

**The socio-economic benefits of Mohair Trust-
LED Agrarian transformation projects: a case
study of smallholder farmers in the Eastern
Cape Province of South Africa**

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ABSTRACT

Agriculture plays a crucial role in the socio-economic growth and development of many developing countries, particularly in the areas of job creation, stabilisation of rural incomes and contribution to gross domestic product (GDP). One of the trinkets in South Africa's agricultural crown is its mohair industry, largely concentrated in the Eastern Cape Province. The climatic conditions in South Africa and more specifically the Eastern Cape allow Angora goats to grow their fleeces all year round, giving South Africa its reputation as the largest and most consistent source of mohair in the world. As a result, South Africa has a comparative advantage in its ability to consistently meet export demand. Countries such as Lesotho and Argentina are, by comparison, less consistent due to sub-optimal climatic conditions, irregular shearing time frames and lower numbers of Angora goats being shorn. Moreover, the general demand for goat meat, considered a healthy alternative to beef, for example, is on the rise in many parts of the world.

Angora goat farming therefore has the potential to greatly improve the livelihoods of smallholder farmers in South Africa – particularly if they can maintain reasonable size herds and engage in production arrangements that ensure consistent quality and quantities of mohair from one year to the next. Yet existing and aspirant smallholder farmers in the Eastern Cape face many challenges which are impeding their development. These include a lack of access to finance, to land, to adequate equipment and shelter for their herds, and insufficient knowledge about sorting, classing and other processes. As a result, these farmers are unable to put the necessary investment into their operations and their growth and profitability prospects remain stunted. Inadequate governance and implementation of agricultural policies at the local and national government level have exacerbated the plight of smallholder farmers in the Eastern Cape. This has contributed to slow transformation and intensification in the sector, highlighted by the slow absorption of labour in rural communities.

In an attempt to address some of these challenges, the mohair industry in the Eastern Cape, represented by the Mohair Trust, launched a number of Black Economic Empowerment (BEE) initiatives which are aligned to government policies and priorities, and address problems such as income and gender inequality,

unemployment and food insecurity. Broadly labelled as transformation initiatives, they have the potential to alleviate the problems faced by smallholder Angora goat farmers. Until now the success (or otherwise) of such initiatives has remained unknown.

The primary purpose of this study was therefore to determine the benefits of agrarian transformation initiatives and projects that have been devised and rolled out by the mohair industry in the Eastern Cape Province of South Africa. The secondary objectives of the study were (a) to conduct a literature review that would guide the methodological approach; (b) to provide an overview of the mohair industry and study region; (c) to measure the impact of socio-economic variables on enterprise and capacity development; (d) to analyse the effectiveness of the enterprise development initiatives of the Mohair Trust and evaluate the capacity development spin-offs of these initiatives for smallholder farmers; (e) to analyse the value chain linkages of smallholder enterprises created through the Mohair Trust; and (f) to draw conclusions and formulate recommendations from the results.

The study focused on a sample of 150 small-scale mohair farmers, which was representative of the total population, and was conducted in five well-known mohair production regions in the Eastern Cape. The Ordinal Logistic Regression (OLR) model was employed to determine different attributes of the farmer in relation to capacity and enterprise development and to measure the impact of socio-economic variables on enterprise/capacity development. This was done to provide selection criteria to guide the establishment and implementation of future initiatives, such as those of the Mohair Trust. The OLR model used in the study employed descriptive statistics using graphs, tables, means and standard deviations.

Of the six variables included in the OLR model to predict enterprise development (Y), only four (i.e. age, education, market access and income) were deemed to have a significant impact. On the other hand, of the eight variables included in the model to predict capacity development (Y), only five (i.e. age, land ownership, income, training and record-keeping) were deemed significant. The above-mentioned variables were regarded as key factors to consider in the establishment and implementation of future transformation initiatives.

The empirical evidence produced by the study indicated that participants that did not pass Grade 12 (matric) and earned less than R25 000 per annum showed a positive change in terms of enterprise development after the transformation initiatives were introduced, compared with those with a degree or postgraduate degree. The results further revealed that the older participants tended to have benefitted more in terms of various enterprise-related aspects of the initiatives compared with the younger participants. Furthermore, participants with a title deed benefitted more in terms of capacity development, following the introduction of the initiatives, compared with those without a title deed (e.g. they had a lease arrangement). Consequently, the introduction of transformation initiatives has the potential to improve the livelihoods of smallholder mohair farmers in the Eastern Cape.

The results of the study have the potential to contribute both to the agricultural policy and BEE landscapes in South Africa, providing important insights into government priorities vis-à-vis the smallholder Angora farming community in the Eastern Cape as well as a broad methodology that the mohair industry can use in refining and/or expanding its transformation strategies and projects into the future. Furthermore, the findings from this study could make a significant contribution to the success of agricultural transformation in South Africa as a whole and in doing so help address government imperatives such as inequality, food insecurity and unemployment.

Keywords: Agricultural transformation, agricultural intensification, socio-economic variables, capacity development, AgriBEE, enterprise development, smallholder

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BM Mpyana

DEDICATION

This dissertation is dedicated to my mother, Regina Mpyana, my father, Jeremiah Mpyana, and my sisters (Emelda, Judith and Rahab Mpyana) for the support they have shown and given me throughout the time that I was busy with the study.

DECLARATION

I, Barnabas Matsobane Mpyana, declare that this dissertation for the Master's Degree in Agricultural Economics at the North-West University (Potchefstroom Campus) has not previously been submitted to any other university and is my own work in design and execution, and also that all resources and materials indicated in my study are correctly acknowledged.

Signed by: -----

Date: -----

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LIST OF ACRONYMS

AAPRESID	Argentina No-Till Farmers Association
ADB	African Development Bank
AIS	Agricultural Innovation System
AKIS	Agricultural Knowledge and Information System
ATA	Agricultural Transformation Agency
BEE	Black Economic Empowerment
BKB	Boeremakelaars (Kooperatief) Beperk
CAADP	Comprehensive Africa Agriculture Development Programme
CAAPAS	American Confederation of No-Till Farmers Associations
CAPSA	Centre for the Alleviation of Poverty through Sustainable Agriculture
CASP	Comprehensive Agricultural Support Programme
CTA	Centre for Agricultural and Rural Cooperation
DAFF	Department of Agriculture, Forestry and Fisheries
ECA	Economic Commission for Africa
ECP	Eastern Cape Province
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GFADA	Grain Farmer Development Association
GTAP	Global Trade Analysis Project
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
MAFISA	Micro Agricultural Financial Institutions of South Africa
MAP	Marketing of Agricultural Products Act of 1996
MPEP	Micro-enterprise and Private Enterprise Promotion
NAMC	National Agricultural Marketing Council
NDP	National Development Plan
FANRPAN	Food, Agriculture and Natural Resources Policy Analysis Network
AGRA	Alliance for a Green Revolution in Africa
NEPAD	New Partnership for Africa's Development
NERPO	National Emergent Red Meat Producers Organisation
NMBT	Nelson Mandela Bay Tourism
NWGA	National Wool Growers Association

OECD	Organisation for Economic Cooperation and Development
OLR	Ordinal Logistic Regression
OLS	Ordinary Least Squares
PDI	Previously disadvantaged person
PLAAS	Institute for Poverty, Land and Agrarian Studies
PRONAF	<i>Programa Nacional de Fortalecimiento al Agricultura Familiar</i>
QLFS	Quarterly Labour Force Survey
SADC	Southern African Development Community
SEAF	Small Enterprise Agencies Forum
SAGCOT	Southern Agricultural Growth Corridor
SAMGA	South African Mohair Growers Association
SAMIL	South African Mohair Industry Limited
SMME	Small, Medium and Micro Enterprise
SPSS	Statistical Package for the Social Sciences
TFP	Total Factor Productivity
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VIF	Variance Inflation Factor

CHAPTER 1: INTRODUCTION

1.1. BACKGROUND

According to Mohair SA (2015), South Africa is recognised not only as the world's largest source of mohair but also the most consistent supplier of this product. Mohair production in South Africa accounts for an estimated 54% of global production. On average, around four million kilograms of mohair are produced annually in South Africa. DAFF (2010) has stated that the climatic conditions in the country allow Angora goats to grow their fleeces all year round, giving South Africa its reputation as the largest and most consistent source of mohair globally, ahead of other supplying nations such as Argentina and the United States of America. Moreover, with goats growing their fleece all year round, farmers are able to auction their produce twice a year – resulting in summer and winter sales (DAFF, 2010).

According to the NAMC (2006), Angora goats were first imported into South Africa from Turkey in 1838 with a consignment of twelve rams and one ewe. Ankara is the region in Turkey where Angora goats are in abundance. On the goats' arrival in Port Elizabeth, it was discovered that the rams had been sterilised prior to departure. Interestingly, however, the ewe was later found to be pregnant and gave birth to a ram kid during the journey to South Africa. Although numerous importations of Turkish stock occurred up until 1896, the ewe and her kid formed the basis of the Angora goat and mohair industry that developed in South Africa (NAMC, 2006).

Hoffman *et al.* (2008) add that the herds of mohair goats spread into the arid areas of the Karoo and south-eastern Free State. Since the goats' first arrival in South Africa, the know-how of South African farmers has led to the improvement of the breed – especially the quality of the hair – to the extent that local goats now far outshine the unique herds still found in Turkey (Hoffman *et al.*, 2008).

Nonetheless, from 1856 to 1896, more than 3000 head of goats were shipped from Turkey to South Africa, with some shipments comprising as many as 500 to 700 goats. Some of these goats made their way to Basotho Land, which later became known as Lesotho. It is interesting to note that in 1988 there were 2.9 million Angora goats in South Africa which produced a total of 12.2 million kilograms of mohair that year. Today there are an estimated 668 000 Angora goats in the country producing almost 2.23 million kilograms of mohair per year (Mokhethi, 2015). The reason for the decline from 12.2 to 2.23 million kilograms is low profitability levels due to price fluctuations.

Scholtens, Lopez-Lozano and Smith (2017) define mohair as the white, lustrous fibre that is produced by Angora goats. Mohair fibre, which is strong and elastic, forms a fabric that is easily dyed. It is mainly used in the textile industry and is especially suitable for apparel, knitwear, curtaining, socks, shawls and other accessories. Although Angora goats are kept primarily for mohair production, goat milk and meat are often essential to the livelihoods of subsistence farmers in South Africa. Furthermore, goats make a crucial contribution to the economies of developing countries such as South Africa, with Europe and North America being important markets for goat meat, milk and fibre, i.e. mohair, cashmere and cashgora (Johnson, Cohen and Sarkar, 2015).

Goats have also played a significant role in the social life of many African people, being used as gifts and dowries, in religious rituals and rites of passage, and in controlling bush encroachment. There is also potential for obtaining extra income through value-adding activities such as the manufacture of goat leather products (i.e. handbags, slippers and key chains), goat meat products (i.e. spiced meat cuts) and milk products (i.e. drinking yoghurt, cheese and amasi) (Capote, 2016).

The mohair industry has the potential to contribute to the development of the smallholder farming community through the establishment of transformation projects that are underpinned by technical expertise and the further development of the industry as a whole. This study attempts to contribute to such a process by identifying possible initiatives that the mohair industry and related industries can consider as well as the

factors that are likely to drive the long-term sustainability of the industry. The study also highlights the successes that the industry has achieved so far.

1.2. DEFINITION OF KEY CONCEPTS

It is important that key concepts such as smallholder farmer, agricultural intensification and agricultural transformation are comprehensively defined in order to offer clarity, especially with regard to the problem statement and motivation for the study.

In this study, smallholder farmers refer to farmers owning small plots of land on which they farm subsistence products and one or two cash crops, for which they rely exclusively on family labour. Agricultural intensification, in turn, is defined as an increase in agricultural production per unit of inputs while agricultural transformation can be viewed as a process whereby individual farms move from highly diversified, subsistence-oriented production to more specialised production focusing on the market and/or other models of exchange.

The above-mentioned and other concepts will be discussed in more detail in Chapter 2.

1.3. PROBLEM STATEMENT AND MOTIVATION

In the literature, there is widespread agreement that agricultural transformation and intensification have the potential to improve the absolute incomes of the rural poor in Africa as a whole (Mudhara, 2010; Reardon and Timmer, 2007). There is evidence that in Latin America and India, for example, higher-income rural households located in areas where the intensification of agriculture is progressing have a propensity to generate a higher share of income from agriculture than lower-income households (Reardon, Barrett and Webb, 2016).

