the Economy

Plantation forestry and forest products contributed R20 376 million to the total GDP of South Africa in 2008/9 (FSA, 2010a), most significantly in areas where there are few other economic alternatives (Chamberlain *et al,* 2005). In 2008/9, Forestry contributed 9.7% to the Agricultural GDP and forest products 6.1% to the Manufacturing GDP (FSA, 2010b). These figures highlight the importance of forestry to the economy, especially to the economies of rural areas, where most of the investment and production occurs (Edwards, 2000).

The forestry sector in South Africa is responsible for the direct employment of 77 000 people (SA Forestry Magazine, 2009), while indirect employment is estimated to be four times the number of people direct employed (DWAF, 2005a). The whole of South Africa forestry sector thus provides a livelihood to approximately 385 000 people.

2.1.3 Non-Timber Forest Products

Government made its original decision in 2000 to phase out the mentioned plantations, based on economic values, i.e. the income that can be generated from the plantations by the production of timber. It is however important to note that aspects such as fuelwood collection, and NTFP (Non-timber forest products) collecting also have an economic value. These economic values should be viewed together with the commercial economic values of the timber production in itself, to provide a better understanding of the value and income from the forests (Gregersen *et al.,* 1995).

NTFP's are those products that are harvested from forests/plantations and are used by communities for their livelihoods, or those products that are harvested and sold by the communities (used commercially), (Shackleton & Shackleton, 2004). Non-timber forest products offer local communities the chance to set-up and run their own businesses. According to DWAF (2005b), there is significant potential for growth in this sector, especially with regards to tourism, trade in medicinal plants and indigenous fruits and the collection of fuelwood. The exit of the plantations will decrease the plantation area in which plantation NTFP's can be found and harvested, impacting on the forest dependant communities' livelihoods as well as any businesses (and future prospects of businesses) making use of and selling NTFP's.

It is estimated that approximately 80% to 99% of households in South Africa located in rural areas, make use of fuelwood for energy (Williams & Shackleton, 2002). The bulk of the fuelwood (80%) is sourced from savannahs, the balance from plantations and forests (Shackleton, 2004). Previous

studies have shown that in many cases the demand for fuelwood is larger than the supply (Williams & Shackleton, 2002).

2.1.4 Skills Development

A strong skills base is needed to relieve unemployment. Training and education will ultimately result in higher economic growth, and the demands of the labour market can be met more effectively if it is matched to the availability of skills (Mafiri, 2002). It is therefore necessary to determine the skills levels of the forestry workers affected by the exit process and to determine if they will be able to be absorbed into other sectors, or if their skills are too "forestry orientated".

Within the National Forestry Action Programme of 1997, skills training was identified as one of the areas that need to be improved in order to achieve sustainable forest management. Training should be more standardised, transferable and widely recognised to open up other employment opportunities for forestry workers (DWAF, 1997). This might not only improve the skills of employees within the forestry industry, but also for other similar industries where the same skills might be needed.

The need for skills and innovation policies were identified in the 2010/11-2012/13 Industrial Policy Action Plan as critical to strengthen the economy by making it more productive. Within the forestry, timber, pulp and paper and furniture sector, skills development was identified as a key constraint (Government of South Africa, 2010).

2.2 Phasing out Decision

The original decision to phase out 45 000 ha of plantations over a period of 20 years was made by Government in 2000 when the plantations were under the ownership of SAFCOL, a state owned enterprise. The plantations were found to be uneconomical and thus did not fit in with the Government's emphasis on increased production and feasibility (VECON, 2006).

In the period after the decision was made, MTO underwent restructuring within the company, as well as management and ownership changes. This, together with the changes in the economy, both on a micro and macro level (of which the increase in lumber prices was one of the most significant changes), was the reasoning behind the revised land conversion strategy proposal drafted by MTO in 2005 (MTO, 2005). It was then decided by Government to revisit the original decision made in 2000, and the outcome was that 22 500 ha of the original exit areas could remain as commercial plantations, this recommendation was based on the VECON proposal (Government of South Africa, 2008; Vecon,

2006). Table 2.1 depicts the proposed extend of the original decision, as well as the Vecon and MTO proposals (MTO 2005; VECON 2006).

Table 2.1 Commercial plantation areas (in ha) to be phased out (adapted from MTO, 2005 and VECON, 2006, all areas in hectares).

Plantation	2000 Decision		MTO Proposal		Vecon Proposal		Total Area
	Area (ha) to be exited	Area (ha) to remain	Area (ha) to be exited	Area (ha) to remain	Area (ha) to be exited	Area (ha) to remain	Total plantation area (ha)
Grabouw	7 172.8	0	1 880.8	5 292.0	2 486.2	4 686.6	7 172.8
Kluitjieskraal	3 443.7	0	1 102.7	2 341.0	2 267.0	1 176.7	3 443.7
La Motte	3 962.9	173.9	1 553.8	2 583.0	3 095.2	1 041.6	4 136.8
WC Total	**14 579.4**	**173.9**	**4 537.3**	**10 216.0**	**7 848.4**	**6 904.9**	**14753.3**
Bergplaas	6 621.9	0	1 943.9	4 678.0	1 666.0	4 955.9	6 621.9
Buffelsnek	8 277.7[2]	0	1 113.7	7 164.0	3 729.5	4 548.2	8 277.7
Homtini	6 209.7	568.5	3 433.2	3 345.0	5 991.1	787.1	6 778.2
Jonkersberg	8 392.1[3]	0	3 485.1	4 907.0	4 173.3	4 218.8	8 392.1
SC Total	**29 501.4**	**568.5**	**9975.9**	**20 094.0**	**15 559.9**	**14 510.0**	**30 069.9**
WC + SC Total	**44 080.8**	**742.4**	**14 513.2**	**30 310.0**	**23 408.3**	**21 414.9**	**4 4823.2**

Although the partial reversal of the original decision is seen as positive, Government still has not given any details on how and when some of the exited sites could be replanted, and as a result, they are still unplanted. This will lead to a significant gap in the timber supply in the future (Du Preez, 2010).

2.3 Areas Affected by the Phasing out Process

2.3.1 Western Cape Province

In the Western Cape Province, Agriculture and Mining only contribute 5.9% towards the provincial economy, but it is one of the most labour intensive sectors. The annual growth rate within the

[2] 4361 ha of the commercial plantation is to be converted to community forestry.

[3] 642 ha of the commercial plantation is to be converted to community forestry.

Province of the above mentioned sector is lower than the national average. The economy is however diverse, which decreases its vulnerability as not one sector is responsible for "carrying" the economy (VECON, 2006).

The Western Cape was struggling with a 23.3% rate of unemployment during the third quarter of 2011 (Statistics SA, 2011). In order to reduce this rate through job creation, sustainable economic growth is needed (Provincial Government of the Western Cape, 2010).

Within the Western and Eastern Cape Provinces, MTO Forestry's 14 plantations (118 476 ha) are located between Cape Town to Port Elizabeth and they produce 480 000 cubic meters of timber annually. The company also owns three sawmills, located in Wemmershoek, George and Tsitsikamma (MTO, 2010).

2.3.2 Grabouw

Grabouw falls under the Theewaterskloof Municipality and is the Municipality's larges economic center. The population of the municipality is estimated at 107 009 in 2010, with an annual growth rate of 1.26%. Agriculture is the predominant industrial sector within Theewaterskloof Municipality and generates 36.47% of the local economic activity. The manufacturing sector contributes 12.46% and the wholesale- and retail trade together with the catering and accommodation sector contribute 13.88% to the local economy (Theewaterskloof Municipality, 2011).

According to the Mayor of Grabouw, the town has the largest influx of people within the municipality. This is mainly attributed to the high number of seasonal workers within the fruit industry (Theewaterskloof Municipality, 2010). A steady increase in people with low skills is observed, as they come to the area in search of agricultural work. Indications are that the agricultural fruit industry has absorbed all the migrant labour that it can carry and is therefore saturated. Theewaterskloof Municipality has a high illiteracy rate (34.4% of the population has no, or only some primary schooling) mainly as a result of the agricultural industry not demanding high levels of skills (Theewaterskloof Municipality, 2010).

Grabouw is the town with the largest number of people receiving Government grants within the Municipality. The unemployment rate of 39% within this municipality is much higher than the national average of 25% (Statistics SA, 2011; Theewaterskloof Municipality, 2011). The socio-economic status of the Theewaterskloof Municipality highlights the need for developmental projects within the area.

(Theewaterskloof Municipality, 2010). The Municipality identified local economic development which focuses on poverty alleviation including sustainable livelihoods and skills development, as an area that needs to be addressed (Theewaterskloof Municipality, 2011).

2.3.3 George

George is located within the Eden District Municipality, which is the third largest District Municipality in the Western Cape. The estimated population of the Municipality was 525 469 in 2010, with an annual growth rate of 1.2%. The economy centers around agriculture, tourism, trade and business (Eden District Municipality, 2010).

The Municipality struggles with in-migration, which put pressure on the provision of basic services. The issues around poverty and unemployment are of the Municipality's biggest problems (Eden District Municipality, 2010). The creation of sustainable employment opportunities within this Municipality is needed to ensure sustainable economic development, as the 2009 unemployment rate was 22.38%. According to the Municipality's Integrated Development Plan, improving the skills level of the people will make them more employable which in result will increase the tax base of the municipality. (Eden District Municipality, 2010).

2.4 Impacts on the Forestry Sector

2.4.1 Demand for Timber and Timber Products

The growing South African population of close to 50.59 million people, (Statistics South Africa, 2011) results in an increasing demand for timber and timber products. With limited resources of timber available, a significant decrease in the plantation resource, will lead to timber and timber products having to be imported. The overall size of the plantations in South Africa already decreased from 1 339 282 ha in 2003/4 to 1 257 341 ha in 2007/2008 (Figure 2.3) (FSA, 2010a; FSA, 2010b). A further decrease in timber resources will not only negatively affect the country's economy, but also local employment and development (Edwards, 2000).

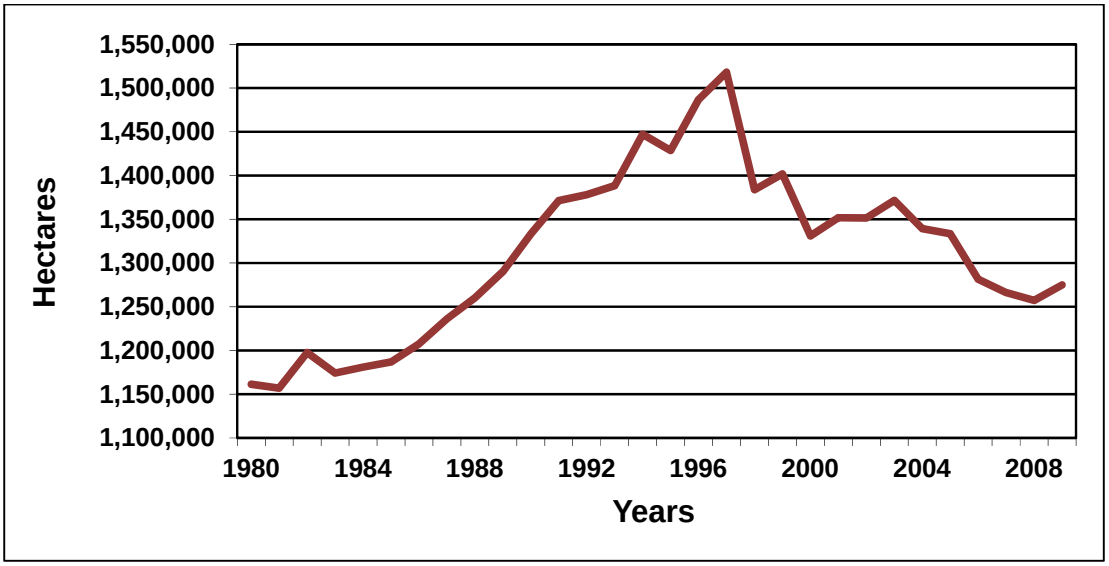

Figure 2.3 Total plantation area in South Africa 1980 – 2009 (FSA, 2010b).

Currently there is a yearly shortage of sawn timber of 27% within South Africa, which will increase to 53% over the next 26 years. Even though the proposed planting of 100 000 ha of plantation in the Eastern Cape was approved, this timber will only have an impact on the market in 30 years time, when they are ready for harvesting (Visser, 2007a).

The decline in plantation size and the decreasing rate of afforestation together mean that the current plantations will have to produce more to meet the demand of the growing population and its associated timber requirements. The phasing out strategy will remove even more plantations from producing roundwood, worsening the situation further.

It is predicted that within ten years time the demand for sawn timber will overtake the supply if the current situation continues. Both large and small sawmills are struggling to stay productive, and several of them have already had to close down (Ham *et al,* 2010). This, combined with the privatisation of Government owned plantations, and restructuring, will make it difficult for these types of enterprises to be sustainable (DWAF, 2005b). A study by Horn in 2000 in the Eastern Cape indicated that small scale sawmills make use of local people, and income generated is also mainly spend locally. For some, sawmilling is the only major livelihood strategy that they depend on, and they live with no or very little minimum livelihood reserves (Horn, 2000).

2.4.2 Natural Impacts

In August of 2007, an estimated 40 000 ha of plantation in Mpumalanga and 30 000 ha in KwaZulu-Natal were destroyed by fire (Visser, 2007b). In addition, York Timbers lost 84 000 ha of plantations

due to fire in 2008 (De Bruyn, 2009). Fires result in a loss of money, but also it contributed to the scarcity in supply of softwood timber. The damage to plantations caused by fires is depicted in Figure 2.4. The total damage to plantations over the period of 1980 to 2009 is 930 573 ha, while the damage caused by fire over the same period is 548 568 ha (49%) (FSA, 2010b). The hectares of plantations damaged due to fires in 2007 was the worst damage caused in the past 27 years (Visser, 2007b).

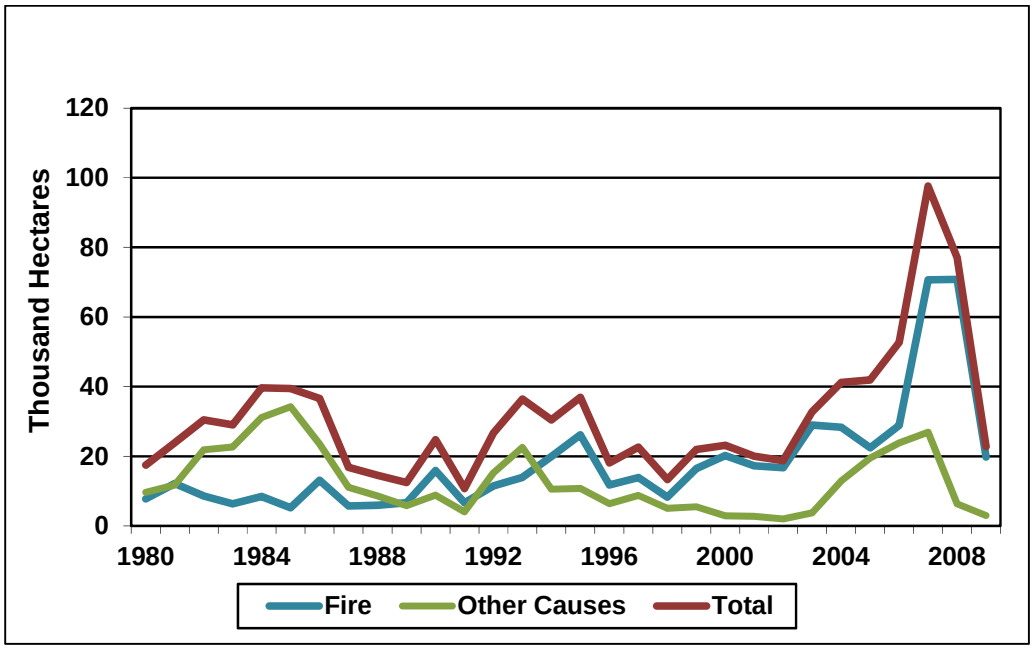

Figure 2.4 Damage to plantations 1980 to 2009 (FSA, 2010b).

2.5 Socio-economic Impacts of the Phasing out Process

In the third quarter of 2011, the unemployment rate in South Africa was 25.0% (Statistics SA, 2011). The agricultural and forestry sectors employ 30% of the 15.23 million people who are economically active in South Africa. The exit process, however, has the potential to affect nearly 12 000 people within the Southern and Western Cape who rely on the forestry industry, with drastic socio-economic consequences (MTO, 2005).

Mafiri (2002) highlighted that unemployment can lead to criminal activities. Most of this is caused by young males who resort to such actions due to lack of work and boredom. This situation will most probably occur in the forest dependant communities, where people might lose their jobs due to the phasing out process.