A number of researchers (Vink and Kirsten, 2003; May and Carter, 2009; Aliber and Hart, 2009) and the NAMC (2014) add that the South African agricultural economy is dualistic by nature, meaning that it is characterised by both well-developed, commercial farming and more subsistence-based production in the rural areas. This dualistic nature has

developed as a result of policy-based land reforms such as the Land Act of 1914. Commercial farmers are distinctive in that they use advanced farming methods and have easy or relatively easy access to physical capital, financial capital, markets and information. The smallholder farmers use traditional farming methods, and have small portions of agricultural land, no or little access to financial capital, and limited access to markets and information. It is this inequality gap that the government is trying to close through various interventions.

Inequality in the agricultural sector persists despite the abandonment of apartheid-era discriminating laws by the new democratically elected government in 1994 and the introduction of policy reforms aimed at creating more open markets (Pauw, 2009; OECD, 2006). This points to the fact that communal farming was not designed to be an agribusiness activity and that prior to the start of the new dispensation in South Africa in 1994 both smallholder farmers and, more specifically women, were not actively involved in the mainstream economy. This constraint is attributed to isolative policies (racial, gender and economic) at the time as well as cultural norms and traditional customs (affecting livestock ownership in communal farming communities). These challenges have conspired to limit the agribusiness potential of cattle herding among farmers in these poverty-stricken areas.

Today, communal farmers account for almost none of the 80% of beef cattle sold via commercial feedlots (Spies, Jooste and Taljaard, 2011). However, several studies (Meyer *et al*, 2009; Adeniyi, 2010) maintain that agriculture is still the backbone of many rural economies, an engine for growth and development. To access these opportunities, Makhura (2001) proposes that commercialisation be pursued, which will improve smallholder farmers' ability to participate in output markets. According to Shokane (2008), this economic transformation should be backed up by unbiased support for all, irrespective of gender or race. Unfortunately, the process of agricultural transformation and intensification in South Africa is still at the first stage due to inadequate implementation and poor governance of agricultural policies, unequal participation by people of colour in agriculture and other factors that have contributed to slow progress. A complex array of structural factors is also at work, including market inaccessibility and a

lack of infrastructure, high population densities and a natural resource base that is not well understood (Delgado, 1997).

Delgado (1997) elaborates by arguing that given the role of agricultural transformation in broadly improving rural incomes, it should come as no surprise that such transformation is firmly linked to political stability, immigration and other economic forces such as demand and supply. Delgado (1997) further states that the underlying political issues affecting rural areas can be linked to inadequate access to land and poor policy implementation efforts. Failure to implement policies that promote increased labour absorption in rural areas creates huge challenges, such as food insecurity, high rates of unemployment, and low or no incomes. Agricultural transformation thus stands at the centre of rural employment, both on and off the farm (Delgado, 1997).

Mohair SA (2015) points out that smallholder and/or emerging mohair farmers face unique challenges. The quantity and quality of mohair produced by smallholder farmers vary from season to season, mainly due to the difficult conditions under which they have to farm. For example, farming under a communal pastoral system means that the land belongs to the community. In addition, farmers often lack sufficient and easy access to sheltering. Angora goats are very sensitive to drastic weather changes and as a result more than one large shelter has to be erected on different locations on a farm, which can be quite costly. Often lacking, too, is adequate shearing and mohair sorting equipment, as well as hair sorting and classing knowledge among farmers and labourers (Mohair SA, 2015). Furthermore, a lack of agricultural land and other infrastructural constraints remain huge challenges for smallholder goat farmers, while a lack of access to funding and land ownership makes it virtually impossible to establish more smallholder projects that can promote transformation in the industry (NAMC, 2015).

Despite these constraints, Angora goats are still considered a viable option for smallholder farmers as they are shorn twice a year and thus deliver an income twice a year (Mohair SA, 2011). This is supported by a healthy international demand for mohair. There is also growing demand for goat meat as it is considered to be lower in fat content than other livestock meat products (Shibia, Rahman and Chidmi, 2017).

It was against this background that the Mohair Trust launched a number of transformation projects aimed at providing beneficiaries with services such as training and other skills transfer opportunities, and production inputs. The Mohair Trust initiatives are aimed at addressing the challenges faced by farmers on the ground but also government priorities relating to agricultural development, such as the MAFISA (Micro Agricultural Financial Institutions of South Africa) programme and CASP (Comprehensive Agricultural Support Programme).

In an attempt to tackle the challenges faced by smallholder farmers, the mohair industry in the Eastern Cape Province of South Africa also launched a number of black economic empowerment (BEE) initiatives through the medium of smallholder farmer projects. BEE, as defined by the South African government, refers to a form of economic empowerment aimed at previously disadvantaged individuals (PDIs) with the goal of distributing wealth (equity ownership, management representation and participation) across the spectrum of PDIs in South Africa (DTI, 2014). The South African mohair industry has supported the government's BEE policy since it was first launched in 2006, and has accepted responsibility for implementing the policy through the following projects:

- A joint project between South African Mohair Industry Limited (SAMIL) and various government organisations to establish training centres for the purpose of training individuals in all aspects of mohair farming;
- A mentoring project at Prince Albert; and
- A mentoring project at Pearston.

The principal objective of the Mohair Trust is to provide training, support and assistance to emerging farmers to help them start up and manage agricultural operations. It does this in a number of ways:

- Ensuring a sustainable supply of mohair by establishing emerging farmers in financially viable Angora goat farming operations;
- Establishing successful black participants and entrepreneurs in the mohair pipeline; and

- Maintaining and expanding job opportunities for black employees within the established mohair operations in the industry.

Despite the rollout of these BEE initiatives, smallholder farmers still face challenges, such as an inability to obtain superior breeding material (particularly quality rams) and limited mohair classing activities taking place in those areas where mohair goats are owned by smallholder farmers. Attempts have been made to address some of these issues but the outcomes remain largely unknown (Mohair SA, 2015).

Determining those areas in which these initiatives have been successful could prove valuable – not only in steering future policy directives, but also in guiding the development of future initiatives pertaining to other sectors and/or regions in South Africa. Such a move would also provide a valuable overview of the extent to which these types of programmes are advantageous to the beneficiaries in question and/or to a specific region, which could be used to guide expectations in the future. Equally important are the lessons to be learned to ensure that the mistakes of the past are not repeated in the future.

In short, the findings from this study could make a significant contribution to the success of agricultural transformation in South Africa and in doing so help address government imperatives such as inequality, food insecurity and unemployment.

1.4. OBJECTIVES OF THE STUDY

The primary objective of this study is to determine whether smallholder farmers have benefitted from the agrarian transformation projects that have been orchestrated by the Mohair Trust in the Eastern Cape Province of South Africa.

To achieve this primary objective, the following secondary objectives need to be met:

- a) Conduct a literature review that will guide the methodological approach, i.e. a survey and questionnaire design and an appropriate methodology for statistical analysis;
- b) Provide an overview of the industry and study region;

- c) Measure the impact of socio-economic variables on enterprise and capacity development using descriptive statistics;
- d) Determine different attributes of the farmer in relation to capacity and enterprise development. This is to provide selection criteria for beneficiaries to guide the establishment and implementation of future initiatives, such as those of the Mohair Trust;
- e) Analyse the effectiveness of the enterprise development initiatives of the Mohair Trust and evaluate the capacity development spin-offs of these initiatives for smallholder farmers;
- f) Analyse the value chain linkages among smallholder enterprises that have been created through the Mohair Trust; and
- g) Draw conclusions and recommendations from the results.

1.5. RESEARCH HYPOTHESIS

The study assumes that the transformation projects of the Mohair Trust have the potential to play a crucial role in addressing the economic disparities experienced by smallholder farmers through the provision of socio-economic benefits such as employment, food security, skills development and income generation. This will serve to empower smallholder farmers and enhance their level of participation throughout the mohair value chain so that they can become viable commercial farmers in the mohair industry. In the context of the above assumptions, the study hypothesises that:

- H_0 : Participants are not benefitting from the agrarian transformation projects/initiatives implemented by the Mohair Trust;
- H_a : Participants are benefitting from the agrarian transformation projects/initiatives implemented by the Mohair Trust.

1.6. DATA USED AND METHODOLOGY

To realise the objectives of the study, primary data was collected from a representative sample of 150 smallholder farmers using a structured questionnaire approach. The

questionnaire included closed-ended questions (yes/no) and Likert-scale questions. The questionnaire was completed by means of a face-to-face interview with each of the participants. During the collection of the data, extension officers, development officers in the mohair industry and smallholder farmers participating in the initiatives were in attendance. The attendance of the extension and development officers enabled the researcher to explain the questions in the respondent's home language (IsiXhosa) which helped to thoroughly convey the purpose of the survey to the smallholder farmers. At the same time, the smallholder farmers (participants) were given the opportunity to ask questions or obtain clarity on any of the questions posed.

The study employed both qualitative and quantitative research designs. A purposive sampling technique was selected because of its flexibility, i.e. it took into account the ability of the researcher to judge the subjects that were typical or representative of the phenomenon being studied.

Descriptive statistics were used to describe the data before an analysis was conducted of the impact of different socio-economic variables on enterprise and capacity development. The data was analysed using the Statistical Package for the Social Sciences (SPSS), which was applied for the purpose of running the empirical analysis and frequency tables. The objective of determining different farmer attributes in relation to capacity and enterprise development was achieved by using the Ordinal Logistic Regression (OLR) model. This objective sought to identify the selection criteria to consider for the establishment and implementation of future initiatives, such as those of the Mohair Trust.

The OLR analytical tool was chosen because it refers specifically to the problem in which the dependent variable is binary – i.e. the number of available categories is two, such that an enterprise can either be developed or not developed. Furthermore, the OLR model measures the relationship between a categorical dependent variable and one or more independent variable(s) which are usually but not necessarily continuous. The model also deals with socio-economic factors and allows one to estimate the probability of a certain event occurring.

The OLR model is very popular and widely used in practice. Part of its popularity stems from its ability to predict the independent variables that have a significant effect on the dependent variable, and to what extent. This will be discussed in more detail in 4.1.

1.7. OUTLINE OF THE STUDY

This section provides the structure of the study in relation to the objectives. The study is divided into seven chapters. Chapter 1 provides the background, problem statement, motivation and objectives. Chapter 2 provides a literature review that deals with, among other topics, an overview of transformation and a review of previous studies on agricultural transformation conducted both locally and internationally. The chapter also provides a brief overview of the interrelationship between agricultural transformation, development projects and the role of other critical factors which together translate into transformation of the agricultural sector, particularly the smallholder sector. Chapter 3 provides an overview of the mohair industry and the region in which it is concentrated, while Chapter 4 focuses on the methodological approach used in the study. Chapter 5 provides a discussion on the descriptive results of the study, while Chapter 6 presents the empirical procedure and results. Chapter 7 provides a final summary, conclusions and recommendations.

CHAPTER 2:

LITERATURE REVIEW

2.1. INTRODUCTION

One of the main objectives of this study is to conduct a literature review to guide the methodological approach, i.e. a survey and questionnaire design and an appropriate methodology for statistical analysis. The main question posed by this study is whether the Mohair Trust's transformation projects have benefitted the smallholder farmers in the study area. In attempting to address this question, this chapter looks at definitions of key concepts as well as previous studies conducted by other researchers in the literature to select the variables and critical factors to consider when analysing the results. Various concepts and approaches, including successes and failures of agricultural transformation, are also discussed in the chapter.

2.2. DEFINITION OF KEY CONCEPTS

As mentioned in Chapter 1, it is important to understand the key concepts in order to fully comprehend the study. It is therefore crucial to provide relevant definitions and to contextualise the study. Below are definitions of the key concepts introduced in the study.

2.2.1. Smallholder farmers

Smallholder farmers are emerging farmers who need input markets, markets for services and output markets for their farming operations, but often face limited market access because of various constraints (Van Schalkwyk *et al.*, 2003). This implies that they produce (a) surplus(es) for the market. The part of the harvest that is not consumed by the household, or the extended family, will be sold when a market is available. Holland *et al.* (2017) adds that the term smallholder can be used interchangeably with small-scale, resource poor and sometimes peasant farmer. In the context of this study, a smallholder farmer is defined in terms of his or her limited resource endowment relative to other

farmers in the sector. In view of this, smallholder farmers can be defined as farmers owning small plots of land on which they farm subsistence products and one or two cash crops. Relying exclusively on family labour, their farming operations are also associated with outdated technologies, low returns, high seasonal labour fluctuations, small land size, and limited access to finance, information and markets (Holland, 2017).

2.2.2. Agricultural intensification

Egli *et al.* (2018) technically define agricultural intensification as an increase in agricultural production per unit of inputs which include: labour, land, time, fertiliser, seed, feed and cash. The authors further elaborate that intensification occurs when there is an increase in the total volume of agricultural production. This results from greater productivity from inputs or agricultural production being maintained while certain inputs are reduced (for example, so that there is more effective delivery of smaller amounts of fertiliser, so that plants or animals will enjoy more focused protection, or so that mixed or relay cropping can take place in smaller fields). Moreover, intensification can take numerous forms, with increased production becoming more critical when there is a need to expand the food supply, such as during periods of rapid population growth (Egli *et al.*, 2018).

2.2.3. Agricultural transformation

Eicher and Staaz (1998) define agricultural transformation in a commercial farming context as a process whereby individual farms move from highly diversified, subsistence-oriented production to more specialised production focusing on the market and/or other models of exchange, such as long-term contracts. This process includes a greater dependence on input and output delivery models and a stronger relationship between agriculture and other sectors of the domestic and international economies (Eicher and Staaz, 1998). The authors further argue that agricultural transformation is an essential part of the comprehensive process of economic transformation in which an increasing share of economic output and employment is created by sectors other than agriculture. Thus, agriculture acts as a supplier of raw materials to other sectors such as mining and is seasonal by nature. Agricultural models are subject to various forms of structural

transformation. According to Bosc *et al.* (2012), agricultural transformation is evidenced in, for example, variations in land tenure systems, more intensive use of labour and non-labour inputs, the switch to non-farm activities, and the prevalence of different forms of market amalgamation and new forms of agricultural enterprises.

With this in mind, Carswell (1997) argues, from a development perspective, that agricultural strengthening is a strategy aimed at achieving sustainable livelihoods, drawing on evidence from several areas that have undergone such a process. A very good example of this is the green revolution which, by using important production inputs such as fertiliser, improved seed varieties, and so on, has set out to strengthen agricultural operations (Carswell, 1997).

Cousins (2013) defines agricultural transformation as a fundamental change in terms of land, livestock, cropping and community. Timmer (2014) elaborates by defining agricultural transformation as the process of increasing the efficiency of agriculture, resulting in the proportion of households reliant on agriculture for employment dropping. This then prompts a reduction in the relative contribution of agriculture to the inclusive national income. He adds that agricultural transformation is a necessary condition for poverty alleviation and hunger reduction in developing countries.

Delgado (1997) offers an even narrower definition of agricultural transformation, saying it is a change from one structural stage to another. He states that this change is naturally demonstrated in increasing specialisation in production, more efficient use of purchased production inputs, greater resource inflows to farming activities and sizeable cuts in costs per unit of production as a result of technological change.

According to DAFF (2010), agricultural transformation can also be defined in terms of gender-based and different race groups' participation in the agricultural sector. Collier and Dercon (2014) define agricultural transformation as a change in production systems due to, on the one hand, the way in which different types of capital are combined and mobilised (namely, capital associated with land, materials and finance) and, on the other hand, the quantity and quality of labour (family and/or hired).

Based on this, the concept of intensification of agricultural production can be considered important, especially when it comes to smallholder development. Bosc *et al.* (2012) are of a similar opinion, pointing out that the concept of intensification of agricultural production is a crucial part of transformation. Transformation has created a propensity to expand the size of assets and increase the number of hectares per smallholder farmer, leading to large-scale farms.

In the context of this study, agricultural transformation can be defined as the fundamental change in terms of land, livestock, cropping and community, as adapted from Cousins (2013). The benefits flowing from the introduction of transformation initiatives include employment creation, higher incomes, poverty alleviation, easier access to markets, capacity-building and more sustainable enterprises. As a result, smallholder farmers are able to participate in the mainstream of the economy, provided they are equipped with relevant production and entrepreneurial skills. However, it is also important to consider the global view of agricultural transformation. It is therefore essential that different forms of transformation in developing economies are also investigated.

2.3. GLOBAL OVERVIEW OF AGRICULTURAL TRANSFORMATION

Globally, agricultural transformation is viewed as a way to enhance and sustain economic growth and development, while tackling the challenges of food insecurity, unemployment, gender inequality, land access problems, poor labour productivity, low agricultural participation rates and rural income disparities (Timmer, 2013). Transformation can be achieved by commercialising smallholder farming in partnership with agriculture and other related sectors. However, the literature shows that the transformation of the agricultural sector takes on a different hue from one country to the next. With this in mind, the ensuing sub-sections provide an historical overview of agricultural transformation and development, both globally and in Africa. In addition, they review previous studies, which will guide the methodological approach of this study.

2.3.1. International perspectives on agricultural transformation

As mentioned, it is important to review the international perspectives on transformation and the routes followed when transforming agricultural sectors. Firstly, the literature indicates that the origin of agricultural transformation can be traced to South American countries such as Brazil and Argentina. According to Peiretti and Dumanski (2014), agricultural reform commenced in South America in the 1930s and continued until the 1960s when farmer associations with similar objectives in Brazil, Mexico, Paraguay and Uruguay joined the American Confederation of No-Till Farmers Associations (CAAPAS). This group currently has 11 permanent and invited members, including the USA and Canada.

In Argentina, an informal group of farmers was organised into the Argentina No-Till Farmers Association (AAPRESID) which forms part of CAAPAS (Peiretti and Dumanski, 2014). The transformation of agriculture in South American countries focuses on a no-till farming system, commonly known as soil conservation, land ownership, production and technology adoption. Previously in Argentina, soil erosion was so extreme and persistent that it threatened the economic viability and indeed the very survival of the agricultural sector. Today, Argentina's production levels are much improved due to greater productivity, profitability and competitiveness under the no-till approach (Peiretti and Dumanski, 2014).

The transformation of the agricultural sector in Brazil occurred in two phases according to the existing literature. Baer (2008) points out that Brazil is historically known to be an export-oriented country. The country's post-World War II policies focused on promoting free trade and controlling inflation. He further states that in 1960, import substitution policies were introduced to encourage capital formation. This laid the industrial basis for modernisation of the agricultural sector and the invention of agricultural machinery, fertiliser and chemical inputs. It constituted the primary phase of agricultural transformation in Brazil (Baer, 2008). Another phase of transformation was in the 1970s and early 1980s when the Brazilian economy continued to open up due to the expansion of processed and semi-processed agricultural exports. During this period, Brazil

established a national agricultural research agency called Embrapa to advance transformation in the agricultural sector. The main objective of Embrapa was to increase human capital investment, thereby inducing the necessary research and development to improve smallholder farmers' efficiency and increase yields (Graham, Gauthier and Barros, 1987).

It is important to note that in 1995 significant changes were made to Brazil's agricultural policy, which shifted the focus to land reform and family farming in order to lessen rural poverty. During this period, Brazil established a programme called *Programa Nacional de Fortalecimento da Agricultura Familiar* (PRONAF) whereby the government implemented a set of policies that included subsidised credit lines, capacity-building, research and extension services (Chaddad and Jank, 2006). In an effort to calculate the total factor productivity (TFP) variations in the agricultural sector of Brazil and Argentina in the period 1971–2002, Mendali, Ames and Gunter (2013) conducted a comparative study using the Malmquist index. The study revealed that agricultural TFP, efficiency and technical change accelerated Brazil's agricultural growth, whereas Argentinian agriculture experienced a downward trend in TFP growth over the sampled period.

The US agricultural sector, which is regarded as one the most influential agricultural sectors globally, started with its transformation in 1929. Blank (2013) argues that without supportive governmental policies, the strong growth of American agriculture from 1930 onwards would have been impossible. The author states that the success was due to government support in terms of research, appropriate legislation, subsidised and accessible agricultural projects, and low-interest credit. In the 1920s, major debates about farm policies led to the launch of numerous new initiatives, which assisted the formulation of new farm legislation. For the first time, agricultural legislation directly supported agricultural prices being well above free market levels (Blank, 2013). An assessment of the historical transformation path of the US agricultural sector conducted by Dimitri, Effland and Conklin (2005) revealed that technological enhancements reduced the number of people employed in the farming sector and increased efficiency, creating opportunities for non-farm jobs. In a further study, Gillespie and Mishra (2011) examined the socio-economic benefits and impact of government-funded projects in rural America

using a Two-State Multivariate Tobit model. Results showed that the ability to supplement on-farm activities is significant when engaging in agricultural production. The authors also discovered that the reasons for engaging in agricultural production are influenced by the type of production enterprise and the commercial scenarios it faces. The variables that constituted the predictors of enterprise development were education group/level, age group, gender and village. To put this into context, for smallholder farmers to engage in agricultural production they should take ownership of the farm or realise a level of profit that could be invested in other businesses.

In Asia, agricultural transformation resulted in a decline in agriculture's share of employment in contrast to its rising share in output, the rapid growth in labour and land efficiency, and a shift in agricultural output from traditional to high-value products. The most effective Asian economies have followed an agricultural development-led industrialisation path. Nonetheless, agriculture remains the major employer in many large Asian countries. To speed up transformation, many Asian countries need to promote long-term productivity growth in the agricultural sector and the participation of their farms and agro-enterprises within the global value chain (Timmer *et al.*, 2012).

Since agricultural transformation is a process, it also undergoes different stages. Blank (2013) defines four stages of agricultural transformation from a policy perspective. The first stage of agricultural transformation starts when the agricultural productivity per worker begins to rise and significant public investment becomes necessary. The second stage starts when a surplus is generated from rising labour productivity induced through taxes or rents. During this stage, a significant amount of public intervention is required to mobilise resources. In the third stage the agricultural sector becomes increasingly integrated into the rest of the economy, facilitating inter-sectoral factor, input and output flows. During this stage, the efficient use of rural resources becomes the main component, with private market development being a key driver of the transformation of the agricultural sector. During the fourth and last stage, income distribution issues and environmental concerns surrounding infrastructure and productive assets become more important to household and policy decisions relating to agriculture (Blank, 2013).

Blank (2013) states further that the movement across the four stages is typically characterised by increasing intensification, which is central to achieving sustained growth in output in land-scarce systems. In theory, intensification involves increasing all other factors of production relative to the scarcest factor, with scarcity defined in terms of social opportunity cost (Blank, 2013). More importantly, the Asian green revolution stands out because of its transformational powers that turned Asian countries into global economic powerhouses in terms of agricultural (and notably grain) production

2.3.2. The green revolution in Asia

Before explaining the concept of green revolution, it is crucial to arrive at a definition. Rosegrant and Hazell (2000) define the green revolution as sets of research and the development of technology transfer initiatives that occurred between the 1930s and the late 1960s. The main aim of the green revolution was to increase agricultural production, particularly in the developing world. However, evidence suggests that the green revolution also assisted in poverty alleviation. In 1975, three out of every five Asians still lived on less than US\$1 a day, which declined to less than one in three by 1995. The initiatives undertaken resulted in the adoption of new technologies, including high-yielding varieties, new methods of cultivation, and new forms of mechanisation and chemical fertilisers. The success of the green revolution is evident in the grain industry, particularly in the production of rice, wheat and maize (Rosegrant and Hazell, 2000).

Farmer (2012) asserts that the green revolution benefitted smallholder farmers through increased agricultural production and improved farm incomes. Furthermore, smallholder farmers and landless labourers gained additional agricultural employment opportunities. Toenniessen (2008) points out that in Africa, numerous attempts were made to introduce green revolution concepts and initiatives. However, the initiatives were largely unsuccessful due to widespread corruption, a lack of infrastructure and a general lack of will from government (Toenniessen, 2008).

Barretta *et al.* (2015) define the process of agricultural transformation in terms of development and diffusion of innovation as a substitute for emerging factor shortages.

The authors view technical change, the green revolution and land-intensive agriculture as sources of agricultural transformation. They go on to distinguish four phases of sector transformation as follows (Barretta *et al.*, 2015):

a) Pre-green revolution phase

During this phase, traditional production systems are in place using insignificant quantities of external inputs. Efficiency is modest, and production increases are mainly the result of greater use of land and water resources, such as land expansion and investment in infrastructure (including road and marketing facilities).

b) Green revolution phase

This is a technological invention phase in which inputs create the potential for an increase in land productivity, demonstrated as higher output yields.

c) First post-green revolution phase

This is also called the input intensification phase, whereby farmers increase their usage of purchased inputs (e.g. vaccines) and capital (e.g. equipment and machinery) as a substitute for increasingly scarce land and labour.

d) Second post-green revolution phase

This is the input productivity phase, whereby farmers use improved technical information and management skills as a substitute for higher input use, leading to more resourceful utilisation of inputs while also contributing to the sustainability of the resource base.