Recent mill and forestry closures in South Africa and Australia provide examples of how the socio-economic impact of company closures and reduced economic activities can be mitigated. In 2011 Sappi announced the closure of its local Adamas Mill in Port Elizabeth as well as its Biberist Mill in Switzerland. In both instances, redundancy notices were sent to all employees and Sappi has worked closely with the labour unions to develop a social plan for the employees. Some of the Adamas Mill employees were relocated to other Sappi Mills, while other employees are first in line for other employment opportunities within the company (Anon, 2011; Naidoo, 2011).

The Tasmanian forestry company Gunns Limited, received a payment from the Tasmanian Government as a part of an agreement which sees the company exit from logging native forests within the state (Fickling, 2011). The Tasmanian Forest Intergovernmental Agreement was signed by the Australian Prime Minister in August 2011, and is mainly developed as a way of support and to improve sustainability for the state's forestry industry, jobs and communities which rely on forestry. A total of $85 million is earmarked as support for contractors and their families who have been impacted on as a result of the negative growth within the industry (Australian Government, 2011). The pro-active stance taken by the Australian Government should serve as a comparison for the South African Government when considering possible job losses within the forestry sector as a result of the phasing out.

2.6 Integrating Social and Economic Factors into Planning

In order to improve planning within the natural resources environment, the Government of Queensland, Australia, developed a basic nine step plan for integrating social and economic factors within Natural Resource Management (Queensland Government, 2008). This plan focuses on the social and economic conditions and characteristics within a study region. The focus is not only on the resources themselves but on ensuring a sustainable economy within communities as well as social wellbeing. In Chapter 6 (Discussion) the results from the MTO study will be discussed and evaluated according to this plan.

The nine steps mentioned in this process are (Queensland Government, 2008):

1. Understand the socio-economic trends in the region;
2. Select the most important social, environmental and economic issues i.e. within this study the phasing out process;
3. Identify high priority issues – Possible unemployment, loss of income for the region;
4. Benchmark the region's baseline situation – Making use of current economic data and information obtained through interviews;
5. Assess likely impacts of targets and actions;

6. Estimate the potential impacts of the proposal – Analysing the information obtained through the interviews;
7. Conduct detailed planning and analysis;
8. Recommend best actions;
9. Overcome barriers and build bridges.

2.7 Chapter Summary

This chapter presented a background on Forestry within South Africa, as well as in the Western Cape. It has been established that Forestry plays an important role in the economy, especially in rural and poor areas and that unemployment within Grabouw and George is one of the main issues of concern within the local municipalities. The background and current situation of the phasing out decision was discussed, as were the most prevalent impacts that the forestry sector experiences. Furthermore situations in other areas and countries were looked at to see how they handled and overcame a similar dilemma. The chapter concludes with a description of a plan for integrating social and economic planning within Natural Resource Management. The next chapter will look at the methodology followed within this study.

CHAPTER THREE

METHODOLOGY

3.1 Definition of Research Framework

A mixed method study, which is a combination of quantitative and qualitative approaches to data collection, was followed within this research. Studies using this approach generate both numerical and narrative data (Tashakkori & Teddlie, 1998). Within this socio-economic study, some questions resulted in quantitative data (e.g. household income per month), while open-ended questions resulted in personal opinions and/or feelings from the respondents (known as qualitative data). The quantitative data was used in statistical analysis and comparisons, while the qualitative data served a descriptive purpose (Babbie & Mouton, 2001).

When a qualitative method is used, the data collection usually takes place within the respondents' own environment. Multiple approaches to data collection can be used and the method is usually applied when examining a social phenomenon in a holistic way. The researcher interprets the collected data and develops a description of the research unit, the meaning of the study and a future outlook (Cresswell, 2003). The phasing out process can be seen as a "social phenomenon", thus justifying the use of qualitative methods. The main aim of this study was to examine and determine the impacts of this process.

Qualitative and quantitative approaches were combined within the interview process by making use of a questionnaire. Although the use of questionnaires is usually seen as a quantitative method (Alreck & Settle, 2004), this questionnaire consisted of both closed and open ended questions, resulting in answers that could be quantified numerically, and others used for descriptive purposes.

Within three plantations, four forestry dependent communities were selected to be interviewed. A stakeholder analysis was performed to identify the stakeholders of the plantations (Babbie & Mouton, 2001). Information was then gathered from stakeholders along the forest and forest products value chain as well as from indirect stakeholders by means of questionnaires, informal interviews, telephonic and e-mail correspondence.

3.1.1 Stakeholder Analysis

A stakeholder analysis can be used to identify the stakeholders that will be either positively or negatively influenced by a project, or in this instance a decision (Unicef & MSH, 1998). In this study, stakeholders were defined as the interest groups that are involved in the management, utilization and

conservation of the forest plantations and plantation products. They form a diverse, heterogeneous group, which ranges from informal interest groups (e.g. firewood collectors) to governmental bodies (e.g. DWAF/DAFF) (Grimble, 1998). To assist with the initial identification of stakeholders a mind map was used (Figure 3.1). A mind-mapping tool can be used to assist with the planning of activities, to give an overview of a process, or as a study technique to convert various sources and pieces of information into a diagram (consisting of keywords), obtained from the information. The central word, which is the main keyword, will be the main focus point or idea. (Farrand *et al.,* 2002; Wilcox, 2003). Within this stakeholder analysis, "plantation stakeholders" were taken as the starting point for the identification of the stakeholders expected to be impacted on the most. The stakeholders were then subdivided into groups based on their different interests in the plantations, with DWAF (now DAFF) being the phasing out decision makers. The three stakeholder groups were:

(I). Forest dependent communities;

(II). Stakeholders along the forest product value chain (primary and secondary processing companies);

(III). Indirect forestry related stakeholders.

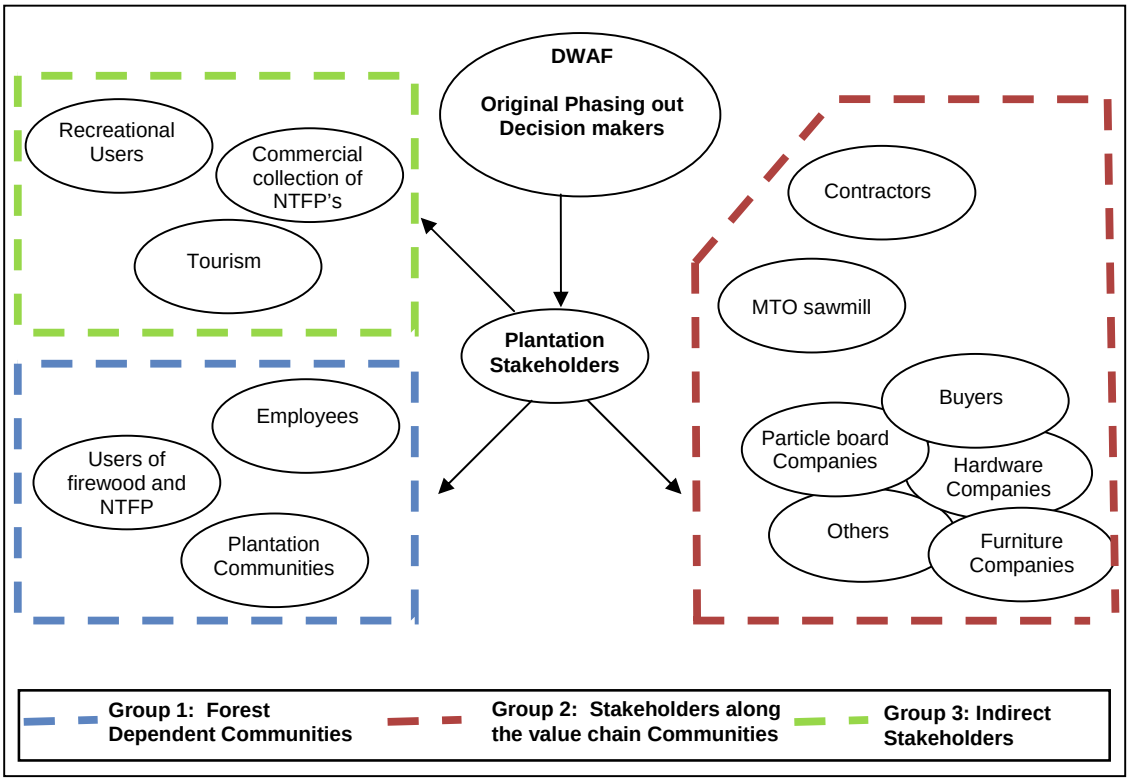

Figure 3.1 Map of identified stakeholders in this study.

3.1.2 Selection of Case Study Plantations and Communities

Three plantations within two geographical areas (the Western and Southern Cape) were identified, to achieve the research goals. Within these three plantations four case study communities were selected. Data was collected from these communities by making use of face-to-face interviews.

The three largest plantations (in terms of plantation cover) within their respective areas (Southern and Western Cape) were chosen as the case study plantations for this study from the total of seven plantations involved in the phasing out process. The reasoning behind this decision is that the larger plantations will have higher timber yields, and subsequently it will employ more people and effect more downstream and indirect users than the smaller plantations (Nel, 2006). This will also result in a bigger sample size, and bigger change for choosing representative households. As the area represented by the exit plantations in the Southern Cape (SC) is roughly twice as large as the area represented in the Western Cape (WC) the two largest plantations in the SC (Jonkersberg and Buffelsnek) and the largest plantation in the Western Cape (Grabouw) were chosen (Nel, 2006).

Two communities in Grabouw, namely Rooidakkies and Dennekruin, were selected for this study, as being the two communities where the most plantation workers are resident. It is to be expected that these communities will be affected most significant by any change in plantation size and employment opportunities (Nel, 2007). Both Jonkersberg and Buffelsnek plantations have a community within the plantation itself, where a large number of their permanent workers live. Phillipsvale is located in Jonkersberg and Sonskyn in Buffelsnek. See Table 3.1 for a summary of the case study plantations and communities and Figure 3.2 for the location of the case study plantations, indicated with arrows.

Table 3.1 Summary of case study plantations and communities.

Region	Plantation	Community
Western Cape	Grabouw	Dennekruin Rooidakkies
Southern Cape	Jonkersberg	Phillipsvale
	Buffelsnek	Sonskyn

Figure 3.2 Location of the case study plantations (MTO, 2010).

A case study is a thorough examination of a single element (Babbie & Mouton, 2001). This study approach is recommended, when a researcher needs to conduct an in depth investigation of a specific situation, event or group (Black, 1993). A wide collection of information about a specific case can be collected, and trends and patterns within the case study can be identified. In addition this approach allows for cross-comparisons with other cases (Coldwell & Herbst, 2004). Although until the 1980's case studies were still criticised due to the lack of control groups and post-testing possible, this research approach is widely accepted today as a valuable tool, when multiple variables are investigated (For a detailed discussion on case study research, see Babbie & Mouton, 2001).

The advantages of case studies are that possible relationships and dependencies between elements can be identified and that information collected can be applied in future studies. Horn (2000) for example used a case study approach to investigate the role of small-scale sawmilling in household and community livelihoods in the Eastern Cape. Her study aimed to identify the possible need for external support and intervention. Similarly, this study aims to identify areas where support is required in the communities, within the processing companies and indirect stakeholders and to make recommendations for managing similar processes or situations in the future.

3.1.3 Identification of Primary and Secondary Processors

The value chain from the plantation to the final processing was followed to identify the primary and secondary processors along the forestry value chain. The first step involved the identification, with the assistance of MTO, of the primary processing companies who depend on the timber supply from the plantations in the regions.

The secondary processing companies within this study were those companies, who bought materials/products from the primary processors. These companies were identified by the primary processors during interviews. This technique is called snowball sampling (Babbie & Mouton, 2001). Snowball sampling is a very effective tool to use when it is difficult to identify stakeholders along the value chain due to lack of initial information (Babbie & Mouton, 2001; Bernard, 2000). Data was collected through face-to-face interviews, telephonic interviews, and e-mail communication.

3.2 Questionnaire Design

Different questionnaires were developed for the forest dependent communities and for the stakeholders along the value chain, as these two groups were identified through various discussions with MTO as being potentially impacted on the most. The questionnaires for the forest dependent communities were administrated via face-to-face interviews. For the stakeholders along the value chain the questionnaires were administered face-to-face where possible, but when face-to-face interviews were not possible telephonic interviews and e-mail communications were used.

Advantages of administering questionnaires face-to-face are that unclear questions can be explained, sensitive questions can be asked more easily and it is possible to interview illiterate and visually impaired people (Bernard, 2000). As the topic was very sensitive, dealing with the possible loss of employment; face-to-face interviews were the most applicable. The questionnaire also dealt with some potentially difficult terms and ideas such as “phasing out” and “non timber forest products”, which might have to be explained to respondents. As most of the households were situated within poorer communities, where illiteracy is more common, face-to-face interviews were the best method to obtain the necessary information.

There are, however, some disadvantages to be mentioned. Conducting face-to-face interviews for the purpose of administrating a questionnaire is time consuming, expensive and the researcher often has to travel great distances. It is also very tempting for the researcher to lead respondents in their answers so as to obtain the information desired (Bernard, 2000). The time set aside for the data

collection process within this study was planned in such a way that adequate time would be available for the required interviews. The researcher made sure not to lead respondents into answers, but rather to help them understand the questions and allow them to give their own answers and opinions.

3.2.1 Construction of Questionnaires

Within this study, the community questionnaire was constructed first, followed by the development of the stakeholder questionnaire, using similar question formats and structures, where possible. Both, open-ended and close-ended questions were used, to allow for the collection of a variety of data, both numerical and narrative (Bernard, 2000).

The community questionnaire was divided into five sections. Section one concentrated on general information on the community, section two dealt with specific household demographic information, section three identified the dependency of the household on NTFP's and firewood. Employment information was contained in section four, while the last section focussed on the respondent's personal view, regarding forestry in the community and surrounding area (See Appendix A).

The company questionnaire had four sections. The first contained general information on the company, the second section focussed on the company's business focus (timber intake etc), section three dealt with the company employees and the last section had questions regarding the respondent's view of the phasing out process and the possible impacts of the process on the company and surrounding area (See Appendix B).

3.2.2 Pre-testing of Questionnaires

According to Babbie and Mouton (2001) pre-testing is a necessary step in the research process as it reduces the possibility of errors. The respondents should be people to whom the questionnaire is of relevance and therefore the pre-testing was conducted within one of the case-study communities (Dennekruin) on ten households. After the testing of the questionnaire was completed, it was altered to rectify problems encountered as recommended by Babbie & Mouton, 2001.

3.3 Data Collection and Sampling

3.3.1 Forest Dependent Communities

Communities were interviewed at a household level during 2007. Malan (2005) in her study of three forestry communities, made use of initial meetings with the communities to inform them and give

community members a background on the study, prior to data collection. This approach was not followed within this study as the initial meeting could have resulted in discussions among community members, and as a result influence the people's opinion towards the study and the very sensitive subject of the phasing out of plantations.

It is essential that a sample size used within a study is representative of the whole population (Babbie & Mouton, 2001). Babbie and Mouton (2001) define a representative sample as follow: "... *a sample will be representative of the population from which it is selected if the aggregate characteristics of the sample closely approximate those same aggregate characteristics in the population*". Within this study, probability sampling was used. The main purpose of this sampling technique is to select a sample of the total population that accurately portrays the characteristics of the total population. To achieve this, the basic principle of probability sampling was applied within this study. This principle states that a sample will be representative of the study population if "*all members of the population have an equal chance of being selected in the sample*" (Babbie & Mouton 2001). Within the four case study communities, households to be interviewed were chosen at random, and therefore every household in the community had the chance of being selected (Babbie & Mouton, 2001). A list/number of households within the four communities was the sampling frames for the forest dependant communities. Demographic information on the communities of Dennekruin and Rooidakkies was not available. This is not an isolated problem, within South Africa sampling frames as sources of information are not readily available (Babbie & Mouton, 2001). Sampling frames for the two communities mentioned were developed by making ground observations and inspecting aerial photographs while MTO had information available for the Buffelsnek and Jonkersberg communities in the Southern Cape.

Taking the above-mentioned into account, a sampling percentage of 20% was used. According to Hetherinton (1975, in Thuryahabwe, 2006) a 20% sample of a population can be seen as representative of the population and percentage was also used by Kalaba (2007) in his case study in Zambia on the role of indigenous fruit trees in rural livelihoods. The sampling percentage was increased in the smaller communities of Sonskyn and Phillipsvale, where 10 households were chosen per community for interviews as a sampling percentage of 20% would have resulted in less than 10 households being interviewed. Table 3.2 gives a summary of the number of households and the number of households interviewed within the four case study communities.

Table 3.2 Summary of households interviewed in the case study communities.

Community	Total Nr of households	Nr of households interviewed	Percentage of households interviewed
Dennekruin	96	20	20.8 %
Rooidakkies	150	30	20 %
Phillipsvale	28	10	35.7%
Sonskyn	34	10	29.4

3.3.2 Stakeholders along the Value Chain

As the sampling frame for the primary processing companies was very small, interviews with all relevant companies was conducted, making use of semi-structured questionnaires.