Following the green revolution era, several debates took place in the United States, including the Micro-enterprise and Private Enterprise Promotion (MPEP) seminar series focusing on “what will it take to transform African agriculture 2013–2030?” which featured in the work of Antwood, Jayne and Wolgin (2013). Jayne states that transformation in Asia was the result of government investment in policy formulation, infrastructure, research and development, extension services and credit subsidies (Antwood *et al.*, 2013). The authors assert that African countries have to follow a similar approach to

agricultural transformation recently brought about in Asia, Europe and the United States (Antwood *et al.*, 2013). They are of the opinion that these respective transformations resulted in higher labour and land productivity and increased mechanisation, while farmers also created off-farm employment and income links. Importantly, policy and investment can facilitate these processes in a way that either helps or hurts rural communities.

Antwood and Wolgin indicates that transformation can happen either in a bad way or a good way (Antwood and Wolgin, 2013). The bad way of transformation involves offering subsidies and/or special treatment for the purpose of mechanising and/or combining larger farms, and in the process driving people off the land. The good way of transformation is through high-impact investments to increase smallholder farmers' productivity – evidenced in better technology, lower marketing/transport costs, and better understanding of the dynamics of market demand and how to connect to viable commercial value chains. These cited economic forces help to forge more united farms and more off-farm employment (Antwood and Wolgin, 2013).

Furthermore, in Africa several organisations have been established to tackle the transformation of the agricultural sector, such as NEPAD, ATA, FANRPAN and AGRA, to mention a few (discussed in 2.3.3).

Briones and Felipe (2013) add that the transformation of Asian agriculture could be ascribed to four different forms of structural transformation:

- The first revolves around the decline in agricultural output relative to employment, i.e. agricultural output has declined faster than employment.
- The second revolves around land efficiency in Asia which has grown faster than in other unindustrialised regions.
- The third is concerned with technological change in agriculture, i.e. there have been significant improvements in yields of traditional crops since the 1960s.
- Lastly, the composition of agricultural output of developing countries in Asia has changed from traditional to high-value products (Briones and Felipe, 2013).

Sanghvi, Simons and Uchoa (2011) report that China undertook its agricultural transformation on a large scale, but its main accomplishments in this regard are the result of practical approaches. The authors indicate that Chinese reform focused on smallholders that established themselves at the micro level through:

- extension programmes in every village;
- agricultural manufacturing that emphasised the use of small tools; and
- the use of machinery and incentives that stimulated self-financing, iterative improvements and incremental learning.

In concluding their argument, the authors claim that African leaders, Western donors and investors are delaying the process of transformation by addressing challenges with large-scale models and expansive programmes that are not suitable for smallholders (Sanghvi *et al.*, 2011).

Dingde *et al.* (2015) conducted a study on household livelihood strategies and dependence on agriculture in China. The authors employed descriptive statistical analysis and the OLR model which showed that 56% of the households demonstrated a low dependence on agriculture. The variables that had a positive influence on livelihood strategies were number of years of education, age, availability of labour and location. The study further found that elderly farmers enjoyed limited opportunities for off-farm employment.

The variables included in the studies by Dingde *et al.* (2015) and Gillespie and Mishra (2011) provide a basis for comparing how transformation in agriculture can be introduced in South Africa.

2.3.3. Agricultural transformation in Africa

It is interesting that African countries acknowledge the economic contribution of the smallholder sector, although it contributes a relatively small percentage to GDP growth. This was evidenced by all SADC nations that signed NEPAD's 2002 Comprehensive

Africa Agriculture Development Programme (CAADP), in doing so committing to spend 10% of GDP on the transformation of the agricultural sector and achieving an agricultural growth rate of 6% annually. The true commitment of African governments to achieving these targets, however, is highly questionable as only 10 out of 57 African nations have allocated 10% of GDP to agricultural interests. Indications were that at the end of 2014, none of the SADC nations (including South Africa) was ready and/or on track to realise the target by 2014 (Ugwu and Odo, 2014). This was due to insufficient resources, such as finance, and differences in governance approaches and economic stability across the region.

In addition, approaches to agricultural transformation differ widely across Africa in terms of structural/institutional arrangements and underlying circumstances. While national strategies differ, efforts to transform and commercialise agriculture in partnership with other private and public sector role players remain a common thread. Countries such as Tanzania, Mozambique and Burkina Faso have clustered geographical areas as agricultural corridors, whereby distant food-producing areas are connected to ports and cities. This has been done by ensuring that the necessary infrastructure is in place to attract large-scale investment. In Tanzania, this was achieved through the establishment of the Southern Agricultural Growth Corridor (SAGCOT), aimed at linking the Tanzanian government and farmer organisations with international and domestic companies and development organisations. This is a 20-year programme involving the investment of approximately US\$3 billion in infrastructure, the creation of over 420 000 rural jobs and the production of sufficient food both for the region and for exports to global markets (Kadigi *et al.*, 2017)

Other African nations, such as Ethiopia, Nigeria and Kenya, have followed a crop-based approach. The Ethiopian government, for example, is focusing on bringing in investors to remove blockages along the value chains of specific crops. These crops include malt barley, sesame and chickpeas, which have been identified as posing exciting opportunities for private sector investors. The success of Ethiopia's agricultural sector can be traced to its malt barley crop. The Agricultural Transformation Agency (ATA) is responsible for coordinating partnership initiatives with private sector investors (Paul and

Wa Gĩthĩnji, 2017). The ATA encouraged investors to erect a malting factory and also established a partnership with Diageo, a global beer and spirits company, to work closely with smallholder farmers.

The ability of African smallholder farmers to find ways out of poverty and to contribute more vigorously to the growth process depends on improved infrastructure, education, technologies and inputs, and the promotion and/or strengthening of producer and marketing organisations that connect small farmers to new market chains (Diao, Silver and Takeshima, 2016).

Mirzabaev (2016) reports that several transformation processes are taking place in the agricultural sector which could be beneficial to smallholder farmers. In most cases, policy makers in Africa respond to low agricultural productivity and rural poverty by promoting agricultural modernisation and commercialisation. For example, the promotion of high-value cash crop production is often considered to be the solution to land management problems. This approach was followed by Uganda and Kenya. Farmers were expected to have more incentives and to finance production inputs like fertiliser, seeds and other organic inputs, and to improve their land in order to attract investment in cash crops rather than subsistence food crops (Mirzabaev, 2016).

Mirzabaev (2016) argues strongly that the development and sustainability of a society cannot depend entirely on the transformation of one sector into another. What is required is a developed state which upholds order and stresses the importance of cooperation between political and economic institutions.

There is no doubt that the agricultural sector is still considered to be the largest sector in most developing countries (Desai and Rudra, 2016). Moreover, the agricultural sector plays an important role in the process of transitioning into an industrial society as it can be argued that there is a clear relationship between agriculture and manufacturing in developing countries (Olsson and Svensson, 2016). A number of empirical studies have been carried out to determine trends in employment as a consequence of agricultural development. A study by Ehui and Tsigas (2009), for example, used the Global Trade Analysis Project (GTAP) framework to analyse the rate of return from the agricultural

sector. Enhancements to agricultural technology practices and the agricultural labour force in Nigeria have generated higher returns on investment than those recorded in other sectors of the economy.

A study conducted in Rwanda, Ghana, Tanzania and Cameroon, which focused on agricultural transformation in African countries, revealed that large tracts of land and large-scale, state-owned farms have been reinstated as the main drivers of agricultural transformation and foreign direct investment in land and agricultural production facilities (Fold and Prowse, 2013). The study by Lyocks, Lyocks and Kagbu (2013) attributed the generally low participation in agriculture to inadequate incentives, inadequate agricultural training and skills, and a lack of access to markets.

Restuccia and Rogerson (2013) employed a two-sector general equilibrium model to demonstrate the distinction in agricultural output between developed and developing countries. The findings indicated that employment is not proportionate to agricultural output in most developing countries, which was exacerbated by inadequate inputs and barriers to agricultural policy implementation. This study implies that the rapid development of new farm technologies will simply lead to expansion of food per hectare, and ultimately per worker. This is also demonstrated by Schultz (1945), Kuznets (1966) and Johnson (1973).

Blattman, Fiala and Martinez (2014) conducted a study on the impact of cash transfers on skilled employment among farm workers in Uganda. The study revealed that the provision of capital, essential skill sets and support systems can significantly increase employment and revenue- and asset-based income.

Adesugba and Mavrotas (2016) evaluated the effects of agricultural sector transformation on employment in Zimbabwe and suggested that diminishing investment in agriculture is triggered by economic crises which result in a decline in employment. The authors recommended that significant investment in agricultural value chains in both farm and non-farm activities would increase the employment rate in the agricultural sector.

In Cameroon, Anderson (2013) conducted a study that analysed the process of agrarian transformation in the grain industry in the period 2002–2008. The concepts of strengthening of grain production, and commercial and income variation stood out in the analytical process. The study employed the OLR model and the results revealed that smallholder farmers increased productivity through the effective use of labour resources rather than through technological change, while political promises to the agricultural community did not improve the production environment. Furthermore, economic growth and commercialisation appeared to be strong drivers of intensification, both at the household and national levels (Anderson, 2013).

Bosc *et al.* (2012) support the findings of Anderson (2013), asserting that the intensification of agricultural production is important for agrarian transformation to take place. However, Bosc *et al.* (2012) argue that effectively increasing productivity is linked to the developments taking place in production units (due to changes in production practices) and between production units, which also prompt changes in the distribution of resources, capital and incomes.

Ekundayo and Ajayi (2009) employed an OLR model to study the relationship among employees, with gender, education level, work experience and age as explanatory variables. The study revealed that these explanatory variables are the predictor variables that determine the success of a farming enterprise (Ekundayo and Ajayi, 2009).

The study conducted by Adeyemo and Kayode (n.d.) analysed the factors affecting the sustainability of the community-led development approach of World Bank-assisted projects in Nigeria. Their OLR model coefficients of years of formal education, income and the bottom-up approach recorded a positive change. The study's findings were similar to those of the World Bank (2016) which revealed that superior projects need more funding to sustain them than small projects do.

It can thus be concluded from agricultural transformation studies that several factors, such as education level, farming experience, age, availability of labour and location, have an impact on the success of a farming enterprise. Furthermore, elderly farmers might benefit

from the transformation process if they are able to enjoy (albeit limited) opportunities for off-farm employment.

It is clear from these studies that the OLR model is widely used in determining the factors that are critical to the success of transformation initiatives in developing countries.

2.3.4. Overview of agricultural transformation in South Africa

As mentioned, agricultural transformation is of global importance and many countries are committed in advancing it; South Africa is no exception. The literature has revealed the processes followed by the European and Asian countries in their agricultural reform, which provides the basis for scrutinising the South African approaches to transformation in the agricultural sector.

According to the National Agricultural Marketing Council (NAMC, 2014), transformation within the agricultural sector in South Africa must be viewed from many different angles in the light of developments prompted by the abolition of the former control boards (including price determination and market regulation). The government has been trying to address the true meaning of transformation in agriculture through various programmes and interventions. However, in the agricultural sector transformation presents distinct challenges. As mentioned, the dualistic nature and structure of the agricultural sector in South Africa, as demonstrated by researchers such as Vink and Kirsten (2003), May and Carter (2009) and Aliber and Hart (2009), must be understood before transformation can be addressed.

The NAMC works closely with certain agricultural industry bodies (such as Milk SA, Potatoes SA and the Red Meat Industry Forum) and commodity associations (such as the Mohair Trust, Maize Trust and Wool Trust). Part of the NAMC's mandate is to advise and offer guidance to industry bodies on statutory measures, agricultural Trusts (former control boards), markets and areas warranting economic research (e.g. trade, smallholder market access and agro-food chains), and agribusiness development.

The NAMC was established in terms of the Marketing of Agricultural Products Act (No. 47) of 1996 with the following objectives:

- to increase market access for all market participants;
- to promote the efficiency of the marketing of agricultural products;
- to optimise export earnings from agricultural products; and
- to enhance the viability of the agricultural sector.

In addressing the issue of transformation in the agricultural sector, the NAMC (2014) has developed generic transformation guidelines which concentrate on some main focus areas. These guidelines identify the following activities as being key components in the process of fast-tracking agricultural transformation in South Africa:

- Enterprise development (e.g. through production inputs, extension services, business plan development, assistance to black farmers in accessing finance);
- Skills development (e.g. through bursaries, assistance to farmers in participating in value chains);
- Employment equity (e.g. through promotion of equity in the workplace);
- Socio-economic development (e.g. through provision of good housing, water, electricity); and
- Ownership (e.g. through the promotion of opportunities to black people to participate in economic endeavours).