The sampling frame for the secondary processing companies in the George area, who regularly rely on timber from MTO, was available from George Sawmill. From all of the secondary processing companies identified in this manner, a representative sample (50%, n=9) was taken to include the spectrum of processing companies.

Within the Grabouw area, timber from the exit plantation is mainly transported to Cape Sawmills, located in Stellenbosch. The sampling frame for the secondary processing companies who rely on timber from this sawmill was however not available. Cape Sawmills did supply the company names of six of their buyers, and all were contacted. Due to the sensitivity of the phasing out process, and fear for their business, only three were willing to supply information.

3.3.3 Indirect Stakeholders

Data from the last group of stakeholders were obtained through unstructured key informant interviews (Babbie & Mouton, 2001). These interviews were conducted telephonically, and further information was obtained by e-mail communications and from MTO.

3.4 Data Analyses

The data and information from the questionnaires was imported into Microsoft Excel worksheets (Microsoft, 2003). This involved coding, grouping and ranking of answers to allow for analysis. Descriptive data analysis was conducted within Excel.

The statistical package Statistica 8 (Statsoft Inc, 2008) was used to test for significance of the dependency on forestry income of the case study communities within the WC and SC regions as well as the ranked importance of forestry within the four communities.

For the dependency on forestry income, a repeated measures ANOVA was conducted, comparing two income sources (forestry income and other income[4]). The residuals for each income source were not normally distributed, and therefore the repeated measures ANOVA was repeated using a Bootstrap method (Efron & Tibshirani, 1993).

The second set of analysis was to identify the difference in the ranking by interviewed households of the importance of forestry within the WC and SC regions. The data analysed consisted of ranked data, and as a results was not normally distributed. To test for differences within the two regions, a Mann-Whitney U test was used. This test assesses whether independent samples come from the same distribution (Mann & Whitney, 1947; Nel, 2007).

3.5 Chapter Summary

This chapter presented a background on the identification of plantation stakeholders and the selection of the case study plantations and communities. It detailed the methodology approach used to collect the data, and how the data was analysed. In Chapter 4 the results of the data collection is presented.

[4] All income that is not forestry related.

CHAPTER FOUR

RESULTS

This chapter presents the results according to the research questions, and is structured as follows:

- Results of the local community household interviews in the four case study communities.
- Results of the interviews with stakeholders along the forest and forest products value chain.
- Indirect stakeholder interview results.

4.1 Forest Dependent Communities

4.1.1 Description of Case Study Communities

Dennekruin consists of 96 wooden houses connected via dirt roads (Figure 4.1). It is fully integrated into the town of Grabouw, and closely situated to schools, shops and medical services. Dennekruin used to be a community exclusively for plantation workers when the Grabouw plantations were still managed by the old Government Department of Forestry. With the change over to SAFCOL, and then MTO, the residents changed from exclusively plantation workers to people with various occupations and professions (Hendricks, 2007). Plantation workers now live throughout the various neighbourhoods of Grabouw. In November 2007, Dennekruin residents signed for ownership of their houses.

Figure 4.1 A typical Dennekruin house.

Rooidakkies is a community that includes formal and informal housing (Figure 4.2). It was difficult to obtain demographic information for the Rooidakkies community, as the Municipality had no data available on the number of households. Aerial photographs from 2007 were obtained through Google Earth (Google Inc., 2007) and used in counting the number of houses. This, combined with ground observations, which indicated that some informal houses were abandoned or households were split into two or more adjacent houses, resulted in an estimated total of 150 households.

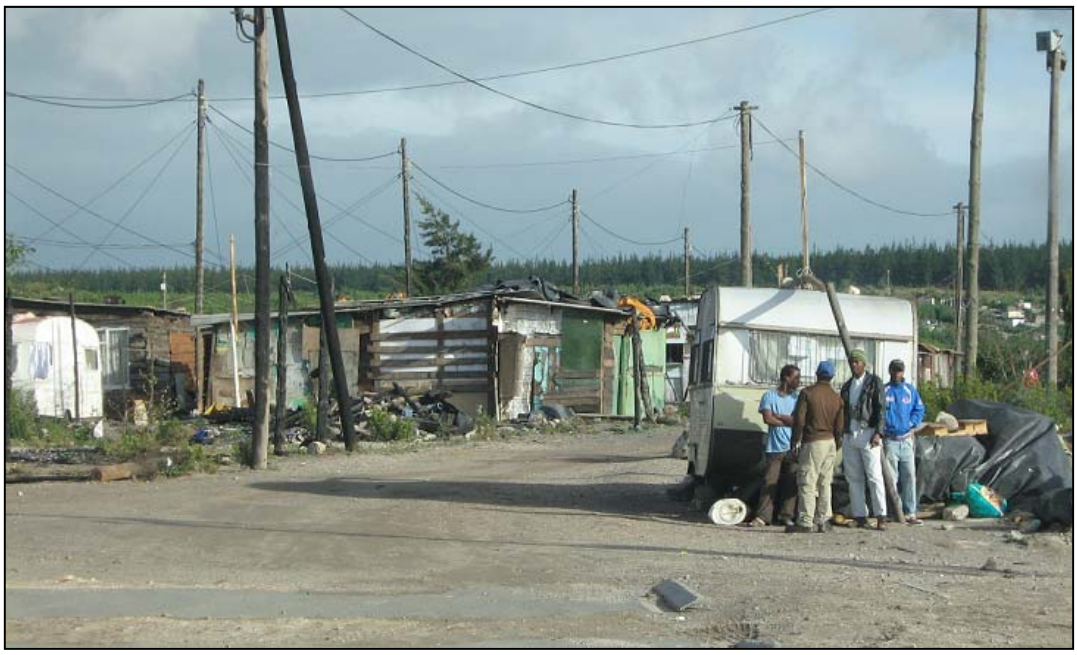

Figure 4.2 Informal housing in Rooidakkies.

The **Phillipsvale** and **Sonskyn** communities are relatively isolated, in that there are no nearby shops, other communities or work opportunities. The only access to these communities is through the plantations. Phillipsvale consists of 44 houses, of which 28 are occupied (Figure 4.3). Houses are either wooden structures (as seen in Dennekruin) or brick buildings. Sonskyn community is similar to Phillipsvale and consists of 40 wooden houses, of which 34 are occupied (Figure 4.4). There is also a school within the community due to its remoteness.

Figure 4.3 Housing in Phillipsvale.

Figure 4.4 Housing in Sonskyn.

4.1.2 Demographics

A total of 70 households in the four communities were interviewed. On average 5.23 people live in every household (including on average 1.83 children, 1.87 employed persons, 0.4 retired and 0.11 disabled people). On average 3.36 dependant people live in a household (Table 4.1).

Table 4.1 Household demography of the four communities interviewed.

	Western Cape		Southern Cape		
Community	**Dennekruin**	**Rooidakkies**	**Phillipsvale**	**Sonskyn**	**Total**
Total Households	98	150	34	28	**310**
Sample size	20	30	10	10	**70**
Average number of people per interviewed household					
Total	5.15	4.83	5.00	6.80	**5.23**
Children	1.90	1.50	1.80	2.70	**1.83**
Retired	0.55	0.23	0.50	0.50	**0.40**
Disabled	0.15	0.13	0.00	0.10	**0.11**
Employed	1.90	1.77	2.10	2.10	**1.90**
Dependants	3.25	3.17	2.80	4.70	**3.36**
Forestry employees interviewed					
Total	8	1	13	21	**43**
% of all employed	21%	2%	62%	100%	**32%**
Avg. per household	0.4	0.03	1.3	2.1	
Avg. age	42.13	26	32.23	35.14	**35.35**
Avg. age WC vs. SC	40.30		33.69		

Of all the employed individuals within the interviewed households, the forestry industry employed 2% in Rooidakkies, in Dennekruin 21%, in Phillipsvale 62% and in Sonskyn 100%. The average age of a forestry worker is higher in the Western Cape (40.30 years) than in the Southern Cape (33.69 years).

4.1.3 Identification of Needs

To obtain an in depth understanding of the social-economic status of the case study communities, an analysis of “well-being” was conducted. During the interviews, household respondents were asked to identify areas within their community, where support is needed. The answers given were then ranked into groups, based on the five levels of Maslow’s hierarchy of needs and in line with well-being outcomes defined by Clarke, Islam and Paech (2005) in an Australian study, measuring well-being using hierarchical needs. Maslow describes within his theory five sets of needs: (i) Physiological or basic needs; (ii) Safety needs; (iii) Belonging needs; (iv) Self-esteem needs; and (v) Self-actualisation needs. These needs are related to each other and form a hierarchy, a “lower” need must first be satisfied before the next “higher” need emerges. Needs are not mutually exclusive and every person

or community will be partially satisfied and unsatisfied in their needs. However the non-satisfaction will increase higher up in the hierarchy (Maslow, 1943). Within the Australian study, eight indicators were chosen to reflect the hierarchical categories, while within this study, answers to open questions were analysed and categorised as need indicators. The categorisation of community responses into the different needs indicators, within the analyses of well-being exercise, are depicted in (Table 4.2) while The percentage of community responses within the different needs levels is shown in Figure 4.5.

Table 4.2 Analyses of well-being.

Maslow's hierarchy of needs	Well-being outcomes that correspond with this need (Clarke *et al*, 2005)	Classification of responses obtained through community interviews
1. Physiological	Healthy Vitality	Food Sanitation
2. Safety	Safe Settled Secure	Medical Housing Shops Roads + Transport Employment Crèche
3. Belonging	Included Loved Participating	Child and youth activities Playground Sports facilities
4. Self-esteem	Empowered Confident Convivial	Schools + education Agricultural equipment
5. Self-actualisation	Actively seeking knowledge Inspired to reach potential	

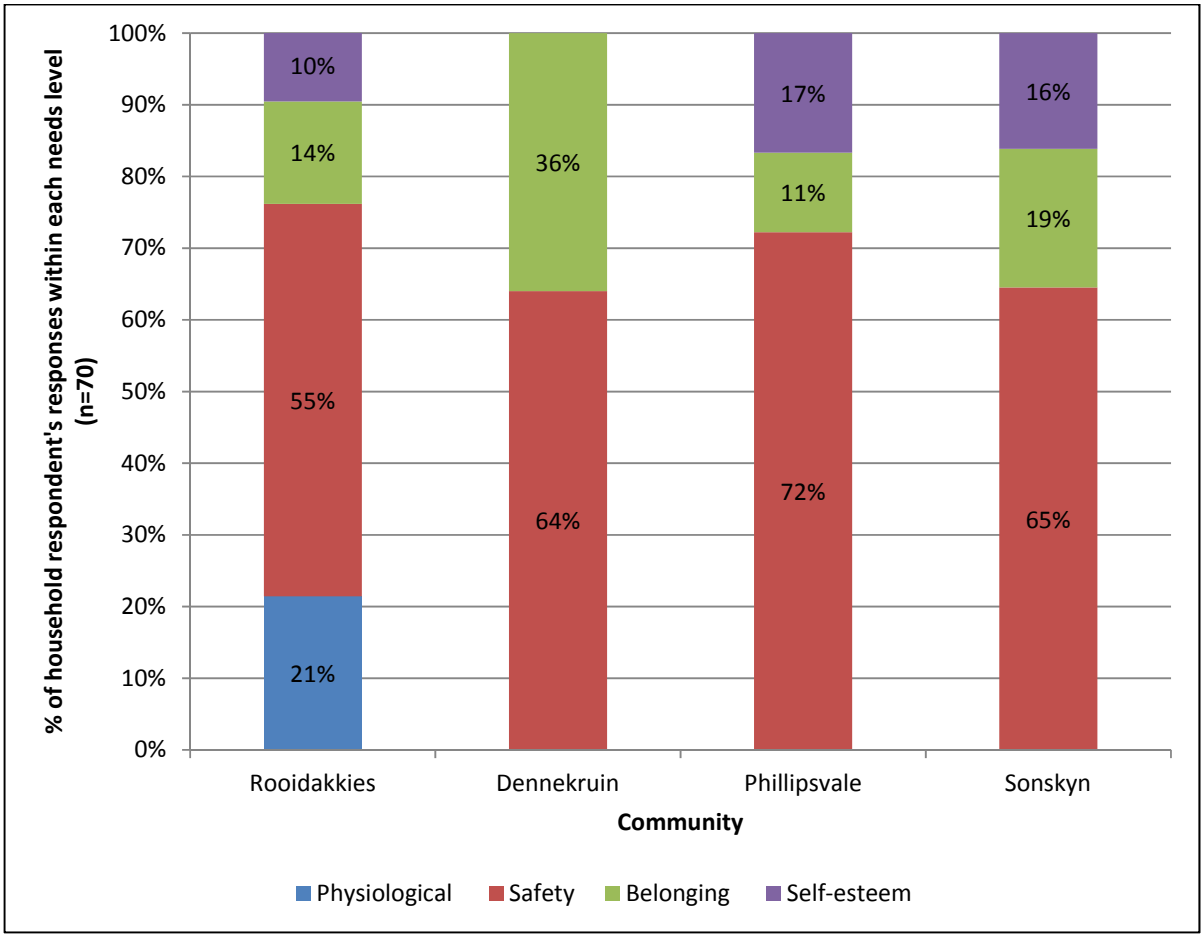

Figure 4.5 Percentage of community responses within each needs level.

Within Rooidakkies, physiological (21%), safety (55%), belonging (14%) and self-esteem needs were identified, Interviewed households in Dennekruin community identified two needs, the safety need (64%), and the need for belonging (36%). Within both Phillipsvale and Sonskyn communities, three needs were identified, with the safety need (72% in Phillipsvale and 65% in Sonskyn) having the biggest percentage of responses.

4.1.4 Employment and Income

4.1.4.1 Employment Distribution

The major types of employment within the four case study communities are depicted in Figure 4.6.

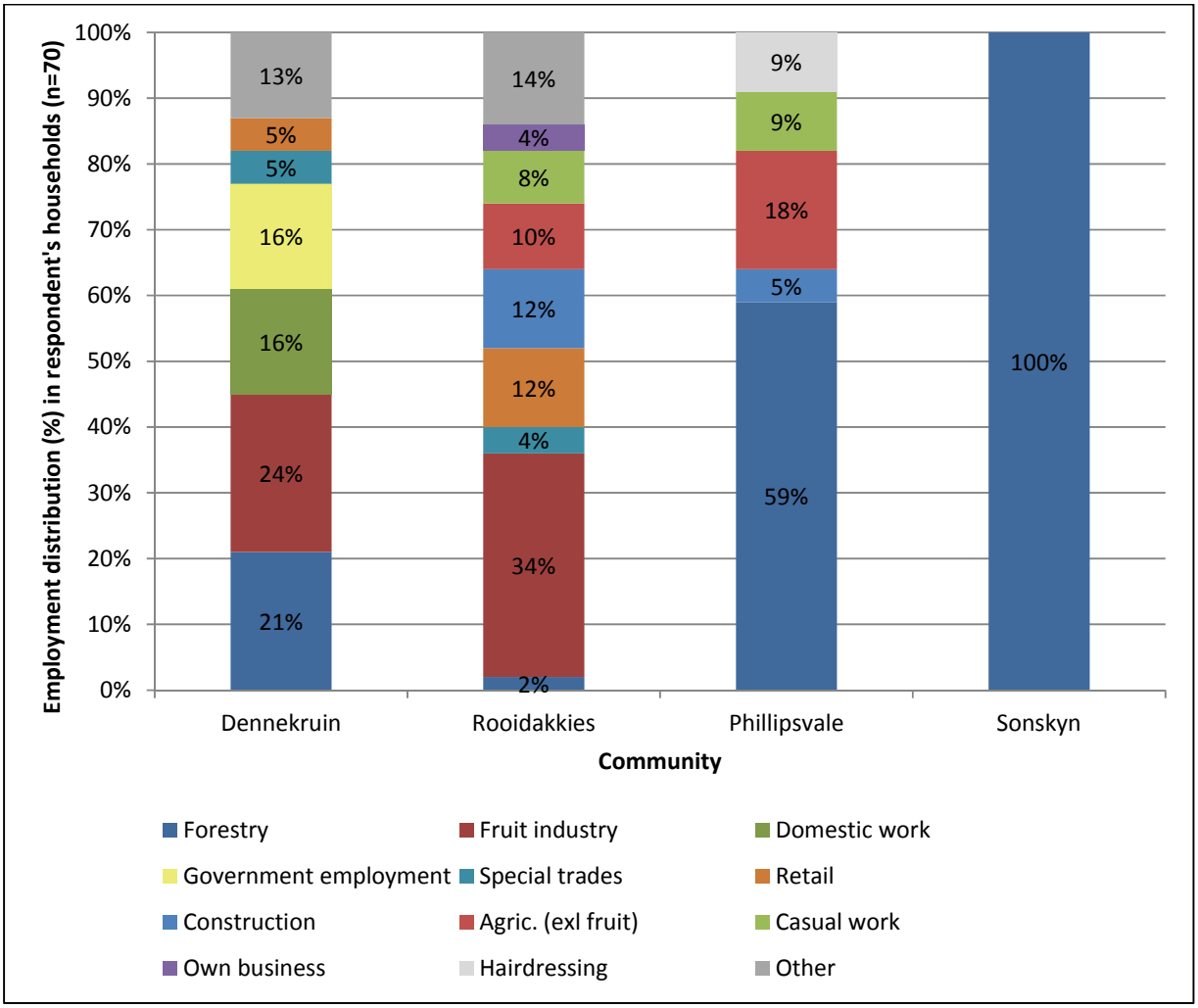

Figure 4.6 The distribution of income within the four case study communities.