In the light of these guidelines, DAFF established the AgriBEE Fund in 2004, with the primary purpose of supporting small, medium and micro enterprises (SMMEs) in the agriculture, forestry and fisheries sector to acquire shareholdings in existing commercially feasible and sustainable enterprises. The main aim of the fund has been to promote enterprise development through agro-processing and value-adding activities, thereby helping people who were previously marginalised (operating predominately in primary agriculture) to participate in the entire value chain (DAFF, 2004). More specifically, the initiative is entrusted with ensuring that there are higher numbers of smallholder farmers who own, manage and control sustainable enterprises in the agriculture, forestry and

fisheries sector, and that there is improved participation in the value chain by designated groups, as stated in the respective sector codes (namely, women, youth, farm workers and people living with disabilities) (DAFF, 2004).

According to the DTI (2014), BEE creates enormous opportunities for industrial concerns, banks and other organisations to contribute to the advancement of agricultural sector transformation in South Africa through the provision of finance to smallholder farmers and farm workers, and through the sharing of information among established farmers seeking BEE partners. Commercial farmers, in turn, are under pressure to comply with transformation requirements. Furthermore, the AgriBEE policy includes a target of 50% of agricultural products sold by retailers being sourced from previously disadvantaged farmers (DTI, 2014).

2.4. AGRICULTURAL DEVELOPMENT INITIATIVES

A number of development initiatives around the world are driven by the International Fund for Agricultural Development (IFAD, 2008). Development projects under the IFAD banner are found wherever rural poverty is a concern. The IFAD was established as a global financial institution devoted to alleviating poverty in developing countries. Its main goals include empowering poor men and women in developing countries so that they can earn higher incomes and improve food security. An evaluation of strategies and projects overseen by the IFAD highlights how various strategies and mechanisms can contribute to successful development in different parts of the world. In 2008, for example, the IFAD evaluated a total of 11 development projects in six countries, namely, Nigeria, Sudan, Guatemala, Madagascar, China and Korea. These projects focused on agricultural and community development, rural development, poverty alleviation and food security.

The IFAD report found that 82% of the development projects evaluated produced satisfactory results, with China standing out in particular. For example, the Qinling Mountain project has been aimed at achieving sustainable increases in on-farm productivity and offering greater access to economic and social resources such as education, health, sanitation and social networks. This project is made up of five

components, namely agricultural development, rural infrastructure, credit, social development and project management.

The provision of credit has helped to support agricultural investments and has led to increased off-farm, income-generating activities and improved access to markets. Technical training and capacity-building have enabled the project participants to take advantage of economic opportunities and to access improved social resources. The project has helped with poverty alleviation, which in turn has brought about significant changes in farming systems and practices. This has resulted in greater land efficiency and increased yields. In addition, infrastructure (including electricity) has been installed, more jobs have been created, and community planning and extension services have improved (IFAD, 2008).

Clearly, development projects across the world have produced different outcomes, with some countries, like India, showing enormous improvements in agricultural and rural development over the last three decades. However, in contrast to India, most other countries have not reported such notable improvements, making one wonder what India got right (IFAD, 2008).

Against the above backdrop, the marginal success rate of previous development initiatives aimed at transforming the smallholder agricultural sector shows that several factors are impeding the agricultural growth and development in the Eastern Cape Province of South Africa. According to Cloete (2009), these include the lack of post-settlement support; the lack of capacity within government departments; the lack of training and access to inputs, markets and credit; and poor infrastructure.

Development studies conducted in South Africa by Eicher (1999), Magingxa and Kamara, (2003), Poulton, Kydd and Dorward (2006), and Magingxa, Alemu and Van Schalkwyk (2009) share many of the same sentiments, i.e. that previous development failures can be attributed to the absence of satisfactory knowledge and skills, accessible inputs, credit facilities and market information, sufficient extension services and training. It is evident that development projects such as MAFISA, Ilima Letsema and CASP recorded low

success rates, while land-care programmes have made a significant impact, recording more than 8500 job opportunities with 150 projects implemented (National Planning Commission, 2011).

Visser and Van Marle-Köster (2016) add that the lack of tenure and access to land, a lack of funds, inadequate access to local and international markets, and unsatisfactory marketing practices are factors that impede agricultural development in South Africa. As a result, it can be concluded that the failure of previous agricultural development initiatives can be traced primarily to a lack of human, institutional, infrastructural and natural resource endowments, with most of these factors being interconnected. Similarly, Ansell *et al.* (2016) suggest that most factors that constrain agricultural development are integrated.

However, an evaluation of the factors that contribute to the success of development projects in countries such as India, and how these might differ from those in South Africa, could provide a strong indication of what is currently lacking in the local development framework and its projects. Understanding the relevant success factors should go a long way towards helping decision makers choose from a range of strategies when setting out to forge an effective development framework.

It is important to consider the lessons learned from previous local development projects when constructing a development framework. Using past experiences and lessons as the basis for a new development framework could substantially increase the chances of success. It could also provide the means for determining the benefits derived from agrarian transformation initiatives. Well-functioning and sustainable enterprises play a crucial part in ensuring the successful implementation of such initiatives. It is therefore essential that existing literature on enterprise development – specifically on the programmes and approaches aimed at advancing enterprise development – be probed in more detail.

2.5. ENTERPRISE DEVELOPMENT

As indicated in Chapter 1, the objective of this study is to determine the effectiveness of agrarian transformation initiatives implemented by the Mohair Trust for mohair enterprises. It is general knowledge that the advancement of agricultural transformation is dependent on the establishment of more functional and sustainable enterprises.

Raizcorp (2010) and Henning (2015) define enterprise development as the commitment by farmers, communities, government and the private sector in terms of their time, knowledge and capital in ways that will improve and grow farm enterprises. This includes encouraging the growth of modest income-generating, informal activities that can contribute to the local economy. They further point out that through enterprise development, jobs are created, more income is generated, more people are able to earn a living and poverty is reduced – all of which help to empower communities. They add that enterprise development is closely associated with market development, commercial business facilities and social enterprise. This is because it combines finance, entrepreneurship development, investment and SMME growth with initiatives aimed at providing practical assistance to small businesses through training, mentoring and coaching by training institutes such as the DAFF Directorate of Co-Operative and Enterprise Development and AgriSETA. It can be concluded that enterprise development plays a crucial role in socio-economic transformation of smallholder farmers.

In the light of the above, there is no doubt that SMMEs are critical to the economy of any country as their participation helps to satisfy socio-economic priorities such as job creation and poverty alleviation. The World Bank (2016) identifies the key benefits of SMMEs as follows:

- Engine of growth

In any country SMMEs are key to the creation of jobs and employment. In a study conducted by the National Treasury (2008), it was revealed that eight out of every ten new jobs in South Africa are generated by SMMEs.

- Enhanced competitiveness and market responsiveness

SMMEs operate differently from large corporates, with their nimbler approach often helping to drive productivity and greater efficiency.

- Poverty alleviation

Most SMMEs are located outside the metropolitan areas, providing an opportunity to employ local people in outlying or rural areas. This helps more marginalised communities participate in economic activities, thereby reducing poverty.

- Agents of economic development

One of the key components of transformation is inclusivity. SMMEs serve as important agents of inclusive economic growth and development throughout the developing world, including South Africa. They also help to drive diversification by developing new and unsaturated sectors of the economy.

SMMEs have been identified as one of the key vehicles for realising the National Development Plan (NDP) vision of reducing unemployment in South Africa by 6% by 2030. However, the agricultural sector and other sectors need to be innovative in providing the platform for SMMEs to create employment and alleviate poverty. In particular, entrepreneurs are needed to make a substantial contribution to the economy.

In terms of South Africa’s National Small Enterprise Act (No. 102) of 1996, businesses are classified into micro, very small, small and medium enterprises on the basis of different quantitative thresholds. This can be summarised as follows:

Size	Total full-time equivalent of paid employees	Total turnover	Total gross asset value (fixed property excluded)
Medium	100–200	R5m–R64m	R5m – R23m
Small	50	R3m–R32m	R1m – R6m
Very Small	10–20	R0.2m–R6m	R0.5m – R2m
Micro	5	R0.2m–R0.2m	R0.1m

Source: Adapted from South Africa (1996:17)

The Small Enterprise Agencies Forum (SEAF, 2009) gives some examples of initiatives aimed at advancing enterprise development in South Africa, as follows:

- Providing grants, credit facilities and collateral to enterprises;
- Investing in beneficiaries, such as helping employees plan their retirement and building human capital by adding new (especially young) staff members to ensure the continuity of the enterprise;
- Ensuring that suppliers make timely deliveries of raw materials and other goods so that business operations can proceed as efficiently as possible and the income generated can be invested in growing the business; and
- Providing infrastructural support.

Robins and Hanks (2016) identify the main challenges hindering the transformative potential of enterprise development as business skills deficiencies, the gap between the objectives and the actual implementation of enterprise development programmes, and the lack of measurement techniques to monitor the impact of such programmes.

In an agricultural context, the FAO (2010) names several factors that limit the capacity of farmers and rural entrepreneurs in effectively contributing to sustainable and equitable economic growth. They include inadequate economies of scale, risks associated with farming (such as market price and revenue fluctuations, and drought), limited capital assets and infrastructure, inaccessible markets, and a lack of business and technical skills. These factors can be tackled through the provision of support services to smallholder farmers, which go to the core of the development process. According to the FAO (2007), a number of case studies on enterprise development revealed that most business development schemes included key stakeholders such as donors of funding, public and private companies, producer organisations, commercial banks and farms. Furthermore, projects differed from one part of the African continent to the next in terms of the nature of external intervention, institutional structures, service delivery mechanisms, and the perception and interpretation of the milestones achieved. Among the variables included in the case studies on enterprise development were location,

demographic group, education level, income and age. The studies also revealed that participants' education level and age (i.e. the younger the participant, the better) impacted farming enterprises in terms of productivity and income gains. Most of the enterprises in rural areas were not expanding due to both a lack of markets and finance (FAO, 2007).

A later study by Uchenna and Olabisi (2015) investigated the socio-economic benefits accruing to farming enterprises from membership of cooperative organisations in rural Nigeria. The variables used in the study, which used the Ordinary Least Squares (OLS) model, were gender, income, education, business expertise, cooperative marketing and credit. The study revealed that the major challenges facing farmers in their quest to develop their enterprises included a lack of finance, poor education and inadequate development policies at the government level. The empirical results showed that age, gender, marital status and membership had a predictive positive impact on farming enterprises.

Clearly, there are numerous socio-economic challenges such as age, education level, farming status, income and market access that need to be overcome in building a successful farming enterprise.

2.6. THE ROLE OF AGRICULTURE IN ECONOMIC DEVELOPMENT

More than a few publications have been produced since the book by Clark in the 1950s, cited in Singh and Joshi (2013), which was a seminal work in the field of agricultural transition and development in developing countries. Other studies on developing countries include those of Johnston and Mellor (1961), and more recently, the results (summarised in Beyerlee, De Janvry and Sadoulet, 2009; Beyerlee, 2000; Timmer, 2009) appearing in the *Agriculture for development* report (World Bank, 2016), Gollin, (2014), and De Vries, Timmer and De Vries (2015). The significant contribution that agriculture makes to economic development is well documented in academic studies, regardless of whether or how it has been formally endorsed as a part of government policy.

Reardon and Berdequé (2006) insist that the transformation of the agricultural sector will continue to play a role in economic development in various developing countries. The

transformation process comprises commercialisation, urbanisation and incorporation into the global economy, which in turn brings both challenges and opportunities to the primary and secondary agricultural sector. As previously discussed, economic development and rising incomes lead to greater demand for high-quality commodities and value-added products. It is evident that agricultural commodity supply chains are becoming vertically integrated such that two or more stages of production are operated by separate firms. This can be evidenced in linkages among input suppliers, producers, processors, distributors and retailers which enable all value chain activities to be performed (Reardon and Berdequé, 2006).

Adding to the above discussion, Timmer (2009) is of view that the transformation of the agricultural sector helps to define the development process in the economy. This is the cause-and-effect of economic growth brought about by a combination of agriculture, industry and services. With economic sectors becoming more interrelated, and in the face of advancing urbanisation and a noticeable demographic shift (exacerbated by migration from the rural areas), agriculture is making a diminishing contribution to GDP and employment (Timmer, 2009).

Timmer (2009) further emphasises that demographic variables have a critical effect on the structural transformation of the economy, especially the diminishing returns that result from a shrinking agricultural labour force. According to the Economic Commission for Africa and the African Development Bank (ECA and ADB, 2010), there is a positive relationship between agriculture and other economic sectors in Africa, with growth multipliers ranging from 1.5% to 2.7%, which is low compared with other sectors such as mining. This implies that an increase in rural income generated by the agricultural sector will boost growth in other sectors because of expenditure and consumption links among agriculture and other sectors. This, in turn, will stimulate growth and employment (ECA and ADB, 2010).