The fruit industry is the biggest employer (24%) in Dennekruin due to the fact that the Grabouw area is situated in a thriving apple and pear farming industry. Forestry provides 21% of the total employment. Together these two industries provided 45% of employment in Dennekruin. Within Dennekruin, Government employment (municipal workers, police force employees, teachers etc) and domestic work both account for 16% of the total employment. The retail sector and special trades (electricians, plumbers and mechanics) in addition provide 5% of the total employment each. "Other" employment (13%) includes diverse employment such as a laboratory assistant, church employee and a security guard

The employment distribution in Rooidakkies is more diversified, with the fruit industry being the highest employer with 34%. Retail and construction each provide 12% of the total employment while "other" employment contributes 14% to the total. Agricultural activities account for a further 10%, with casual

work (8%), special trade (4%) and own business (4%) also contributing. Forestry employment in this community contributes only 2% of the total interviewed household employment.

Forestry provides 59% of the total employment in Phillipsvale. Agriculture, mainly as a result of the farms closely located to the plantation, provides 18% of employment. Hairdressing, which is an informal business activity run by a couple of women within the community, supplies 9% of employment. Casual work (9%) and work in the construction industry (5%) also contribute to the total employment.

The study revealed that the forest industry is the only employer, (100%) for the interviewed Sonskyn community members.

4.1.4.2 Income Distribution

Distinction was made between four different types of income: (1) Permanent forestry income; (2) Permanent, non-forestry income; (3) Seasonal income; and (4) Social grants. The distribution of these income sources is summarized in Figure 4.7 below.

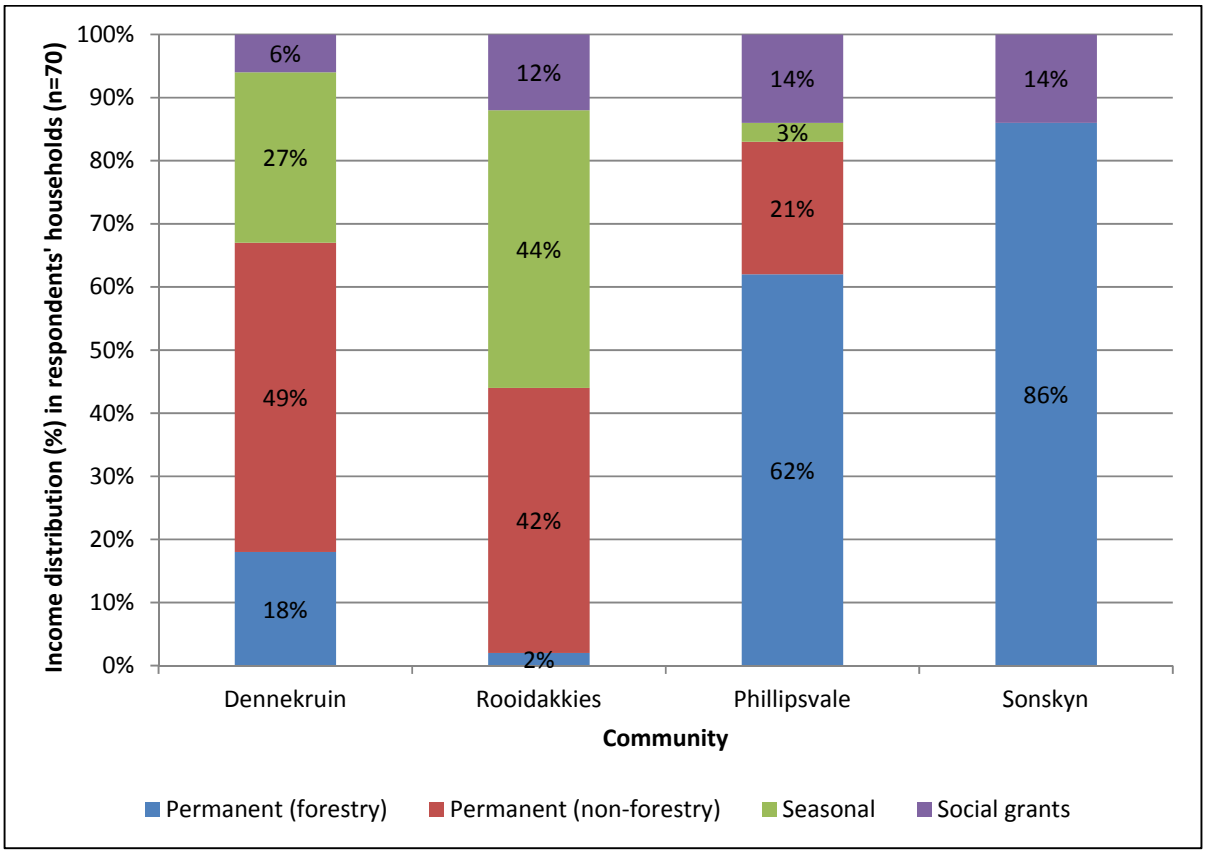

Figure 4.7 Distribution of income sources within the four case study communities.

When comparing the type of income in Dennekruin, seasonal income accounts for 27% of the total income in the community, while 49% of the income is in the form of permanent (non-forestry) income and 18% permanent income from forestry. Social grants provide an additional 6% of the income. It is important to note that most of the employment within the fruit industry is seasonal.

In Rooidakkies, the employment in the fruit industry (34%) is also a main contributor of seasonal income, and as a result the percentage of seasonal income is high (44%). Income is evenly distributed between permanent (both forestry and non-forestry) and seasonal income; both represent 44% of the total income. Social grants provide an additional 12% of income.

Forestry, the major employer in Phillipsvale, also provides for the highest percentage of income (62%). Other permanent work contributes 21% to the total community income, while the rest is seasonal income (3%) and social grants (14%).

In Sonskyn, 86% of the total income is supplied by the forestry industry, with social grants providing the other 14% of income.

4.1.4.3 Comparisons between the Case Study Communities

In Figure 4.8 the dependency of interviewed households within the four communities is compared in terms of forestry income and other income. Forestry dependant households are those that rely on some form of forestry income. The average forestry dependency in the communities in the WC is 18% of the interviewed households compared to 85% in the SC.

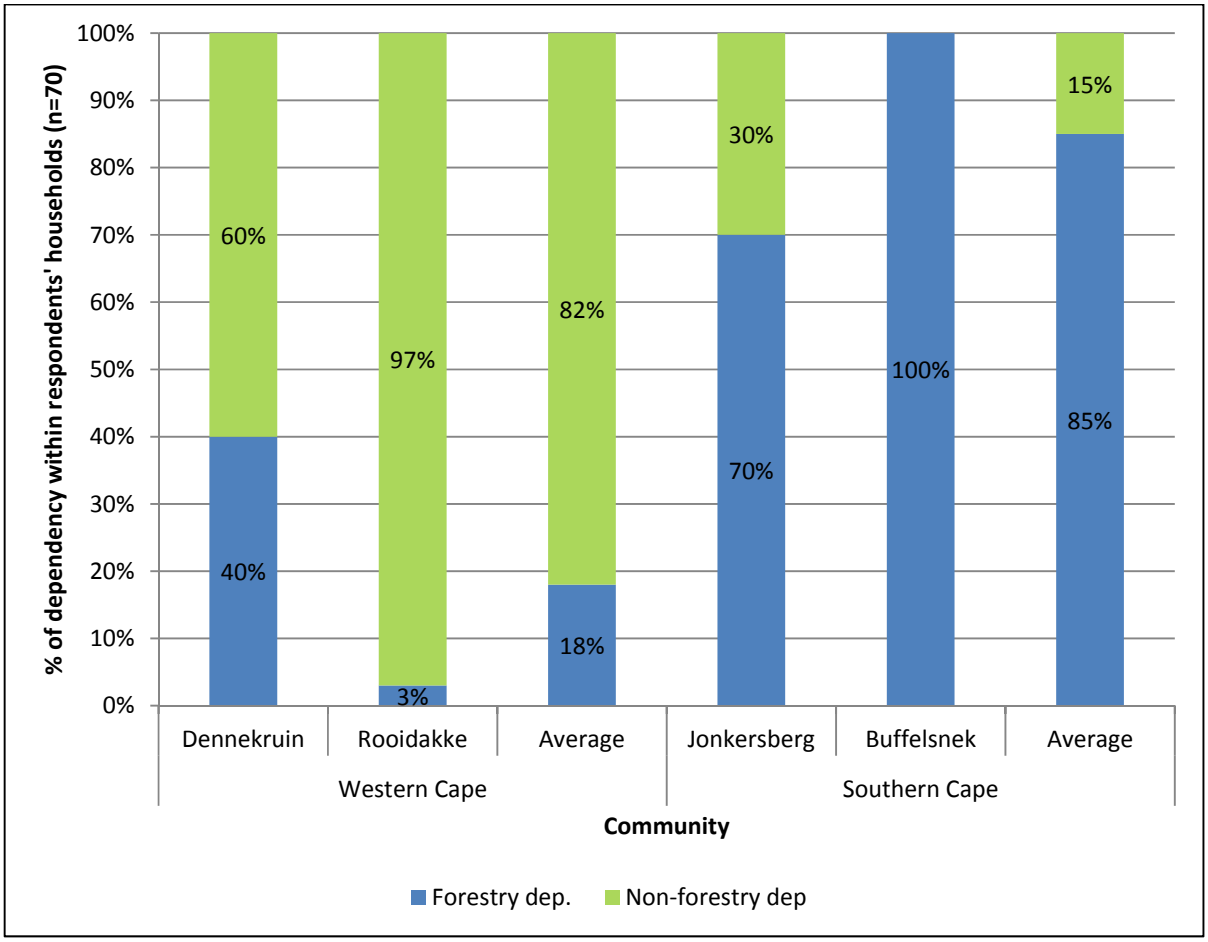

Figure 4.8 Forestry dependent vs. non-forestry dependent households.

When comparing the total income distribution percentages for the four communities, permanent non-forestry generates the most income (33%), followed by permanent forestry income (32%), seasonal income contributes 24% of the total income and social grants 11% (Figure 4.9).

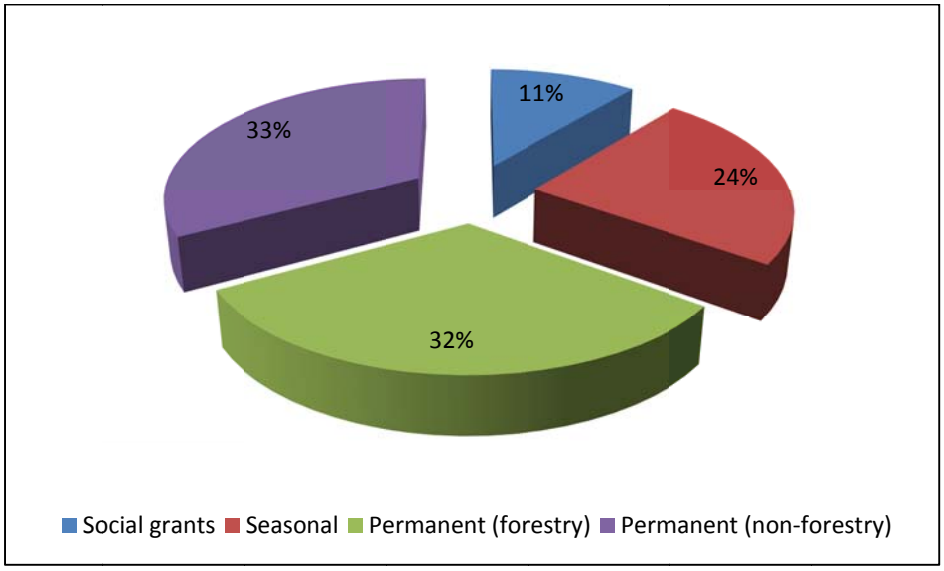

Figure 4.9 The distribution of income in the four case study communities (n=70 households).

The percentage of employees within the average monthly income categories, as defined by Statistics South Africa was calculated for each of the four case study communities and is as shown below in Table 4.3. The Statistics SA 2007 data was converted from population values to percentages. (Statistics SA, 2007),

Table 4.3 Average monthly income in South Africa (Statistics SA, 2007) compared to the case study communities (% of workers within respondent's households, n=70).

	South Africa	Dennekruin	Rooidakkies	Phillipsvale	Sonskyn
None	2.4	2.6	3.8	0.0	0.0
R1 - R500	8.6	7.9	7.5	9.1	0.0
R501 - R1 000	14.8	15.8	56.6	13.6	0.0
R1 001 - R2 500	26.5	57.9	32.1	77.3	100.0
R2 501 - R8 000	27.3	13.2	0.0	0.0	0.0
R8 001+	12.8	0.0	0.0	0.0	0.0
Don't know	7.6	2.6	0.0	0.0	0.0
Total	**100**	**100**	**100**	**100**	**100**

Within both Dennekruin and Rooidakkies the largest percentage of income is received in the R501 – R1 000 and R1 001 – R2 500 income groups. More than 77% of the income in Phillipsvale and all of the income in Sonskyn fall into the R1 001 – R2 500 group.

Table 4.4 shows the results of a calculation to compare the average income per year in the four communities. Firstly, the average forestry and other income per annum in the interviewed households were determined. The estimated total income per community per year was then calculated by multiplying the results from the average income per household per year by the total number of households within the community. The average incomes within the Western Cape and Southern Cape were also determined.

Table 4.4 Comparison of average community and household income per year (Forestry and other income sources) in the four case study communities.

	Western Cape		Southern Cape	
	Rooidakkies	Dennekruin	Phillipsvale	Sonskyn
Average income per household per year				
Forestry income	R 520	R 8 562	R 25 560	R 38 280
Other income	R 17 281	R 32 241	R 15 852	R 6 164
Total income per community per year				
Forestry income	R 78 000	R 821 952	R 869 040	R 1 071 840
Other income	R 2 592 180	R 3 095 136	R 538 968	R 172 603
Income averages for the Western and Southern Cape				
Income per household (% of total income in brackets)				
Forestry	R4 541 (8.4%)		R 31 920 (74.4%)	
Other	R49 522.20 (91.6%)		R11 008.20 (25.6%)	
Income per community (% of total income in brackets)				
Forestry	R449 976 (13.7%)		R970 440 (73.2%)	
Other	R2 843 658 (86.3%)		R355 785.60 (26.8%)	

In Table 4.4 it can be seen that the average forestry income per household in the WC is only 8.4% of the total income, and in the SC it is 74.4%. The total forestry income per community is 13.7% of the total income within the WC, and in the SC forestry income is 73.2% of the total income. This highlights the dependency on forestry within the two interviewed communities in the SC.

To further analyse the dependency on forestry income within the case study communities, a repeated measures ANOVA was conducted. The ANOVA results showed that there is significant interaction between communities and forestry dependency. ($F= 28$, $p= 0.000001$). However, as the residuals (i.e. the data for each group minus the respective means) were not normally distributed, the repeated measures ANOVA was repeated using a Bootstrap method. Figure 4.10 shows highly significant

differences[5] between forestry income and other income in the WC study communities (p=0), the mean for forestry income is R317.76 whereas the mean of other income is R2 479.31. There was also a highly significant difference between the forestry incomes of the case study communities in the WC and SC (p=0), the forestry income in the SC (mean R2 655) is much higher than in the WC (mean R317.76). Forestry income and other income in the SC also show a highly significant difference (p=0.006), the mean of forestry income is R1 737.65 higher than the mean of other income. Furthermore, there was a significant difference between the other incomes of the WC and SC, where the income other than forestry income in the SC was significantly lower than the corresponding income in the WC (p=0.027).