Lewis (1954) supports the concept of transforming traditional agricultural methods, saying that the route to job and wealth creation is through increased agricultural efficiency. The author speaks of the relationships among agriculture and other sectors which flow, on the

one hand, from industry's need for raw materials and foreign market opportunities and, on the other hand, from the availability of labour in the agricultural sector. The latter, though, needs capacity-building if it is to serve as an efficient supply channel for the manufacturing sector (Lewis, 1954).

Ultimately, the relationships among agriculture and other sectors are facilitated by the markets, which play a crucial role in providing relevant assumptions and results that are empirically proven but not applicable in practice (Johnston and Mellor, 1961). On the contrary, an increase in agricultural productivity does not come naturally but presumes a proper framework and substantial investment by the public and private sectors in the long run (Lewis, 1954). According to Timmer (2009), with reference to agriculture's development phases (outlined in Johnston and Mellor, 1961) – i.e. from traditional agriculture (low-capital technology) to technologically dynamic agriculture (high-capital technology) – the steadily increasing nature of output is clearly emphasised. The author acknowledges, however, that political intentions to speed up the process of agricultural transformation have not translated into outright successes (Timmer, 2009).

Bairoch (1989) argues that in agriculture, the introduction of technology over the years has induced agricultural transformation as well as a series of revolutions. For example, at the end of the 19th century, labour started to be replaced with capital and there was evidence of a growing dependency on chemical inputs. While this led to steady growth in labour and land productivity, in some instances less productive farming methods remained in place (Boserup, 2005).

However, the introduction of technology to replace physical labour maybe detrimental to employment creation and therefore the economy. In addition, the political climate in any country will affect policy development and economic growth. Nonetheless, the reviewed literature reveals that the transformation process is still likely to benefit many participants in the agricultural sector which can lead to commercialisation. This will result in increased market access and more jobs and income, and provide a basis for measuring some of the key benefits brought about by a transformed agricultural sector.

2.7. AGRICULTURAL PRODUCTIVITY

Agricultural productivity plays an important role in the transformation process as it ultimately determines the sustainability of development projects. This was demonstrated by Timmer (2009) who is of the opinion that labour productivity is the driving force behind agricultural transformation. The author points to increasing productivity of agricultural labour as the cause and effect of structural transformation. In this regard three ways to increase labour productivity in agriculture are: (1) to use new technology to produce more output for a given amount of labour; (2) to allow agricultural workers to move to other occupations but without lowering output (thus sharing the output with a smaller rural community) – an approach advocated in the classical Lewis model of development as the precursor to industrial transformation; (3) to set higher prices for agricultural output, thereby enhancing its value in real economic terms.

The Organisation for Economic Cooperation and Development (OECD, 2016) emphasises how changes in productivity critically influence public and private policies aimed at promoting agrarian transformation. These changes have been accelerating since the 1980s as a result of the more competitive and liberal policies adopted by the OECD (OECD, 2016).

Bosc *et al.* (2012) are of the view that an increase in productivity can be explained by the expansion in production due to changes in production methods, which in turn results in the more equitable and effective distribution of income, wealth and resources and positively impacts the prospects of long-term sustainable development. In this context, agricultural transformation is determined through the measurement of farm performance and strategy implementation in the medium to long term (Bosc *et al.*, 2012).

It is important to note that a full appreciation of the transformation dynamics of the agricultural sector is required, particularly when it comes to averages. However, transformation in the OECD countries was overlooked due to an increase in land size and productivity per farm worker. This propensity goes together with the determination of smaller production structures and is not limited to the agricultural sector (Morgera, 2011).

In summary, it can be concluded that increases in agricultural productivity can lead to agricultural growth and can help to address socio-economic challenges such as poverty and unemployment in developing economies.

2.8. ROLE OF EXTENSION SERVICES IN AGRICULTURAL TRANSFORMATION

Chowdhury, Hambly Odame and Leeuwis (2014) concur that extension services play a crucial role in agricultural sector transformation. These include aiding smallholder farmers so that they can increase their yields and incomes, and providing access to knowledge, finance and markets. However, agricultural transformation in any country is influenced by a combination of policy- and country-related factors, such as land tenure rules, availability of resources, education and skills levels, research capacity and the quality of infrastructure (CAPSA, 2012). Chowdhury *et al.* (2014) report that the agricultural revolution in developing countries must be supported by agricultural extension in order to ensure that traditional approaches, typically characterised by linear knowledge transmission and adoption, undergo the necessary transformation.

In addition, Dragic, Sreten and Zoran (2009) believe that agricultural extension services are necessary because they offer more than just professional support for the enhancement of production and processing. They also enable the practical flow of information, knowledge and technical findings to farmers.

According to the Centre for Agricultural and Rural Cooperation (CTA) (2012), there are several institutions (including government entities, donors and other investors in agriculture) that are of the view that fast-tracking agricultural growth requires the correct collection of policies and institutions. This includes improved access to new knowledge, skills and markets, and an increase in financial support in ways that are cost-effective and sustainable (CTA, 2012).

According to Cloete (2009), farmer training is, put simply, the transfer of knowledge and skills to smallholder farmers, either by commercial farmers or agricultural institutions. Such knowledge includes how to increase production, how to improve one's marketing

efforts and engage in efficient record-keeping, and how to put entrepreneurial talents into practice (Cloete, 2009).

Montshwe (2006) conducted a study aimed at identifying the factors affecting smallholder farmer participation in the economy. The author hypothesised that there is a positive relationship between farmers' active involvement in the economy and farmer training. He further asserted that training will generally improve farmers' marketing, record-keeping and entrepreneurial skills, as well as their ability to increase production and output. The logistic regression results showed that farmer training has a positive impact on farmer participation in the economy. The study also revealed that a 50% increase in smallholder farmers' knowledge and skills will lead to an 11% increase in the chances of farmers successfully accessing markets. It was concluded that farmer training and skills are essential for the incorporation of smallholder farmers into the mainstream economy (Montshwe, 2006).

Rivera (2006) conducted a study on the transformation of post-secondary agricultural education and training and the impact thereof on prevailing skills challenges in selected countries of sub-Saharan Africa, namely, Cameroon, Ghana, Malawi, Mozambique, Rwanda, Senegal and Uganda. The seven countries were compared in terms of policies and funding, system of governance, capacity-building initiatives, institutional development, physical infrastructure, and quality of communications (which impacted information dissemination). The study revealed that the main role of agricultural education and training was to promote human development by increasing people's participation in agriculture and as a result, the contribution of the sector to the economy as a whole (Rivera, 2006).

Eicher (2014) and Rivera (2006) designed the Agricultural Knowledge and Information System (AKIS) aimed at rural and agricultural development and as a basis for agricultural sector transformation. They suggested that the AKIS offers a point of convergence for the complex mix of public and private sector organisations involved in generating new agricultural knowledge and information services for producers and rural people. The system is often termed 'the knowledge triangle'.

Figure 2.1 shows the AKIS for rural and agricultural development. The system serves farmers (producers). It excludes other entities such as the government, the private sector and markets.

Theoretically the figure assumes a flow of information from the various knowledge institutions (i.e. research, extension, producers and agricultural education) to those who can use it to improve agricultural development and rural livelihoods, which then translates into agricultural transformation. Furthermore, the AKIS constitutes the information (both practical and theoretical) support services that interact with other critical elements in agricultural development. Such critical elements include production, support measures (inputs, credit and supplies) and market opportunities, which are strengthened (or weakened, as the case may be) by government policy (Rivera, 2006).

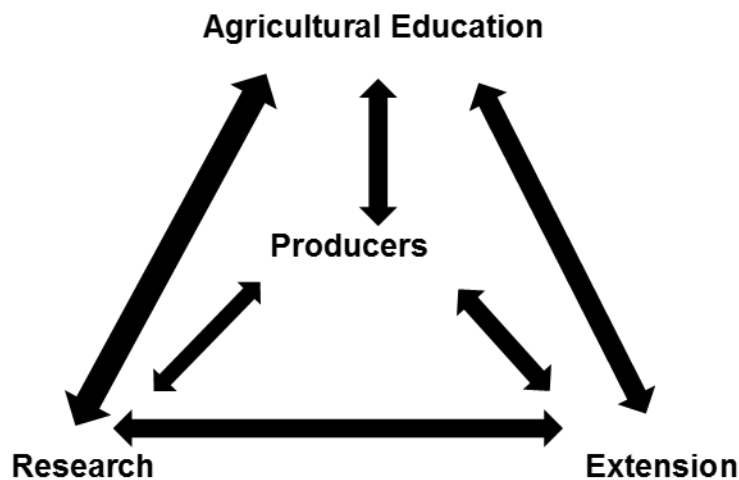


Figure 2.1: Agricultural Knowledge and Information System for rural and agricultural development
Source: Eicher (2014) and Rivera (2006)

Headey, Taffesse and You (2014) state that agricultural extension should be regarded as an absolute imperative for diversification into non-farm activities. Indeed, the authors argue that investment in education should be the central pillar of diversification and transformation strategies. Education represents a direct investment in the development of young farmer potential in Africa and helps to build up assets and generate sources of income, such as remittances, that are far less vulnerable to covariate shocks and more

mobile than those linked to pastoralist livestock (Headey, Taffesse and You, 2014). The authors further point out that this should apply to South Africa as well, which has a very young and very mobile (yet quite small) farmer population. More importantly, diversification remains one of the important transformation strategies currently taking place in South Africa's Eastern Cape region.

Important, too, are the critical links and sources of knowledge (i.e. research, extension and education). These critical links (see Figure 2.1) serve as conveyors of knowledge and training to farmers and other support service providers, as well as those contributing to awareness of market opportunities. According to Hall (2006), the primary aim of the Agricultural Innovation System (AIS), through critical links (as indicated below), is to produce, assess and transfer knowledge in a way that contributes to the formation of capital and social well-being. It does this by adding value to the current set of knowledge, resources and skills. According to Rivera (2006), the AIS suggests a line of attack where innovation is needed, i.e. in the managerial, commodity, technical or institutional environment.

Agricultural extension therefore remains a key factor in capacitating smallholder farmers through information and knowledge transfer. It has been proven that through extension support, smallholder farmers have been able to increase yields and incomes. There is no doubt that development and transformation projects play a significant role in job creation, income generation and poverty alleviation. Other studies reviewed in this chapter also highlight the socio-economic benefits of development projects and the role these play in the agricultural sector's transformation. These studies also draw attention to the different success factors that are necessary for sector transformation, which have guided the selection of variables and the methodological approach in this particular study.

2.9. CAPACITY DEVELOPMENT

The Mohair Trust transformation initiatives are also aimed at capacity development through the provision of training to smallholder mohair farmers. The components of capacity development are discussed in detail below.

2.9.1. Definitions of capacity development

Capacity is a term that is difficult to define. During the course of this study, a number of articles were reviewed that revealed related philosophies, such as capacity strengthening and capacity-building, and offered an extensive array of definitions and perspectives. These definitions were then classified as organisational, institutional and participatory in the South African context whereby different institutions (such as government) and organised agriculture (such as agricultural industry bodies) participate in the upskilling of smallholder farmers.

Marjanovic *et al.* (2017) define capacity-building as the ability of individuals, groups, institutions and organisations to identify and solve development problems over time. Capacity-building can also be seen as a way of supporting and strengthening the ability of an institution to effectively and efficiently design, implement and evaluate development programmes and activities according to its mission (UNICEF, 2016).

According to Analoui and Danquah (2017), capacity development is broader than organisational development; this is due to the inclusivity of the environment and/or framework within which individuals, organisations and societies function and interrelate (i.e. it extends beyond a single organisation). Blagescu and Young (2006) define capacity development as a system comprising specific objectives aimed at establishing the competence of individuals, organisations and/or programme leaders to plan, implement, manage or assess processes so that the impact on social conditions in a community can be determined. Through capacity development, individual groups, organisations, institutions and societies improve their ability to perform functions, solve problems and achieve other objectives, and to understand and deal with their development needs in a broad context and in a sustainable manner (UNDP, 2008, 2010).

Based on these definitions, it can be argued that capacity development is aimed at capacitating the participants at an individual, organisational or (enabling) environmental level. This can be done through training, monitoring, mentoring, and primary and/or secondary education. It should also consider productive resources, such as land, which create an enabling environment for farmers to perform their daily operations. Moreover, it can be concluded that capacity development can be directed at a combination of people and institutions, often constituting practices that help countries achieve their development goals (World Bank, 2016).

Based on the above discussion, capacity development can be defined as the capability of people, organisations and society to manage their activities effectively by drawing on their experience, knowledge and technical skills. Whether or not capacity development objectives are achieved can be measured at an individual, organisational and (enabling) environmental level. Furthermore, the performance of an organisation is influenced by the environment, e.g. institutional arrangements.