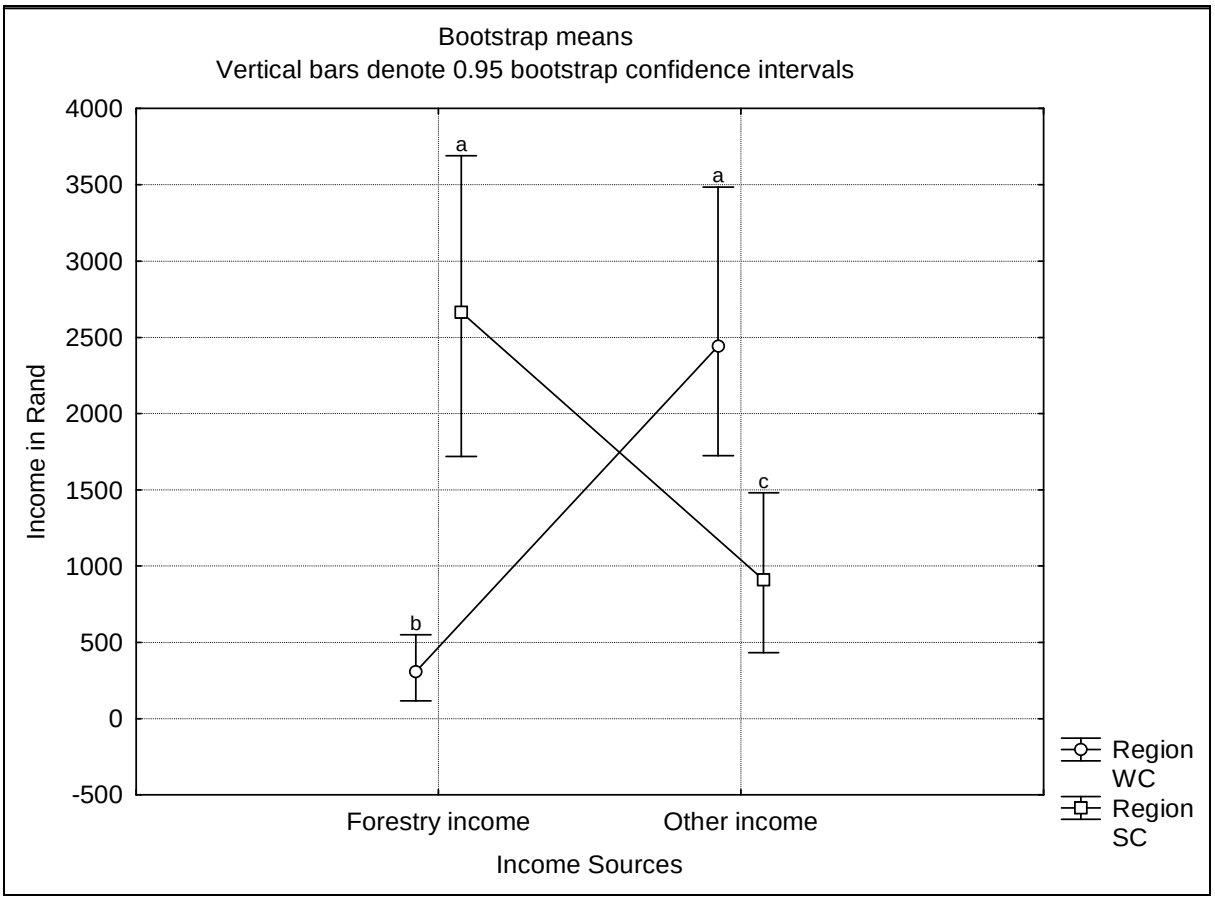

Figure 4.10 Analysis of Forestry income vs. other income within the WC and SC regions (data from interviewed households, n=70).

[5] A significant difference is where p<0.05 while a highly significant difference is where p<0.01

4.1.5 Non-Timber Forest Products

During this study it was expected that the households interviewed would make use of some form of non-timber forest products, especially firewood since they are so closely situated to the plantations, and are financially poorer communities.

The results revealed that in Dennekruin, none of the households interviewed made use of the plantations for the purpose of collecting NTFP's. According to the respondents, if they do need firewood, they will buy it in town.

Six of the interviewed households (20%) in Rooidakkies collect firewood in the nearby plantations, which they use for heating and cooking. Heating and cooking is mainly done by making use of paraffin or gas while firewood is only used as a substitute when paraffin or gas is unavailable or too expensive. The six households collect an average 4.5 bundles per month. If these 4.5 bundles could not be collected, but had to be bought, the total cost per household would be R90 per month (The average price in town for a bundle of firewood is R20), although it is doubtful that the households would buy wood instead of buying paraffin or gas with this money.

In Phillipsvale all of the interviewed households make use of wood from the plantations, especially during the wintertime. The houses are equipped with electricity; firewood is used for extra warmth, braaing and in case of a power failure. None of the households could give an estimate of the average amount of firewood they use per month. Therefore the cost of firewood from an alternative source could not be determined.

Firewood usage in Sonskyn is similar to Phillipsvale. Only one household made extensive use of firewood, as their electricity has been cut off since 2002, using five bags of firewood per month. Based on the price of firewood in the area (R35 per bag), this household spends an estimate of R 175 per month on firewood.

4.1.6 Community Perceptions

In Dennekruin, where 40% of the households interviewed rely on forestry for an income, 45% of the respondents have heard of the phasing out process (Figure 4.11). In Rooidakkies, only 10% knew about the process. Only 50% of the respondents in Phillipsvale have heard about the decision to phase out plantations, although 70% of the households rely on forestry. In the Sonskyn community, where all of the households receive an income from forestry, only 30% of the respondents have heard about the process.

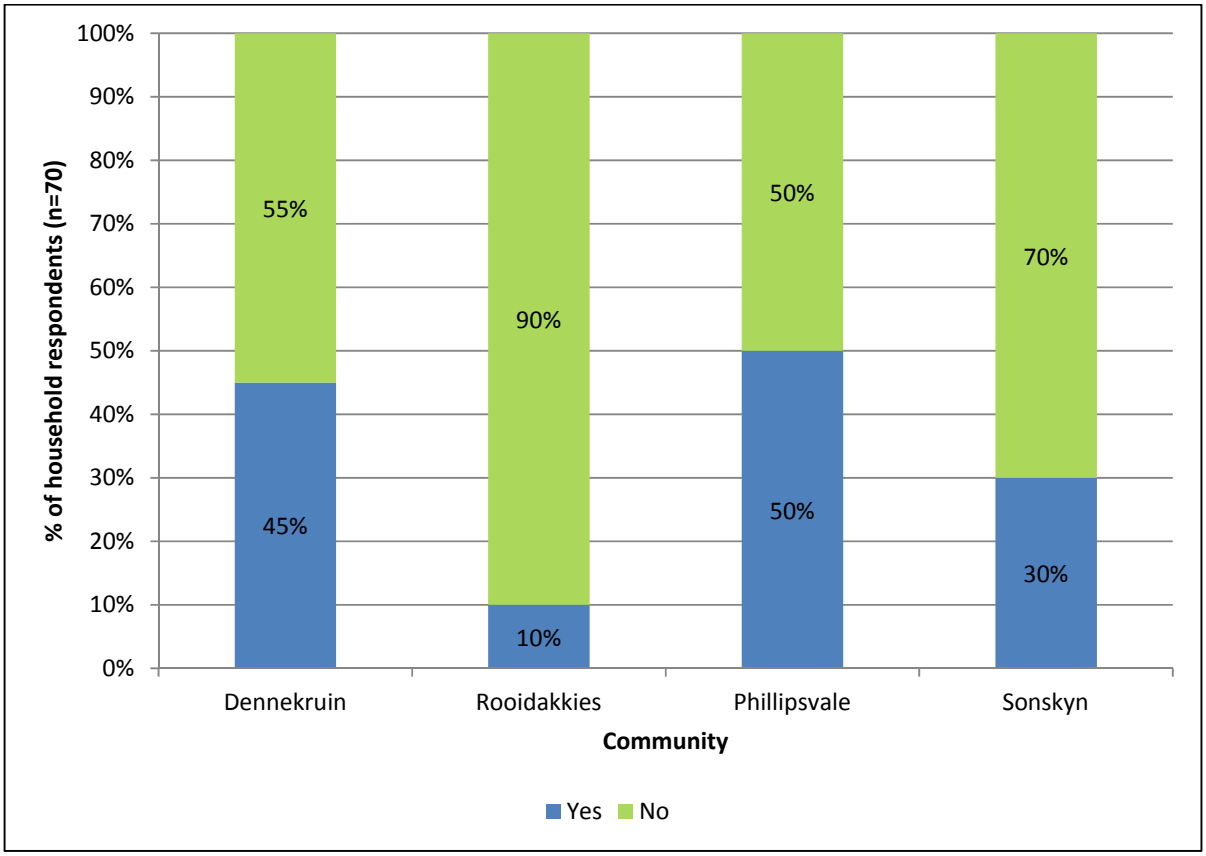

Figure 4.11 Percentage of community respondents who were aware of the phasing out process (n = 70).

When asked what impact the phasing out process might have on their household and community, respondents expressed a range of views (see Text Box 4.1).

Text Box 4.1 Commmunity respondents' views regarding the possible impacts of phasing out.

"There will be more squatters, things must not change, it will be dangerous for the children."

"People will be fired and take pension"

"No work, people will be without houses."

"Not big, there is other work."

"Nothing will change."

Three main areas of concern amongst all respondents (n=70) were expressed:

- There will be higher unemployment and loss of income due to job losses (16% of respondents).
- Another major concern was that households would have to vacate their houses (14%).
- Some respondents were worried that due to the increased unemployment, crime would increase (4%).

Twenty (29%) respondents were unsure about the possible effects of the phasing out on their households and community. Three respondents (4%) think that the phasing out will have a positive outcome, reducing murder and rape in the area as offenders will no longer be able to hide within the plantations. Six respondents (9%) feel that due to the removal of plantations there will be less wind. There were also respondents who believed that there would be no impact on them or on the community if the plantations were to be phased out (4%). However, 17 respondents (24%) have already noticed that some forest employees and contractors have lost their jobs, which they now say, might be as a result of the phasing out process.

The interviewed households were asked to rank the importance of forestry on a scale from one to four (one being not important and four being very important). The responses of the interviewed households within the WC and SC were grouped together and a Mann-Whitney U test was used to differentiate within the two regions (Mann & Whitney, 1947). The results of the test show that there is a highly significant difference (p=0) between the median of the ranked importance of forestry within the interviewed households in the WC and SC. Figure 4.12 shows the resulting box and whiskers plot of the medians and quartiles. When comparing this to the forestry dependency within the two regions, in the SC, where forestry income is higher, the importance of forestry was also ranked significant higher.

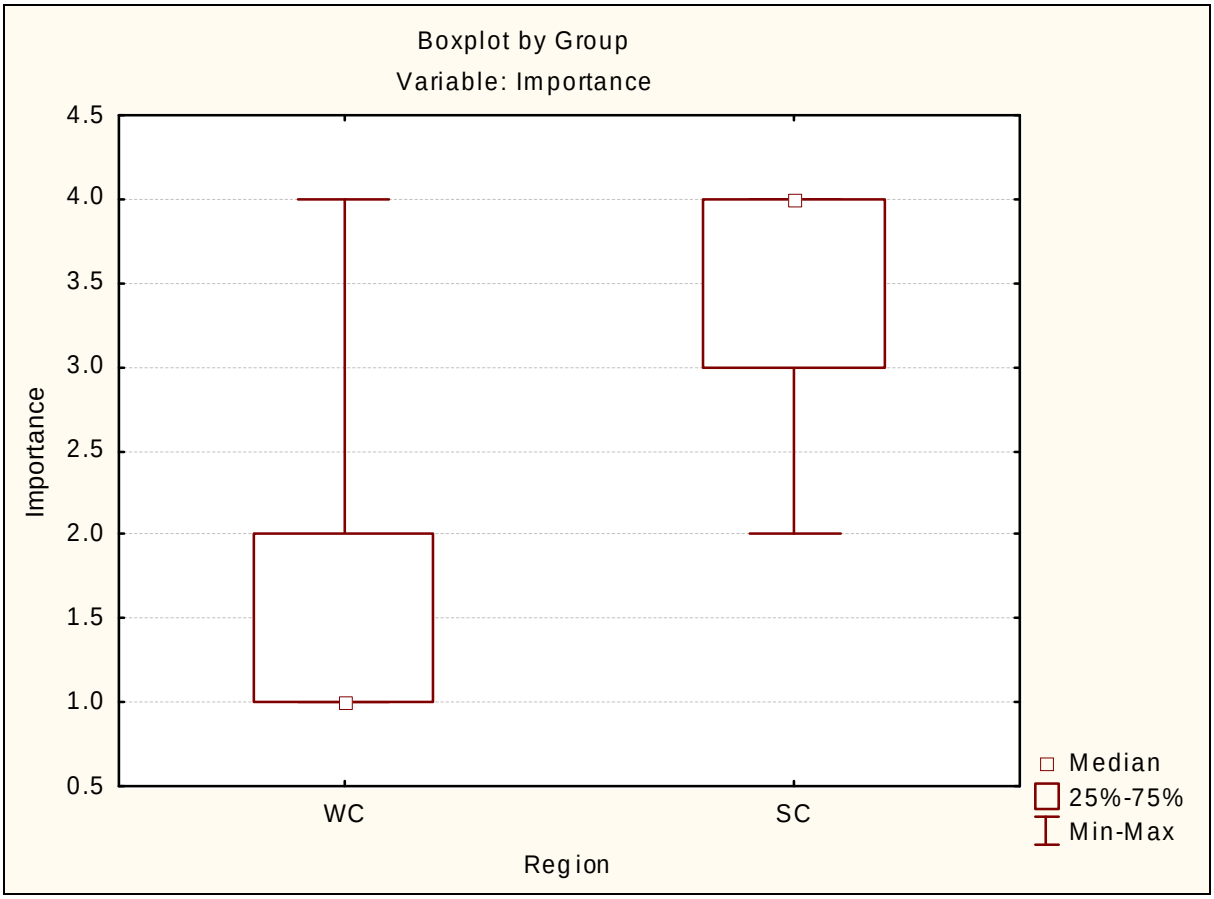

Figure 4.12 Medians and Quartiles of the ranked importance of forestry within the WC and SC regions (data from interviewed households, 1 = not important and 5 = very important).

4.2 Stakeholders along the Forest and Forest Products Value Chain

As outlined under methodology, stakeholders (primary and secondary processing companies) and forest contractors along the forest and forest products value chain, form the second part of this study. Results presented in this section are subdivided into interview results of the stakeholders in the George (SC) area and stakeholders in the Grabouw (WC) area.

4.2.1 George

All the timber harvested from Buffelsnek and Jonkersberg plantations is transported to either George Sawmill (GSM) or Steinhoff (Thesens) in George, or the Boskor sawmill in Tsitsikamma. The value chain of GSM was examined as the sawmill depends heavily on timber from exit plantations. A list of regular clients (companies who buy timber from GSM) provided by MTO for GSM was used to identify the companies along the value chain to be interviewed within this study. Eighteen companies, located in the George area, rely to a large extent on GSM for their timber or timber products intake. Of these

18 companies, 9 companies, were interviewed in addition to GSM itself (this includes one large scale sawmill other than GSM, and in two instances, two companies who fall under the same ownership).

Another five companies who do not depend on timber from GSM were interviewed to determine where they source their timber from and if they will be impacted by the phasing out of the plantations in the area. It was determined that they either buy wood from another sawmill in George, which owns its own plantations, or alternatively buy timber in the form of timber board from board plants, or have their own sawmill and buy standing timber from small growers and private farmers. Table 4.5 lists the companies interviewed in the George area (Real names were withheld and companies are "named" according to their business focus). The distribution of business foci, volume intake and number of employee shows the diversity of primary and secondary processing companies dependent on timber and timber products the Southern Cape region.

Table 4.5 Summary of the primary and secondary processors interviewed in George.

Company	Product	Intake (m^3/month)	Intake from MTO (m^3/month)	No of Employees
Primary processing companies				
George Sawmill	Structural timber Wood chips	9 167	9 167	350
Sawmill	Structural timber	9 750	3 900	140
Secondary processing companies				
Sawmill Timber sale	Structural timber Pallets + crates	550	69	150
Furniture	Furniture			
Timber sale	Structural timber	480	480	10
Board plant	Board	360	144	50
Bark	Compost	7 700	1 320	14
Shavings	Growth Medium			
Timber sale	Structural timber	201	161	20
Hardware store	Structural timber Board		4	-
Timber sale	Structural timber	unknown	-	71
Timber sale, board plant	Structural timber, board	50	-	9
Furniture	Furniture	N/A		3
Furniture	Furniture	N/A	-	-
Furniture	Furniture	N/A	-	-

4.2.1.1 Employment

The interviewed companies employ a total of 817 employees. Three companies did not respond to this question. The nine interviewed companies that rely on MTO for their timber supply employ 734 people.

Company respondents were asked to classify their labour as skilled or semi/un-skilled but not all of them were able to do this. The division of the skills level of these employees is 49.5% skilled workers and 50.5% are semi- or unskilled.

In general employees receive job-related, in house training. If these employees are retrenched, they might struggle to find work in other, non timber related industries.

4.2.1.2 Volume of Timber Processed

The average volume of timber sold by GSM to the nine companies that depend on the sawmill for timber amounts to 4 758 m^3 per month (including chips) and the total volume of bark and shavings sold per month is around 1 320 m^3. The total value of this timber bought is R1 990 000 per month.

The above mentioned companies buy 47% of their timber from GSM, the other timber sources include PG Bison's Thesens plant (23%), Small growers and private farmers (24%) and own plantations (6%).

When asked, from where they would source timber if GSM had no timber available, company respondents answered the following:

(i) 43% answered that there is no alternative that is economically viable.

(ii) 28.5% said that they will have to look at the next best option/importing (e.g. from other forestry regions in South Africa as well as from overseas).

(iii) 28.5% are unsure of what they will do.

4.2.1.3 Company Respondents' Views

The company respondents were asked on their views regarding the possible impact of the phasing out of plantations, firstly on their company and secondly on the George area. Nearly 90% of the respondents interviewed knew about the phasing out process, 55.6% of the respondents have seen some effect of this process already, mainly in the form of small sawmilling companies and also wood processing companies that had to close down.

Text Box 4.2 contains some quotes, given by company respondents, regarding the effect of the phasing out process on their company and on the George region.

Text Box 4.2. George Company respondent's views on the impacts of the phasing out process.

"We will have to close, company will not be able to cope"
"Will have to source timber from further away, put other companies under pressure"
"We will still be able to get wood, import"
"People that work in plantations will be affected the most"
"Will damage the George area"

Although all of the respondents agree that the George area will be impacted on, none can foresee the magnitude of the impact. This is clear from diverse answers such as: "In George 50% indirectly dependent on the sawmilling industry", "10% of work in George is directly in wood industry" and "80% of industries are wood related".

4.2.1.4 Contractors

In Buffelsnek plantation, five forestry contractors are involved in timber harvesting, transport and silviculture. The contractors employ a total of 114 people. MTO also relies on a labour broker and a total of 42 people are employed this way.

In Jonkersberg, two contracting companies are used. They employ a total of 42 people. Fifty seven employees work for MTO through a labour broker company.

4.2.2 Grabouw

On average 70 000m^3 of timber is harvested in Grabouw annually. The timber is then transported to Cape Sawmills (CSM) in Stellenbosch. CSM sells 80-90% of their timber within larger Cape Town area. With the reduction in timber due to the phasing out process, the plantation will schedule the timber delivery so that CSM still receives a total intake of 75 000 m^3 to 80 000m^3 per year from all the plantations that supply to them. As a result, the company will have to close down around 2018 if the phasing out process continues (Söderlund, 2008).

Following the value chain from CSM further downstream, six of the main companies sourcing timber from CSM were interviewed. Of these six, three were willing to make information know. Table 4.6 lists the company information for these three companies.

Table 4.6 Summary of the interviewed primary and secondary processors dependant on CSM.

Company	Product	Intake (m^3)	Intake from CSM (m3)	Employees
Value adding companies				
Timber sales	Mouldings, structural timber, poles	450	55	43
Timber sales	Structural timber	500	75	50
Construction	Structural timber, timber mouldings	1 367	1 030	138

4.2.2.1 Employment

CSM employs about 400 people and the three companies within the CSM value chain together employ 231 people. Fourty one % of the employees are skilled, 13% are semi-skilled and 46% are unskilled.

4.2.2.2 Volume of Timber Processed

The three companies that take in timber from CSM together take in 1 160m^3 per month, which amounts to 50% of their total timber intake. When asked where they would source timber from if it would not be available from CSM, two of the company respondents answered that it would not be a problem for them to find alternative sources of timber as they have enough sources. The third company respondent answered that timber would then be sourced from George and Knysna (where some plantations are also scheduled to be phased out).

4.2.2.3 Contractors

Grabouw plantation uses a contractor for silvicultural activities who employs 120 people. The owner has not heard of the phasing out process, but he predicts that if the Grabouw plantation were to be phased out, the company will be out of work and will have to close down as Grabouw plantation provides the majority of the company's work.

4.2.2.4 Timber Processing Activities in Grabouw

While GSM is closely located to the plantations from where it obtain its wood, CSM is geographically distant from the source of timber in Grabouw and it could be argued that the downstream processors are therefore less aware of the source of timber than in the case of the GSM value chain. Therefore a separate study was undertaken amongst timber processors in Grabouw who are not part of the MTO Grabouw plantation to CSM value chain.

Within Grabouw, nine primary and secondary timber processing companies were interviewed. One of these was a sawmill specialising in producing timber for the construction of wendy houses. None of these companies relied directly on timber from Grabouw plantation but sourced their timber from elsewhere. Twenty five percent of the timber was sourced from private farmers, 25% from Particle Board companies, a further 25% was bought in the form of furniture, 17% was sourced from Airton Timbers and 8% of the timber came from a variety of other, smaller sources.

Table 4.7 lists the business foci, volume intake and number of employees of interviewed primary and secondary processing companies that depend on timber and timber products in Grabouw.

Table 4.7 Interviewed companies in the Grabouw area (business focus, volume intake and number of employees).

Company	Product	Intake (m^3)	Intake from MTO (m3)	Employees
Sawmills				
Sawmill	Structural timber	150	0	15
Value adding companies				
Timber sale	Pallets	175	0	48
Hardware	Hardware, board, structural timber	When stock is needed	0	8
Timber sale	Pallets	250	0	55
Furniture	Furniture	Information not disclosed	0	7
Furniture	Furniture	Buy ready made furniture	0	7
Construction	Build homes	Depends on the type of home	0	50
Furniture	Furniture	Buy ready made furniture	0	11
Construction	Build-in cupboards	When stock is needed	0	20

The nine companies interviewed in Grabouw together employ 221 people. The company respondents found it difficult to distinguish between semi / unskilled and skilled employees. Almost 48% of

employees were skilled, while 52% of employees were semi/unskilled. All the respondents indicated that the training received by employees is job-related.

None of the companies interviewed take in timber from the plantations to be phased out. The wood processing industry in Grabouw mainly consists of the production of pallets and crates for the fruit industry, the sale of furniture and wood used in construction. The timber for pallets is obtained from farms within the area and predominately windbreaks are harvested for this purpose. The two pallet producing companies that were interviewed both revealed that timber is scarce and that there is a lot of competition to obtain timber.

The furniture companies buy their already made furniture from different companies all over the country, they build some furniture from fibre and chip board and they also deal in second hand furniture. Structural timber is obtained from companies within Cape Town.

4.2.2.5 Company Respondent's Views

Regarding the possible effects of the phasing out process on Grabouw, 23% of the respondents did not know what will happen, 33% felt that the employment opportunities will decrease and 44% believed that as wood is already scarce it will have a negative effect on the industries in Grabouw.

When asked what they think the effect of the phasing out will be on their company, two of the three furniture dealer respondents answered that their company will not be impacted on, while the other felt that there will be some negative effect on his company (See Text Box 4.3). The sawmilling company revealed that it is already struggling and is taking in far less timber than its capacity. One of the two pallet producing companies said that it will close down at the end of the year while the other company's respondent had "no idea" what will happen to his company. This is due to the decreasing availability of timber from the neighbouring fruit farms (e.g. wind breaks), which is one of the main sources of timber.

The hardware store's respondent felt that the reduced employment in the forestry industry will decrease the number of people living and working in Grabouw and this will decrease the number of clients to his store, and as a result negatively influence his business. The two construction company respondents were of the opinion that the phasing out process will not impact their business as they do not buy raw timber, but they buy their timber from companies located throughout the WC.

Seven of the nine companies interviewed who are located within Grabouw knew about the phasing out process. When asked if they had seen an effect of the phasing out process already, one company respondent answered that he did not know there were plantations in Grabouw. Three of the respondents have seen an increase in unemployment, and four of the respondents have not seen any effect.

All of the three companies within the CSM supply chain responded that they do know about the phasing out process, and they have all seen an effect already. One of the companies had to close down their own sawmill due to the shortage of timber, while another respondent stated that companies are now looking at importing timber from New Zealand at high cost.

Text Box 4.3 Grabouw Company respondent's views on the impacts of the phasing out process.

"…madness, too little wood."
"Wood will be scarcer, there will be more competition.'
"Less work, so less clients."
"Not much, our company is diversified, we have other products."

4.3 Indirect Stakeholders

4.3.1 George

Within this study various indirect stakeholders as outlined in chapter three were interviewed. Where information was lacking or companies could not be contacted, MTO forestry was able to supply most of the information.

Within the Southern Cape, one company collects ferns and plant material from Jonkersberg, Buffelsnek and other MTO plantations. The company respondent was aware of the phasing out process, and as the product that the company collects only grows in select areas, the decreasing of these areas (plantation) will directly result in a smaller harvest and less revenue. The company employs 80 to 120 people, depending on the season, with high season lasting from October to the end of May. The respondent was not willing to reveal the value of the product collected.

In the past Buffelsnek plantation was a part of the annual Cape Epic cycle route and other cycle races also take place within the plantation, but this is not an income generating activity. Permits for the collection of firewood within the plantation are issued at R14/ton. Due to the plantation's remoteness, no other ecotourism activities or facilities are offered.

Jonkersberg plantation is popular for its ecotourism activities, including hiking trails, mountain biking trails, horse riding trails and picnic areas. It provides a location for marathons and cycling competitions. The tourism activities are organised by MTO forestry and generate a small income.

The George tourism office indicated that they are not aware of the phasing out process and that they do not offer any tourism activities within the surrounding plantations. A total of 7 people are employed within this office as well as the satellite office in Wilderness.

4.3.2 Grabouw

In the plantations in the Grabouw area one company specializes in the picking of fynbos. This company has 9 permanent employees and during the picking season they employ casual labour. The peak season is from August to December, and during this time on average 50-60 cartons of flowers, weighing between five and seven kilograms per carton are picked per day. The value of one carton is R100 on average. The company owner thinks that the phasing out will have a positive effect on her company as there will be more areas for fynbos to grow if the plantations are removed. The average income per year for this activity is R635 200.

Within Grabouw plantation, three ecotourism attractions are located, namely hiking trails, mountain biking trails and overnight accommodation. The activities are organised by MTO forestry, and three people work within the tourism section. The income from these activities amount to R500 000 per year.

Grabouw tourism has one person in its employment. According to her, they do know about the phasing out process, but due to fact that plantations are exotic, and tourists are more drawn to the natural fynbos, the phasing out process will have a positive rather than a negative aspect on tourism. The farms located within the Grabouw region have mountain biking trails, and hiking trails and as a result when the plantations become unable to offer these activities there are plenty of alternatives.

4.4 Chapter Summary

This chapter presented the results obtained from data collection. Data was analysed by using Excel graphs, charts, tables and ANOVA. Comparisons between the case study communities in the WC and SC were made to illustrate the different situations within the communities. The data collected through company questionnaires were summarized in table format. Within Grabouw, where no primary processing takes place within the town itself, additional interviews were conducted with companies along its value chain, but located elsewhere. Indirect stakeholder data was minimal as it was found that this group is not widely represented within the three plantations studied. The following chapter will discuss the results.

CHAPTER FIVE

DISCUSSION

This chapter discusses the results of the study as presented in chapter four. It starts with the discussion of the data collected within the stakeholder groups and the results obtained are subsequently used to predict the impacts of phasing out of plantations on the Western and Southern Cape regions.

5.1 Community and Household Structures

The demographic household data of the communities (Dennekruin, Rooidakkies, Jonkersberg and Buffelsnek) indicates that the households are similar in composition regarding the total average number of people (including children, retired, disabled and employed people and dependants). In terms of integration within municipal structures, a distinct difference between the two case study communities in the WC and the two case study communities in the SC can be observed. The case study communities within the WC are closely located to facilities such as schools, shops, clinics and employment sources. As a result, community members have greater employment, education and social opportunities compared to the case study communities in the SC. The SC communities are isolated, as they are located within plantation boundaries, some distance from the nearest town and with less diversified employment and other opportunities.

When comparing the structure and location of forest worker communities of the other plantations, within the WC and SC, earmarked for phasing out, it was found that communities within the WC are in general more integrated within a town structure, whereas SC communities are more isolated. This is typical of forest areas which tend to be remotely located with less developed infrastructure, services, amenities etc. (Shackleton, 2004). The difference within the communities, shows the typical nature of forestry communities within the WC and SC, and allows for comparisons between the two types of forestry communities[6] (integrated and isolated). As a result the diverse impacts of the phasing out process within these two community types will be highlighted.

In a study analysing the dynamics of the forest harvesting work force in South Africa, Manyuchi and Pulkki (2002), found that the mean age of the forestry workers was 34 years. This corresponds with the average age of the forestry workers within the case study communities in the SC (33.86 years),

[6] Forestry communities are defined as settlements within or close to plantations where plantation workers live.

confirming that the forestry workers within these communities are representative of the wider forestry environment.

Within the interviewed households in the WC, forestry employees are on average almost ten years older than their counterparts in the SC. A possible reason for this difference in age is that due to the wide variety of employment sources in the WC, young people would rather work in other industries than the forestry industry. A similar trend can be observed in European countries, where few young people find work in the forestry sector attractive, and the average age of the forestry work force is increasing (FAO, 2002). This is due to the fact that work in the forestry industry is characterised by unfavourable working conditions (extreme weather, dust and dangerous, hard, physical work). Worldwide, forestry ranks among the most dangerous career types (Blombäck & Poschen, 2003).

5.1.1 Socio-economic Status of the Communities based on Maslow's Hierarchy of Needs Analyses

The areas of support identified by the respondents in the communities were grouped according to Maslow's hierarchy of needs. The results of the needs identification can be interpreted as indicators for the socio-economic status of the interviewed community's, and their subsequent vulnerability to the phasing out process (Clark, Islam and Paech, 2005).

These results show that the two SC communities are very similar in their needs structure, with both communities displaying a high safety need. The phasing out process is expected to directly affect employment and within the SC communities also housing. These two indicators (employment and housing) both represent the safety need. If the phasing out process continues, unemployment will increase, and households would have to move out of their houses which will increase the already high safety need even further.

The two case study communities within the WC show clear differences in their needs structure. Within Rooidakkies a diverse result to needs identification was observed, which is attributed to the combination of formal and informal housing within this community as well as the varied sources of employment. Dennekruin community has a high safety need, a concern which was expressed by many respondents.

The high safety need within all the communities indicates the vulnerability of these communities (Global Crisis Solutions, date unknown), the phasing out process will increase the safety need even further (due to a decrease in employment) putting even more strain on the fragile economies.

5.1.2 Communities' Awareness of the Phasing out Process

In all four case study communities at least 50% of the respondents stated not having heard of the phasing out process. This is especially of concern in the SC where the results show that forestry dependency is high. It highlights the need for community members to be better informed about the phasing out process.

Kwetsima Consultants (2003) undertook a study that included communities located in the Southern Cape on the perceptions within communities regarding DWAF. The results of the study outlined that most of the community members interviewed want to be involved in DWAF's decision-making processes, something which did not happen in the 2000 decision. The Kwetsima study identified some key action areas to improve DWAF's relationship with the communities (which are also relevant for this study), including the creation of employment opportunities as well as an improvement in cooperation, communication and information sharing between DWAF and the communities (Kwetsima Consultants, 2003).

Within the South African Constitution the Government is required to follow a process of public participation with citizens when making decisions that could impact on their lives. Citizens have the right to participate in both the legislative process and the drafting of policies and their input should be taken seriously by the legislature. In reality, however, the divide between the people who have access to the resources, and the poor and marginalized is far too great, resulting in the groups that are already powerful having the best use of public participation opportunities. This creates the need for Government to work pro-actively to ensure the widest range of possible input. (De Villiers, 2001). The results of this study indicate that the method followed in the decision-making of the phasing out process did not allow for public participation, and as a result communities are left unaware of the potential impacts on their lives.

According to Shackleton (2004), the forestry policy environment is well founded, and makes provision for and stresses the importance of the alleviation of poverty, but the implementation of these policies pose a challenge. Government departments responsible for the policy implementation and monitoring their efficiency, lack the necessary skills needed to perform their tasks. The need for greater communication in the policy making process and the need for an appropriated monitoring programme are identified by Shackleton (2004). Within the phasing out process, as the plantation area continues to decrease, there is a need for continuous monitoring of the situation to detect and identify problem areas and something which, as of yet, has not been established.

In the WC case study communities, the main concern among interviewed households regarding the phasing out process is that unemployment within the area will increase. Some of the respondents are especially concerned that the loss of employment will result in higher crime rates and increased drug use. Research has shown a link between levels of unemployment in a country and crime increase, justifying the concerns of the community members (Mafiri, 2002; Tsushima, 1996). Drug abuse is already a major problem in Grabouw, as confirmed by an interviewed policeman, working within the area (Anon, 2006). Respondents revealed that they are very scared and that the situation has become so desperate that drug users will steal clothes off washing lines to pay for their drug addiction.