Fukuda-Parr and Lopes (2013) argue that capacity development has at times been used merely as a hollow slogan rather than a description of an ongoing process. It has a time frame, though. This means that capacity development initiatives or projects should have a start date and an end date and should move from the one focus area (individual) to the next (organisational). In addition, investments in capacity development are made through targeted initiatives and projects aimed at advancing a particular sector or area of interest (Fukuda-Parr and Lopes, 2013).

Timmer (2014) highlights the aspect of capacity-building and agricultural policies and states that agricultural transformation requires the careful design and consistent implementation of agricultural policies over a long period of time. He states further that the development of such policies and the implementation thereof through specific projects or programmes require local capacity at individual, organisational and institutional levels. However, the principal constraint in designing and implementing such policies and programmes is the capacity gap. Governments and their development partners have

recognised the need for significant investment in resources and development initiatives in order to build such capacity. Yet due to design faults in capacity-building programmes and implementation challenges (such as a lack of finance and other productive assets), such capacity has so far proven insufficient to benefit agricultural transformation processes (Timmer, 2014).

A study conducted in Nigeria, Tanzania and Afghanistan by the OECD (2016) using the case study approach revealed that certain incentives provided by organisations foster productivity, growth and capacity development. The broader process of agricultural transformation or stagnation in a country may offer significant insights into some of the behavioural incentives and disincentives that influence capacity, including farmer perceptions. This should apply to the Mohair Trust which provides training to smallholder farmers participating in transformation initiatives. The above sets the scene for analysing the capacity development efforts of the Mohair Trust vis-à-vis beneficiaries in the smallholder farming sector in the Eastern Cape Province.

2.10. AGRICULTURAL TRANSFORMATION AND ACCESS TO MARKETS

A transformed agricultural sector is one that promotes conducive and productive activities and services, whereby all farmers have access to markets, information and other key services. According to the FAO (2014), the agricultural sector plays a key role in stimulating economic growth and poverty reduction.

However, the agricultural sector is caught in a state of underdevelopment and underperformance. This is mainly due to women facing a wide range of challenges that reduce their productivity and, consequently, the sector's contribution to the rural economy. Women's roles differ substantially between and within regions and are also undergoing rapid change in many parts of the world as new economic and social forces conspire to alter the global agricultural landscape. This is common in South Africa where the agricultural sector is male dominated.

The transformation of the agricultural sector also aims to promote greater female and youth participation in farming activities. Given that the production of mohair is semi-intensive and requires less manpower than several other farming activities, the mohair industry has the potential to attract more female and young farmers. The study therefore also examines the gender split in mohair industry transformation projects, which adds to the overall results of the study.

Doss (2010) indicates that women account for approximately 43% of the agricultural labour force in developing countries. Conceptual and empirical challenges associated with estimating the relative contribution of women in agriculture include an inability to measure production output and women's lack of access to productive resources, such as land. Women's contribution to agriculture within the wider context of agricultural transformation is best defined through the quantification of gender roles (Doss, 2010).

Fafchamps and Ruth (2005) indicate that producing and supplying for the market are becoming increasingly important for smallholder farmers. Yet the ability to participate in output markets depends on several factors, such as land size, product quality, and the farm's capacity to process and market output at a low cost (Fafchamps and Ruth, 2005). Swinnen (2004) and Reardon and Berdequé (2006) discuss the fact that larger farms produce for the supermarkets because they have access to information, employ highly skilled labourers and have access to the necessary infrastructure. As indicated earlier in this chapter, smallholder farmers are marginalised and face more severe constraints due to low production and education levels and limited access to production resources.

Eicher and Staatz (1998) add that to increase agricultural production and to connect local production with larger markets, more robust input and output delivery systems are needed, along with stronger integration of agriculture into other sectors of the domestic and global economies. Bosc *et al.* (2012) emphasise that small and large farms are established by the South African government according to the allocation of available land and natural resources. Such land acquisitions, however, have created various challenges, including the growing displacement of smallholder farmers and the difficulty of developing the potential of rural land (Bosc *et al.*, 2012).

A report by the International Food Policy Research Institute (IFPRI, 2009) revealed that the growth and performance of the agricultural sector will continue to depend on the broad participation of smallholder farmers, and that growth in agricultural production does more for poverty reduction than that in other sectors. However, the ability of African smallholder farmers to find pathways out of poverty and to contribute actively to the growth process depends on improved infrastructure and education, the efficient allocation of key technologies and inputs, and the promotion/strengthening of producer and marketing organisations that link small farmers to new market chains (Diao, Silver and Takeshima, 2016).

2.11. AGRICULTURAL TRANSFORMATION IN THE CONTEXT OF LIVELIHOOD STRATEGIES

As discussed earlier, a transformed agricultural sector will result in improved socio-economic conditions for farmers and their employees as evidenced in increased production, higher incomes, more or better jobs, and lower levels of poverty. It is therefore important to draw the linkages between agricultural transformation and improvements to livelihoods.

According to Reardon *et al.* (2016), livelihood refers to a means of securing the necessities of life. These may include income, sources of income and other means of support. Agricultural transformation has an impact on rural livelihood strategies as a result of diversification and specialisation (Reardon *et al.*, 2016). A farmer or household can opt for different livelihood strategies such as diversification, participation in labour markets or subsistence production, depending on its resources. However, the role of governance (institutions and policies) cannot be ignored. Kuipers (2014) developed a conceptual model (see Figure 2.2) to illustrate the impact of agricultural transformation on livelihood strategies in rural areas. The study was conducted in Cameroon with four agricultural transformation programmes featuring in the theoretical framework, along with governance, to measure the sustainability of rural livelihoods.

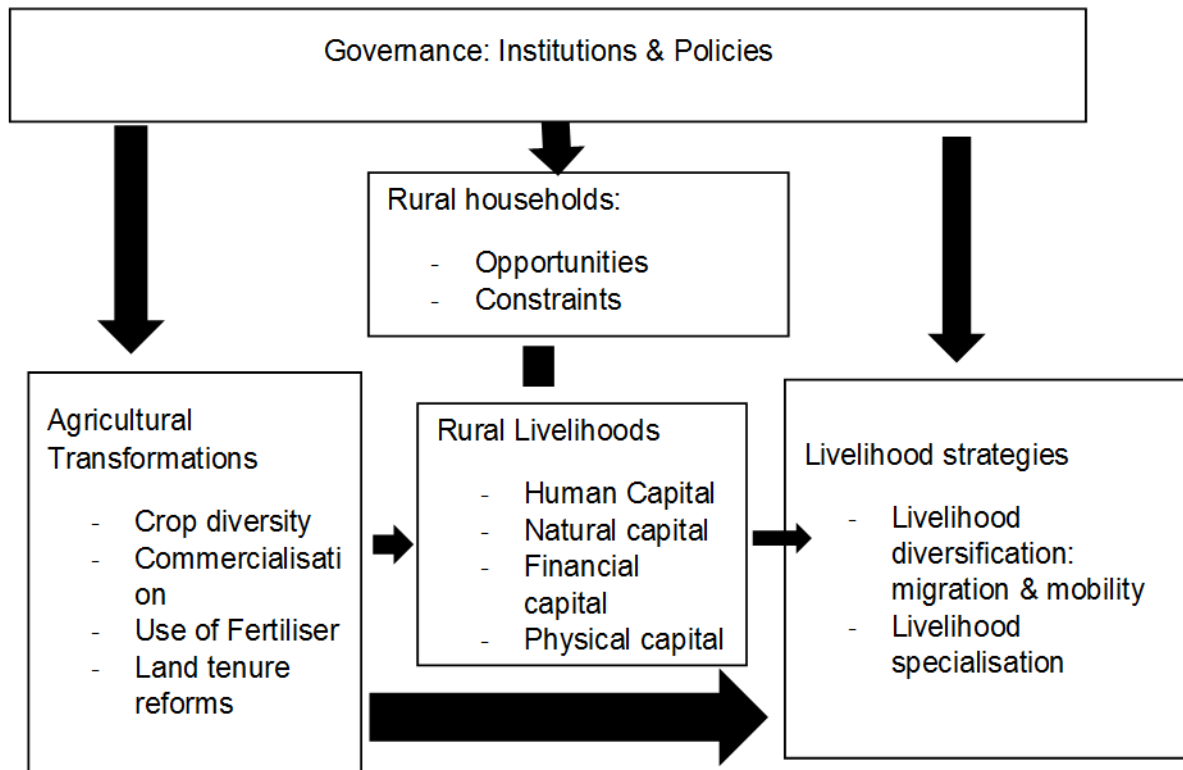


Figure 2.2: Theoretical framework for measuring sustainability of rural livelihoods
Source: Kuipers (2014)

Agricultural transformation policies and related strategies have different outcomes for different rural communities (Kuipers, 2014). Some agricultural transformation strategies directly impact livelihood resources which in turn influence livelihood strategies, such as those that are natural resource-based. There is substantial evidence in the literature of the growing importance of multiple activities and the diversification of employment (Epo, Baye and Manga, 2013). This is because rural households tend to participate in both farm and non-farm activities to provide a buffer against income shortages. The various opportunities and constraints that present themselves will influence farmers' ability to adapt to new livelihood strategies induced by one or more agricultural transformation programme(s).

2.12. RELATIONSHIP BETWEEN AGRICULTURAL POLICY AND AGRICULTURAL TRANSFORMATION

There is general agreement in the literature that transformation in the agricultural sector can take different forms, as shown by Timmer (2009), Timmer *et al.* (2012), Bosc *et al.* (2012) and Mudhara (2010). This is evident from the significant changes taking place in land tenure systems, the intensification in the use of labour and non-labour input, the switch to non-farm activities, the different approaches to market integration, and the appearance of new forms of enterprises, e.g. large-scale farms, initiated by the government. However, the allocation of land and natural resources, as well as the issue of land acquisition, have raised various concerns, leading to the growing displacement of smallholder farmers and changes in production techniques and the way that rural lands are developed (Bosc *et al.*, 2012).

Mudhara (2010) to a certain extent agrees with Bosc *et al.* (2012), stating that agricultural transformation in any country is conditioned by a mixture of policy and country contexts, i.e. land tenure, availability of resources, education, research, training and development, infrastructure, climate change, and fiscal and monetary regulations. It is a complex task trying to separate the impact of different national policies, strategies and country contexts in the transformation process. However, it is important to identify significant features of agricultural transformation and the general principles that may have played a key role in the agricultural transformation process (Mudhara, 2010).

Timmer (2009) points out that transformation in the agricultural sector is directly related to structural changes occurring in the economy. However, the latter cannot be addressed without also dealing with structural changes in agriculture. This is due to the 'classic' historical sequence that led to a decline in agriculture's share of employment and wealth creation in the developed countries. This phenomenon was the result of the industrial and agricultural revolutions in the 18th century in the United Kingdom and in the 19th and 20th centuries in Western Europe and the United States (Timmer, 2009).

The criteria for developing and/or transforming the agricultural sector in Africa must consider what is needed or important for the sector (Brooks *et al.*, 2013). Moreover,

agriculture has to be able to compete with other sectors in a profitable manner so that accelerated, transformative change can take place, which will lead to higher productivity and incomes and more jobs in the rural areas. Needless to say, policies that increase the participation of youth in agriculture will enhance the job creation prospects of the sector. As much as agriculture is expected to be the main source of job creation, investment in agricultural development projects through infrastructure and skills enhancement is essential if the sector's job-creating capacity is to be maintained by the public and private sectors (Headey *et al.*, 2014).

Technological improvements in both farm production and other processes along the agricultural value chain will significantly improve the chances of job creation (Morris, Henley and Dowell, 2017). However, Collier and Dercon (2014) argue that the interaction between the socio-economic needs of smallholder farmers and large-scale farm production and investment creates a unique focal point for economic transformation in Africa, with improved labour productivity in particular going a long way towards reducing poverty. Smallholder farmer productivity is still dependent on physical labour, which tends to be relatively cheap but time-consuming. The replacement of physical labour with technology would inevitably contribute to a higher unemployment rate and exacerbate poverty levels, as agriculture employs more people than other economic sectors in South Africa.

Gyimah-Brempong and Etumnu (2014) present a theoretical framework to analyse how agricultural transformation can be used to create jobs through sector and employment expansion. While sector expansion creates job opportunities through increases in agricultural output and a re-organisation of the agricultural sector to include agricultural value chain development, employment expansion creates jobs through increases in the labour absorption rate per unit of output produced. This is done through the inclusion of other value chain activities such as manufacturing, processing and packaging.