As opposed to the WC respondents, respondents in the SC are mainly concerned about the possibility that they might lose their houses and have to move into town, as they currently live within the exit plantations which are remotely located.

5.2 Socio-economic Impact of the Phasing out Process on the Interviewed Communities and Stakeholders and on the Southern and Western Cape Regions.

5.2.1 Employment

A significant difference in employment between the SC and WC case study communities was observed. Eighteen percent of the households interviewed in the WC rely on some form of forestry income compared to 85% of the interviewed households in the SC. Due to the high dependency on forestry income, the communities in the SC will therefore be more vulnerable from an economic point of view should the phasing out process continue. Within South Africa, less than 5% of rural households depend on forestry and forestry related income as the primary source of income. The SC communities fall into this category and for these communities the income from forestry helps to overcome poverty as it is the barrier between being able to have a decent livelihood and being poor (Shackleton, 2004). The people interviewed in the WC are less concerned than those in the SC about the prospect of the phasing out process. Respondents in the WC replied that if forestry was no longer a source of employment that they will simply find work elsewhere.

The eight secondary processing companies in George who rely on George Sawmill (GSM) for timber employ 244 people, with an average of 30.5 people per company. The estimated total employment of the 18 companies who regularly buy timber from GSM is 549 people. If the employees working within the two sawmills are included, the employment rises to 1 039 for the George area. In Grabouw 221 people are employed in primary and secondary processing companies, but none of these companies

buy or process timber from the exit plantations. The effect of the phasing out of Grabouw plantation will be felt by the sawmill in Stellenbosch, and the secondary processors, who rely on the Grabouw plantation for timber. The reduction of timber from the exit plantations will result in the eventual closure of the sawmill and the subsequent loss of employment for its 400 workers. According to one of the directors of Cape Sawmills in Stellenbosch, the sawmill will probably close before 2018 (Söderlund, 2011).

Contractors in the two plantations in the SC employ 156 employees, while 99 people are employed via a labour broker company. In the Grabouw plantation in the WC, 120 people are employed by contractors. As the contractors' businesses are focused on plantation work, the reduction in plantations will result in a decrease of employment opportunities, and they will have to close down or change their business focus.

A summary of the employment (consisting of direct forestry employment, employment in the primary processing companies as well as employment by indirect stakeholders) within the three case study plantations is given in Table 5.1. For each plantation the resulting employment per hectare was calculated.

Table 5.1 Calculated labour per hectare along the forestry value chain within the three case study plantations.

	Grabouw	Jonkersberg	Buffelsnek
Plantation size (ha)	7 173	8 392	8 278
Nr. of people employed			
Direct	66	21	22
Contractor	120	42	114
Labour broker		57	42
Total plantation employment	**186**	**120**	**178**
Labour/ha	**0.026**	**0.014**	**0.022**
Total average labour/ha		**0.020**	
Primary processing	400	490	490
NTFP, Tourism	12	120	120
Total primary + indirect employment	412	610	610
Labour/ha	**0.057**	**0.073**	**0.074**
TOTAL labour/ha	**0.083**	**0.086**	**0.095**

MTO (2005) uses a figure of 0.18 workers per hectare for the whole forestry value chain. This figure is slightly higher than the total labour per hectare calculated in Table 5.1 although within the MTO figure, secondary processors were included. The figures in Table 5.1 will be even greater when including the secondary processors.

Using the calculated total average labour/ha of 0.020, the total employment for the 22 500 ha to be phased out is 450[7] people. When adding to this total the number of dependants (as calculated in Table 4.1), 1 962 people in the WC and SC will be affected by the phasing out process within the primary forestry sector alone.

As not all of the secondary processing companies were willing to divulge company information, an accurate employment figure for the SC and WC within this sector could not be calculated by making use of the captured data. According to Shackleton (2004), the activities along the forestry value chain can create up to three jobs per primary forestry job. Using this figure, a total of 1 350 [8]people working within the secondary processing companies, downstream from the plantations to be phased out will be affected by the process. Including their dependants, the number increases to 5 886 people. For the

[7] 0.020 labour/ha x 22 500ha ha = 450 employees.

[8] 450 primary processing employees x 3 = 1 350 employees.

primary and secondary processing companies, the total number of people who are directly employed is calculated as 1 800[9], and when including dependants, the total number of people who will be affected by the phasing out process is estimated to be 7 848.

The figure of 1 350 is conservative when compared to the study by Hassan *et al* (2002), where the calculated contribution of forestry to total economic benefits was found to increase 18 fold for pine plantations when the value adding, indirect economic activities due to downstream timber processing and the supply of inputs to the forest industry were included in the calculation. Using this figure, the total number of employed people affected by the phasing out process increases significantly to 8 100[10], as compared to the 1 800 calculated above. Including dependants the number of people impacted on totals 27 216.

5.2.2 Skills Level of Employees

The skills level of employees in the primary and secondary processing companies in George and Grabouw are similar (50% of the workers in George are skilled, compared to 48% in Grabouw). Within the four studied communities, the workers are mainly unskilled, but have received some on-the-job forestry training. The interview results show that training supplied by companies along the forestry value chain as well as the training received by the community members working in forestry is all forestry related. This is confirmed by a MTO study which observed that the skills base of forestry labour is "*a result of working and training in the forestry environment*" (MTO, 2005).

In their initial review of the SAFCOL proposal, Norman and Horn (2001) suggested that during the conversion process, forestry workers should be trained with respect to their long-term employment future. During the interview process, no evidence of any such training or training programmes became evident.

With the possibility of losing their jobs, the forestry and processing companies' employees within the exit areas could benefit tremendously by receiving training in other, non-forestry related areas. When the PG Bison board plant in Stellenbosch closed down, measures were put in place to ensure the employees knew basic skills, such as how to prepare a Curriculum Vitae, apply for Unemployment Insurance Fund and conduct job-interviews (Cloete, 2008). The teaching of these basic skills to the forestry employees working within the forestry areas to be exited will be a good starting point for preparing them for the future.

[9] 450 primary processing employees + 1 350 secondary processing company employees

[10] 450 primary processing employees x 18

If the phasing out results in the loss of employment for the forestry and processing companies' workers, they will have to find alternative employment. However, with their skills only relating to the forestry industry, finding alternative employment will be difficult and they will possibly have to work as unskilled labour in another industry. Pogue (2008) identifies the need within the skills training system to have programmes in place that could act as a bridge between the informal and formal sectors. Broader skills training in areas such as business management, marketing and finance will assist with the re-alignment of skills within sectors (Pogue, 2008).

Within the interviewed companies, the lack of skills development of the workers is illustrated by one company respondent in George: His company had to close down in October 2006 and after six months it reopened again and they were able to employ all but one of the +/- 50 workers retrenched in October 2006. This, according to the company respondent, is a clear indication that there are no or very little work opportunities for these people.

5.2.3 Income

Dennekruin and Rooidakkies have the largest percentage of workers within the R501 – R1 000 and R1 001 – R2 500 income groups, when separating the percentage of employees into Statistics SA monthly income categories (Statistics SA, 2007). These income groups also include general labour within the fruit industry (e.g. apple pickers and packers) who are paid on average between R800 and R1 200 per month and, general forestry workers (e.g. chainsaw operators and log dividers) in Dennekruin who are paid on average R2 000 per month,

The majority of the employees interviewed within households in Phillipsvale (59%) and Sonskyn (86%) are employed in the forestry industry. More than 77% of the workers in Phillipsvale and all the workers in Sonskyn can be categorised as "general forest workers" (semi-skilled, e.g. chainsaw operators and log dividers) and fall into the R1 001 – R2 500 income group. None of the interviewed households have employees in the R8 001+ income group and only within Dennekruin community did some employees fall within the R2 501-R8 000 group. The poor representation of the higher income categories within the study communities confirms a statement made within the National White Paper on Forestry (Republic of South Africa, 1996) that forestry is mostly located within economically depressed rural areas.

The estimated annual forestry income per household within the case study communities is R4 541 in the WC, and R31 920 in the SC. This is a total annual forestry income of R449 976 for the two WC case study communities and R970 440 for the SC communities. If forestry as a source of income was

taken away, the communities in the WC would still receive 86% of their total annual income while communities in the SC communities will only have 27% of their total annual income to rely on. The importance of income within the rural areas is also emphasized by Shackleton (2004), as the salaries within these communities contribute considerably to the sustainability of the small commercial sector located within these areas.

The results of the ranking exercise correspond with the communities' dependency on forestry, with communities in the WC ranking forestry's importance lower than the communities in the SC, where forestry was ranked as being very important. The people in the SC are thus more aware of the importance of forestry for their livelihoods. Communities should be given time to adjust to the prospect of having to deal with reduced work within the forestry industry or to investigate the benefits of forestry. This is emphasized by Versfeld (1996) who points to the fact that rural communities have a rightful place and right to a share of resources.

The effect of not receiving an income from forestry will, however, be more noticeable to the community members in the WC during the off-season for fruit production. Households in both Rooidakkies and Dennekruin communities rely strongly on seasonal income. This income source accounts for 44% of the total household income in Rooidakkies and 27% of the total household income in Dennekruin. The problem with seasonality of work within the Grabouw region is discussed in a document by the Development Bank of South Africa (DBSA, 2006). During the high season for fruit production, there is a shortage of labour within the area, but when the season ends unemployment is as high as 70%. This has a devastating impact on the community (DBSA, 2006). If there were to be additional unemployment due to the phasing out process, the pressures on the area during the off-season will be even more significant.

5.2.4 NTFP's and Indirect Stakeholders

The use of NTFP's within the case study communities was found to be minimal. Within the communities of Dennekruin, Phillipsvale and Sonskyn, where houses are equipped with electricity, the respondents only used NTFP's in the form of firewood if they want extra heat, in case of a power failure or for outside fires.

Twenty percent of household respondents in Rooidakkies, where not all households have access to electricity, revealed that they use on average R90 of firewood per household per month. This amount is R75 less than the amount of R165 per month estimated by Shackleton (2004).

The data collected and analyzed within the indirect stakeholder group shows that the collection of NTFP's is either in the form of (i) the picking of fynbos/flowers or (ii) the harvesting of ferns and foliage. The possible impacts of the phasing out on these two businesses differ. If the phasing out was to continue, the area planted with trees will decrease and the indigenous fynbos will have the chance to repopulate those areas. This will increase the area available for flower picking. However, if these areas are to be converted to nature conservation, the flower pickers might face difficulties in obtaining new permits. The legal implication of this need to be investigated. The fynbos picking company currently generates and income of R632 500 during the peak season. It also provides employment to 80-120 people. The collecting of fern and other plant material takes place exclusively within the plantations in the Southern Cape. A decrease in planted area would as a result directly decrease the area available for the collection of the mentioned plant products.

The harvesting and processing of NTFP's could play a role in the alleviation of poverty, and Government needs to increase its support of development within this sector (Pogue, 2008). Within South Africa, very few enterprises process NTFP's on a commercial scale, and there is no assistance for NTFP processors with regards to marketing, as there is no registered trade organization (Institute of Natural Resources, 2005).

Within Buffelsnek plantation, due to its remote location, no eco-tourism activities are offered. The tourism potential within this plantation can be regarded as low, a fact that is confirmed by the VECON report (VECON, 2006)

The results of the data collection show that the Grabouw and Jonkersberg plantations offer the following main eco-tourism activities:

- Hiking trails with accommodation;
- Horse riding;
- Bird watching;
- Cycling/Mountain biking routes.

In the VECON report (2006) these listed activities are identified as no income or low to medium income activities. Although these activities attract people to the plantations, it leads to very low employment generation as MTO itself manages the facilities, and eco-tourism companies are not subcontracted.

Although the direct employment within the tourism industry in the study plantations is very low, tourism in itself is an important business in the Western and Southern Cape areas. Mainly linked to the

indigenous forests within the Southern Cape, about 200 000 to 250 000 people visit this area annually (DWAF, 2005c). Tourism within these regions holds the possibility of economic expansion, and this will positively affect the regional economies (Norman & Horn, 2001).

In 2009, tourism contributed R190 billion to the South African GDP, and was the highest performing sector in terms of contribution to GDP and employment (South African Tourism, 2010). The Department of Tourism is actively promoting and developing tourism in an aim to facilitate growth and increased employment opportunities in this sector. Employment within the tourism sector, especially at lodges and ranches, provides housing or assistance with the purchasing of housing for the employees (Republic of South Africa, 2011). This sector will be especially advantageous to the employees within the SC communities, as the loss of forestry employment for them will ultimately also lead to a loss of housing.

5.2.5 Impact on other Local Industries / Companies

Grabouw has a thriving fruit industry. The industry relies on pallets and crates for the transport of the harvested fruits. As a result of the scarcity of timber, there is competition between timber buyers for the available products which decreases the availability of timber to the smaller pallet and crate producing companies in the Grabouw area, (as mentioned by the two interviewed company respondents). The companies within the fruit industry will have to find alternative sources of pallets and crates, or they will have to buy products made from different material such as plastic. The concerns of the pallet producers within Grabouw is shared by a representative of pallet manufacturers, who at a South African Institute of Forestry (SAIF) symposium in 2003 revealed that there is already a timber shortage within the sector, and that the larger companies obtain all the timber, leaving little to no resources for the smaller timber industries such as pallet manufacturers (Versfeld, 2003).

Although in the Grabouw and George regions, not all timber companies rely directly on the exit plantations but they will still feel an effect of the phasing out. The decrease in the timber supply from the exit plantations and the increasing timber price will put more pressure on the forestry and forestry related companies as the competition for timber will increase. This is already visible in Grabouw where some of the companies interviewed commented on the scarcity of wood.

The exiting of Grabouw plantation will have a more significant effect downstream, as the timber is transported from the plantation to Stellenbosch. Cape Sawmills in Stellenbosch indicated that if the process was to continue, they would have to close down by 2018. This will have a rippling effect as the timber from the sawmill is distributed throughout the Cape Town area. However, the fact that the

timber industry is not concentrated within one geographical area, as is the case with George, but it is spread out throughout Cape Town and surrounding areas, will mean that the impacts will be less noticeable within a localized geographical area. Companies who buy their timber from CSM have also indicated that they do not see the phasing out having a direct negative impact on their companies, and that they will be able to source timber from other suppliers. The current situation in South Africa is, however, that the sawmilling industry is struggling for survival (Ham *et al*. 2010) and it is therefore questionable if the "other" suppliers will be able to deliver a sustainable supply of timber. .

In George the decrease in plantations will start effecting the volume production by 2017. Until then, volumes delivered to the mills will be relatively stable, however from 2021, no more timber production is expected in Buffelsnek and Jonkersberg. Thus from 2017, the economic input from companies buying timber from GSM will decrease. The expected loss due to the decrease in timber sales from GSM is a total of R22 590 132 per annum, which directly affects the local economy of the George area.

An additional pressure on lumber structure companies in the George region is that within the roofing industry steel roof trusses are becoming more popular (Lazenby, 2011). These companies are thus not only faced with the possibility of a decreased timber supply, but also of increased competition, and the combination of these two factors will make it difficult for these companies to survive.

Within the George area, some company respondents said that they would start to import timber if the timber in the area became too scarce. However over the period of February 2007 – February 2008 the price of diesel has increased by 35% and within another two months (February 2008 – April 2008) the price increased by another 29% (Crickmay & Associates, 2008), in November 2011, the diesel price increased to its highest level since 2008, costing R10.01/liter (Makhubu, 2011). This increase in diesel price directly increases the cost of timber transport; either from timber producing areas in other parts of South Africa, or in the case of imported timber, from Richard Bay seaport. An additional concern is the weakening of the Rand. In 2008 the Rand has depreciated by 19% to the US Dollar and British Pound and by 29% to the Euro (Crickmay & Associates, 2008). This depreciation increases the cost of importing timber from overseas.

Companies looking at the importation of sawlogs for construction timber will find that it is not a viable option as a result of the high costs involved, the fact that the commodity price of construction timber is low and the low percentage of timber recovery. The importation of processed timber will be viable if the Rand/Dollar exchange rate is strong, this will ensure a steady product supply which will decreased

the demand from local sawmills. If, however, imports become the primary supply of timber and the local sawmilling industry is unable to supply more than 50% of the demand, the possibility exists that the sawmilling industry may be faced with large scale job losses if Government intervention does not take place. (Ham *et al*., 2010).

5.3 Chapter Summary

Chapter 5 discussed the data collected within this study. Within the case study communities it can be seen that there is a marked difference between the communities located within the WC and those located within the SC. These differences are most noticeable in relation to employment, income sources and dependency on forestry. When comparing the results from the company interviews within Grabouw and George, the dependency of companies located within Grabouw on the timber from the plantation to be exited is significantly lower than the dependency in George, as the primary processing plant is not located within Grabouw, as is the situation in George. Within the indirect stakeholder groups, the data collected showed a low dependency on the exit plantations.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

In this chapter the study conclusions and recommendations are presented based on the study objectives outlined in Chapter 1. Recommendations for the lessening of the socio-economic impact of potential future plantation exit processes will be presented based on the plan for integrating social and economic factors within Natural Resource Management as mentioned in Chapter 2 (Queensland Government, 2008).

6.1 Conclusion

Forestry is a major employer within the SC case study communities. If the phasing out process is to continue, these employees will need to move out of their forestry community and seek alternative employment. This increases the vulnerability of the SC communities. Within the WC, forestry is not a significant employer, and as the communities are integrated within a town structure, employment in other sectors outweighs forestry employment. It was also found that within the WC fewer young people are working within the forestry industry as a result of it not being an appealing work environment. Eighty eight percent of the workers within the interviewed households in the SC rely on forestry for their income. Within the WC the dependency on forestry income is not as significant, but the impact will be felt when the fruit industry is in its quiet season, as there is a strong dependence on employment within this industry.

Forestry workers were found to be mostly unskilled within the primary forestry sector, with a more equal balance between skilled and unskilled within the secondary processing sector. In both the SC and WC, more than 50% of household respondents did not know about the phasing out process. This leaves them without the chance of properly preparing for the possibility of un-employment. In a country where un-employment is already at a high level, it is important that communities are made aware of processes taking place around them that could impact their income and employment. The lack of public participation and input within the initial phasing out decision and now during the actual process is of great concern. Also of concern is the lack of continuous monitoring of the phasing out process by Government, thus creating a gap by not being able to immediately identify and deal with problem situations.

Communities rely less on NTFP's and firewood than was anticipated, as most of the interviewed household have electricity and firewood is only occasionally used. The lack of NTFP collection and use creates an opportunity of growth within the NTFP sector, but Government support is needed. Tourism is another sector with a significant potential for growth, and due to the scenic nature and unique fynbos floral kingdom, the areas within the SC and WC are ideally situated for tourism.

When looking at the forestry value chain within the WC and SC, and taking into account the dependency of households on forestry income, a total of 7 848 people will be directly affected by the phasing out process. Direct employment totals 1 800 and these people will be the hardest hit when the phasing out process continues. The examination of the forestry value chains of the case study plantations, showed that timber from the Southern Cape plantations are processed within the town of George whereas in Grabouw the timber is transported to Stellenbosch and sold from there to secondary companies. The resulting impact of the phasing out process on the town of George is much more substantial, as many of the business dependent on timber from the plantations may have to close down, than in the case of Grabouw.

The total effect of the phasing out process will only be felt in a couple of years time when the timber supply decreases. It is, however, necessary to know where the potential negative impacts lie, and this study identified the impacts and further resolves to give recommendations that could lessen the impacts of the phasing out process and future strategic policy/planning processes.

6.2 Integrating Social and Economic Factors

Briefly mentioned in Chapter 2 is a nine step plan developed by the Government of Queensland, Australia, for integrating social and economic factors within Natural Resource Management (Queensland Government, 2008). This plan was adapted as a guideline that could potentially assist future plantation exit processes in South Africa by guiding the implementers in properly evaluating the socio-economic situation within the affected areas. Table 6.1 presents the various steps in the plan with a short discussion of steps in respect to the phasing out process as well as the implementation of and recommendations based on the original nine steps and the knowledge gained within this study for future implementation.

Table 6.1: Using a nine step plan for the integrating of social and economic factors in Natural Resource Planning (based on Queensland Government, 2008).

Steps	Evaluation of steps within this study	Implementation of steps in similar future processes and situations
1. Understand the socio-economic trends in the region.	**Grabouw**: The main sector of employment is agriculture. Seasonal workers make up a large part of the workers force. Skills levels of employees are low, and within the Theewaterskloof Municipality Grabouw is the town with the highest number of people receiving government grants. Unemployment rate is 14% above the national average. **George:** The economy centres on agriculture, tourism, trade and business. Similar to Grabouw, there is an in-migration of labour into the town. There is a need for skills development in order to increase the employment opportunities for the people.	It is important to evaluate the current situation within the affected areas. Information from plantation owners, the relevant Municipalities, Statistics SA as well as previous studies can be used to assess the social and economic trends within the region.
2. Select the most important social, and economic issues.	The most important socio-economic issues flowing from step 1 are unemployment, which is directly linked to the low skills level of residents.	The information from Step 1 should indicate the most important issues for the proposed plantation exit.
3. Identify high priority issues.	The phasing out process will decrease employment within the forestry and processing sectors and, unemployment will be a high priority issue within both Grabouw and George.	Flowing from Step 2, the issues that are identified as high priority should be examined in depth. As plantations within South Africa are usually located within the poorer areas of the country, with limited employment opportunities, the potential loss of employment will likely be an important issue to consider in most instances.

Steps	Evaluation of steps within this study	Implementation of steps in similar future processes and situations
4. Benchmark the region's baseline situation.	Within the Western Cape Province, Agriculture (including Forestry) and Mining is one of the most labour intensive sectors. The growth rate in this sector is below average, but the diversity of the economy is a positive factor. Unemployment is at 23.62%. MTO owns 14 plantations (of which 7 are earmarked for phasing out) and 3 sawmills in the province. In Grabouw agriculture is the dominant sector, with seasonal work in the fruit industry providing significant employment. Skills and literacy levels of workers are low. Unemployment is 39%, with Government grants providing a high number of people with an income. Poverty alleviation through local economic development needs to be addressed. In George the dominant sectors are agriculture, tourism, trade and business. Poverty and unemployment are some of the key problem areas. The improvement of skills was identified as a focus area for the increase in employment.	In order to have a reference with which to evaluate change, within the forestry communities and down the forestry value chain Steps 1-3 are used to identify the current situation within the areas to be phased out. This includes the gathering of information regarding the focus of the economy in the region, unemployment figures, problem areas and areas where improvement is needed.
5. Assess likely impacts of targets and actions.	Chapter 2 details the expected possible impacts that the phasing out of plantations will have within the case study plantations and within the regions where they are located. This includes possible unemployment, and as a result an increase in crime, as well as downstream company closures.	Impacts can both be direct (e.g. immediate loss of employment) or indirect (downstream effect of the decision). The likely impacts flow from the high priority issues and the benchmark situation identified within Steps 1-4.

Steps	Evaluation of steps within this study	Implementation of steps in similar future processes and situations
6. Estimate the potential impacts of the proposal.	Within Chapters 4 data collection resulted in information which was used to benchmark the situations within the Southern and Western Cape. Within the SC the impact of possible unemployment is significant among the interviewed communities. In both areas there will be a decrease in the timber supply, which will affect downstream companies. Within George, where the sawmill is located within the town, secondary processors depend on the timber from the mill and fear possible closure due to the decreased supply. The dependency on the plantations by indirect stakeholders and NTFP users/collectors was found to be lower than expected.	The physical conduction of questionnaires and gathering of information through interviews etc can now take place within the affected plantations and companies.
7. Conduct detailed planning and analysis.	The analysis and discussion of the data gathered was performed within Chapter 5. The expected impacts as discussed in Chapter 2 were evaluated by making use of the real data. It was found that within the communities interviewed, only 50% of the people were aware of the phasing out process. Within the SC 85% of the communities depend on income from forestry, compared to 18% in the WC. Within the 22 500 ha to be phased out, when looking at the primary and secondary processing companies, 1 350 people are directly employed. This increases to a conservative figure of 7 848 people who will	Analysis of the gathered socio-economic data, this includes the weighing up of the impacts, benefits and alternatives.

Steps	Evaluation of steps within this study	Implementation of steps in similar future processes and situations
	be directly impacted on as a result of the phasing out process. This number can be so high as 27 216 people, when taking dependency ratio's from other studies into account. The average worker was found to be unskilled, with only some training in the forestry industry. This will hinder their employment opportunities within other industries. Dependency on firewood was low as electricity was freely available in three of the four communities, with only 20% of Rooidakkies' respondents indicating that they collect firewood. The collection of fern fonds has an annual income of R632 500, while providing employment to 80-120 people. Ecotourism activities take place within Jonkersberg and Grabouw plantations, but they are all under the management of MTO Forestry.	
8. Recommend best actions*.	Recommendation 1: Increasing public awareness and participation. Recommendation 2: Providing necessary training. Recommendation 3: Identifying alternative employment opportunities. *Recommendations will be discussed in more detail in 6.2 below.	The analysis conducted within Step 7 will identify the areas where intervention is needed; the continuous monitoring of the recommended actions is an important issue to consider.

Steps	Evaluation of steps within this study	Implementation of steps in similar future processes and situations
9. Overcome barriers and build bridges.	The recommendations within this study identify the possible barriers. The most important way to overcome these barriers is to involve the local community.	The integration of social and economic issues within planning is very important, although it is not always easy. The recommendations should help future decision makers to identify the barriers and be able to develop contingency plans before implementing a phasing out process.

6.3 Recommendations

6.3.1 Recommendation 1: Increasing Public Awareness and Participation

In all four case study communities at least 50% of the respondents stated not having heard of the phasing out process. This is especially of concern in the SC where the results show that forestry dependency is high. It highlights the need for community members to be better informed and empowered as they cannot plan ahead for the future if they do not know what will happen, and therefore they should be empowered as soon as possible. DAFF (formerly known as DWAF), as the main decision maker within the phasing out process, as well as the owner of the forestry land, has a responsibility to communicate decisions made about the land to all of the stakeholders, and especially the forestry communities. DAFF, in conjunction with MTO should firstly inform all the relevant communities of the planned phasing out process. This can be done through community meetings. During this process, community fears can be discussed, and DAFF can explain what the phasing out process entails, the time frame involved and the potential impact on household level. Stakeholders along the forestry value chain as well as indirect stakeholders would also benefit from joined meetings with MTO and DAFF. In general, these stakeholders did know about the phasing out process, but they were unsure of the scale of the impact that it will have, as well as the impact on their businesses. The lack of a monitoring programme for the phasing out process necessitates the development of one by Government.

6.2.2 Recommendation 2: Providing Necessary Training

With the possibility of losing their jobs, the forestry and processing companies' employees within the exit areas could benefit tremendously by receiving training in other, non-forestry related areas. The teaching of these basic skills to the forestry employees working within the forestry areas to be exited will be a good starting point for preparing them for the future. This is taken further by Pogue (2008) who identifies the need for skills training in areas of management, finance etc. in order to broaden the knowledge of the workforce and enable them to bridge the gap from the informal to the formal sector. A detailed skills improvement plan thus needs to be drawn up for all the different sectors in order to enable workers to have a increased opportunity of finding alternative employment.

6.2.3 Recommendation 3: Identifying Alternative Employment Opportunities

In conjunction with skills training, Government should work with communities and stakeholders, to identify alternative employment sources, and to (as far as possible) incorporate current forestry and forest companies employees into the jobs that will be created by the alternative land uses within the exit areas. The employment with nature conservation and agriculture is, however, considerably lower than within forestry and as a result alternative employment within other industries also needs to be identified, which stresses the importance of skills training.

NTFP's was identified as an area where there is development potential. Government needs to support this by most importantly assisting with the establishment of a trade organization which can assist people with the processing and marketing of their products. This need does not only exist within the WC and SC, but within South Africa as a whole.

6.4 Chapter Summary

This study showed that a decision cannot be taken without first considering and performing a detailed analysis of the potential social and economic impacts that will result from it. The nine step plan evaluated within this chapter is a useful tool to apply when determining the potential impacts of a similar future decision. The plan aides the decision makers in orderly considering firstly the current socio-economic status of the area and secondly examining the changes that the decision will have on this status, and the ways in which adverse impacts can be lessened. The importance of informing and involving stakeholders and finding ways to mitigate the impact on them is highlighted within this study.

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APPENDIX A: COMMUNITY QUESTIONNAIRE

1. GENERAL INFORMATION

Household reference nr	

1.1	**Name of community**		
1.2	**Plantation**		
1.3	**Area**		
1.4	**Nr. Of plantation employees living in community**		
1.5	**Estimate community size**	Total	
		Nr of households	
		Nr people/household	
1.6	**Additional**		

2. HOUSEHOLD INFO		
2.1	**Who owns this house?**	
2.2	**Years living in the house (household member living there the longest)**	
2.3	**Nr of people in household**	Children
		People @ working age
		Retired
		Sick/Disabled
		Unemployed
		TOTAL
2.4	**Nr of people supplying income**	
2.5	**Nr of dependants**	
2.6	**Additional comments**	

3. NON TIMBER FOREST PRODUCTS + FIREWOOD

3.1	NTFP used most frequently			
Name		Amount (per week/per month)	Travel time/distance	Cost

3.2	Firewood used	Per week	
		Per month	
		Travel time/distance	

3.3	Alternatives/area other than plantation where firewood + NTFP's can be collected	
Name	Travel time/distance	Cost

3.4	Cost now	
3.5	Cost for alternatives	
3.6	Business from NTFP's/firewood?	
3.7	Income from business	
3.8	How important is NTFP/firewood to you?	Not important → Very important
		1 | 2 | 3 | 4

3.9	**What will happen if you had no/little access to NTFP/firewood?**	
3.10	**Additional**	

4. EMPLOYMENT DETAILS

4.1	**Age**		
4.2	**Gender**		
4.3	**Race**		
4.4	**Level of education/literacy**	School grade	
		Other	
		Languages	
4.5	**Previous employment**		
4.6	**Level of current employment**	Job title	
		Job type	
		Responsibilities	
4.7	**Training received from company (previous employment included)**		
4.8	**Years employed in current job**		
4.9	**Wage/salary**	Per hour	
		Per week	
		Per month	

4.10 Benefits		y/n	Included in wage (y/n)
	UIF		
	medical		
	pension		
4.11 Other/future work alternatives			

4.12 Nr of people employed in forestry	Direct			
	Processing			
	Own business			
	Other			
4.13 Income from forestry				
4.14 Nr people employed elsewhere				
4.15 Major household income				
4.16 Total household income				
4.17 Living cost				
4.18 Importance of forestry	Not important ⟶			Very important
	1	2	3	4
4.19 Additional comments				

5. PERSONAL VIEW REGARDING FORESTRY

5.1	**Do you know about the phasing out process?**		
5.2	**What will happen to this community if forestry was scaled down – or disappeared?**		
5.3	**What do you think will be the effect of phasing out on you and your household?**		
5.4	**Have you seen any effect already (job losses? Loss of income?**	Nr job losses	
		People moving	
		Closing of shop(s)?	
		Other:	
5.5	**Where do you think support should be given by Government/MTO/others towards community development?**		
5.6	**Additional comments**		

APPENDIX B: COMPANY QUESTIONAIRE

1. GENERAL INFORMATION

Company reference nr	

1.1	**Name of company**		
1.2	**Type of company**	Sawmill/Processing	
		Hardware store	
		Furniture store	
		Pallet maker	
1.3	**Plantation**		
1.4	**Area**		
1.5	**Additional**		

2. COMPANY INFO/CONSEQUENCES OF PHASING OUT

2.1	**Main products/services**		
2.2	**From where do you source your timber?**		
2.3	**Who do you sell/deliver to**		
2.4	**M^3 timber intake**	Per week	
		Per month	
		Per year	
2.5	**M^3 timber intake from MTO Grabouw plantation**	Product	Intake (per month)
		Pine sawlogs	
		Pine veneer	
		Pine poles	
2.6	**Current cost per m^3 of timber**	Product	Price
		Pine sawlogs	
		Pine veneer	
		Pine poles	
2.7	**Cost of alternative (per m^3 if timber from Grabouw plantation is not available)**	Source	Product / Price

2.8	**What is the max cost per m^3 to keep profit margin positive**	Product	Price
		Pine sawlogs	
		Pine veneer	
		Pine poles	
2.9	**At what cost per m^3 will company have to start scaling down/retrencing?**	Product	Price
		Pine sawlogs	
		Pine veneer	
		Pine poles	
2.10	**At what cost per m^3 will company have to close down**	Product	Price
		Pine sawlogs	
		Pine veneer	
		Pine poles	

3. EMPLOYEES

3.1	**Number of employees**			
3.2	**Skills level of employees (% or nr)**		%	nr
		Unskilled		
		Semi-skilled		
		Skilled		
3.3	**Are there training programmes in place for employees?**			
3.4	**Have alt. working opportunities been identified?**			

4. PERSONAL VIEW REGARDING FORESTRY			
4.1	**Do you know about the phasing out process?**		
4.2	**What will happen to Grabouw if forestry was scaled down – or disappeared?**		
4.3	**What do you think will be the effect of phasing out on your company?**		
4.4	**Have you seen any effect already (job losses? Loss of income?)**	Retrenchment	
		Closing of companies	
		Other:	
4.5	**Additional comments**		