Tsakok (2011) emphasises that for agricultural transformation to occur, decades of government investment are needed in public goods and services delivery. The author states that government investment creates a stable environment in which market

opportunities flourish and are accessible to all. It also enables generations of farmers, in particular the majority of smallholders, to invest in the productivity of their farms and profit from such investment. Furthermore, it enables farms and rural households to spread their risks and diversify their returns by including non-farm opportunities and incomes in their portfolios. Finally, to create the kind of environment that sustains agricultural transformation, governments need to show strong leadership and be development-minded and competent (Tsakok, 2011).

2.13. SUMMARY

The literature reveals different dimensions of agricultural transformation and the routes taken by countries around the world to advance their agricultural sectors through a process of transformation. Clearly, agricultural transformation differs from country to country. This is demonstrated by the fact that the Asian countries have transformed their agricultural sectors through technological change, whereas in Africa the emphasis has mainly been on promoting inclusivity and creating opportunities for smallholder farmers to participate in the mainstream economy.

A series of development studies have identified a number of factors contributing to transformation's slow progress in South Africa's Eastern Cape Province. These include poor infrastructure, poor record-keeping, a lack of access to markets and information, inadequate implementation of agricultural policies, a lack of land ownership and finance, farmer illiteracy, among others. Given the right circumstances, though, agricultural transformation should help smallholder farmers realise sustainable livelihoods, with extension services being a key element in this process.

This chapter makes an important contribution in that it provides a basis for assessing the key success factors associated with the Mohair Trust-led transformation projects and their contribution to the development of the industry. Among the most critical factors are land size, ownership, access to credit and markets, and infrastructure. However, demographic factors such as age and gender should not be overlooked when devising agricultural sector advancement strategies in the context of smallholder farming.

CHAPTER 3:

OVERVIEW OF THE SOUTH AFRICAN MOHAIR INDUSTRY AND THE STUDY REGION

3.1. INTRODUCTION

One of the main objectives of this study is to provide a description of the study area and an overview of the South African mohair industry. As mentioned earlier, South African mohair is highly competitive compared with that in the rest of the world and accounts for over 54% of global mohair production. The first section of this chapter provides a description of the agricultural component of the Eastern Cape economy. The second section provides background information on the South African mohair industry, relevant organisations, mohair-producing areas and major destinations for South African mohair. The section also discusses the functioning of the mohair market and factors that specifically affect smallholder mohair farmers in the country.

3.2. DESCRIPTION OF THE STUDY AREA

The study was conducted in the Eastern Cape Province (ECP). This province was chosen because it is generally known as the mohair capital of the world (with Port Elizabeth constituting the processing hub), with the bulk (over 54%) of the world's mohair passing through its ports. The agricultural sector in general plays an essential role in the economy of the province – mainly as a source of employment and exports, as it contributes only about 2% to provincial GDP (Stats SA, 2016). The main agricultural commodities in the ECP include oranges, pears, dairy products and products from Angora goats. Ostrich farming also takes place but on a small scale, accounting for about 10% of the total flocks in South Africa.

The Karoo area, with its combination of hot, dry summers, cold winters and semi-desert vegetation, is situated in the western region of the ECP where most Angora goats are

farmed. This environment is favourable for keeping mohair-producing goats, making the province very successful in the production of wool and mohair (Zungu, 2017).

The first imported consignments of Angora goats were intended for Caledon in the Western Cape; however, herds spread to the Eastern Cape where the climate and vegetation are more suitable for the rearing of Angora goats and the production of high-quality mohair. Eventually, the small town of Jansenville, which is located in the Sarah Baartman District, and the districts in the immediate vicinity became the hub of the mohair industry in South Africa. Today the industry is primarily concentrated in Jansenville, with the offices of both the South African Mohair Growers Association and the Angora Goat Stud Breeders Society of South Africa being located in the Jansenville district (Ingle and Atkinson, 2010).

Figure 3.1 shows a map of the Eastern Cape and its different regions, notably the Sarah Baartman District (Aberdeen, Jansenville, Graaff-Reinet and Somerset East) and the Chris Hani District (Cradock), where mohair is produced in abundance.

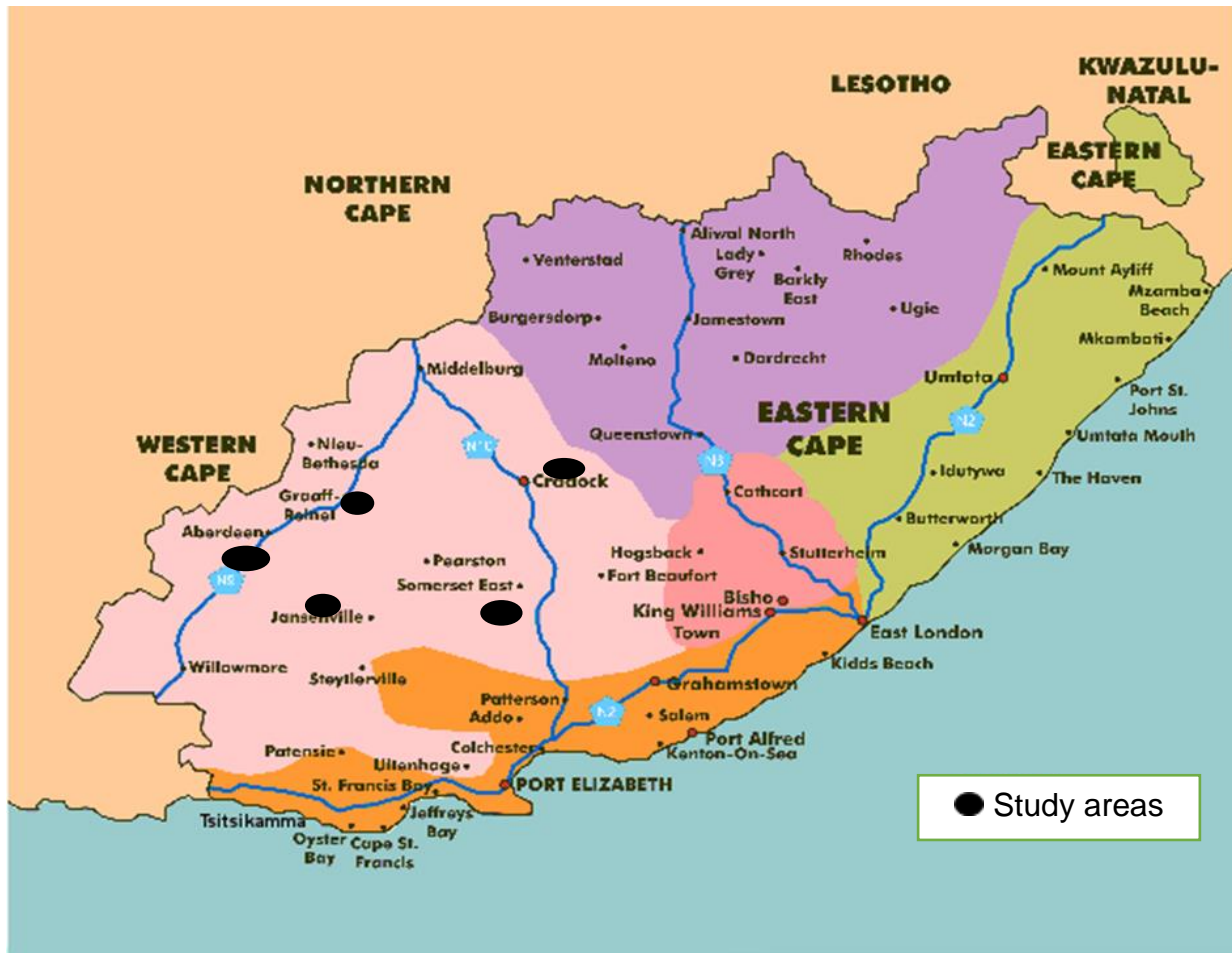


Figure 3.1: Map of the Eastern Cape Province

Source: Google Maps (2017)

In 2011, the total number of agricultural households in the ECP was estimated at 596 573, with 330 354 involved in livestock production. Approximately 33.8% of these households owned goats (Stats SA, 2012). As the largest mohair-producing region in South Africa and home to approximately 99% of buyers, processors and exporters, the ECP is called the ‘mohair capital of the world’. Approximately 65% to 75% of South African mohair is processed in Port Elizabeth before being exported (NMBT, 2016).

The agricultural sector is the third largest job creator of all the economic sectors in the ECP (Partridge, 2016). According to the Stats SA Quarterly Labour Force Survey (Stats SA QLFS, 2016), the agricultural sector employs about 83 000 workers; however, agricultural employment is subject to different definitions depending on the particular source of information. The ECP accounted for 9% of total employment in South Africa in

2015 (Stats SA QLFS, 2016). However, the province recorded the second highest unemployment rate among the country's nine provinces in 2011, with 37.4% of its inhabitants unemployed by definition. This is only slightly better than the Limpopo Province, which had the highest unemployment rate of 38.9% (Stats SA, 2012).

3.3. MOHAIR INDUSTRY OVERVIEW

3.3.1. Background

Moyer and Josling (2017) are of view that until early in 1998 the marketing of most agricultural products in South Africa was extensively regulated by law. One of the main characteristics of the control over agricultural marketing was isolation from world market forces. Most products were regulated under the 22 marketing schemes introduced from 1931 and especially from the time the 1937 Marketing Act came into force. In addition, commercial farmers benefitted from a wide range of support services from the state (research, extension) as well as direct and indirect subsidies. Starting two decades ago, the industry began to face increasing pressure to deregulate, a process that has been accomplished in two phases in the intervening period. The major change in the first phase was the extensive deregulation of state agricultural marketing schemes within the framework of the Marketing Act of 1968 (Moyer and Josling, 2017).

Louw *et al.* (2008) report that since the advent of democracy in 1994 and the country's re-entry into international markets, South Africa's agricultural sector has been undergoing a process of transition from regulation to deregulation. Deregulation in the agricultural sector has seen the dismantling of control boards under the auspices of the National Agricultural Marketing Council (NAMC) and the enactment of the Marketing of Agricultural Products Acts of 1996. During the transition, market concentration has become a reality in the food processing and retail sectors. Emerging farmers have as a result found themselves excluded from the mainstream of the agricultural economy. The dominant supermarkets and processors have tended to favour suppliers who can ensure high volumes, consistent quality and engage in long-term contracts (Louw *et al.*, 2008).

Prior to 1994, marketing boards existed in South Africa which worked closely with large-scale producers to ensure efficient and orderly business transactions. The boards also ensured that the commercial farmers generated sufficient profit margins to remain viable. Smallholder farmers were excluded from participating in such marketing arrangements (Makhura, 2001). Furthermore, the government liberalised the marketing environment through the Marketing of Agricultural Products Act (MAP Act) of 1996. This policy shift served to abolish the marketing boards and vest the authority of regulating the marketing environment in those participating in the market. While some analysts have pointed out that these induced positive outcomes in the form of a rising number of value chains, others have argued that these benefits largely avoided the smallholder farmers (Vink *et al.*, 1998). Marketing boards represent institutionalised marketing which though often overregulated, at least provide clear processes that give companies' marketing efforts momentum. As such, they meet the needs of less sophisticated smallholders (Louw *et al.*, 2008).

In a similar move, South Africa's mohair industry was also deregulated in 1994. Previously, producers were concerned only with production, but after deregulation they had to start concentrating on the marketing aspects and make informed decisions about how and where to sell their produce. The new MAP Act came into effect at the end of 1996, while the end of 1997 saw the abolition of the statutory mohair scheme under which the industry was regulated by the Mohair Board (Vink *et al.*, 1998).

The industry is now served by an exclusive body called Mohair South Africa, which was set up to function in the interests of all directly affected groups. These groups, as defined in the act, are any groups of people, including producers and consumers, that are party to the sale, purchase or processing of an agricultural product, as well as labour employed in the production or processing of such a product. Any one of these groups has, under the act, the right to ask the Minister of Agriculture to institute levies payable by the primary producer, as well as other statutory measures (Makhura, 2001; Vink, 2000; Vink and Schirmer, 2002).

3.3.2. Organisations in the mohair industry in South Africa

Several authors, including Jordaan (2005) and Van der Westhuysen, Wentzel and Grobler (1981), have documented the history of the mohair industry after it was introduced in South Africa. According to the authors, since the establishment of the mohair industry in South Africa in the early 1800s, it has been characterised by a somewhat unstable development path – ranging from periods characterised by high demand, high prices, increased production and continuous improvements to quality, to periods characterised by adverse climatic conditions, economic recession, low prices, disease outbreaks, changes in fashion and discord within the industry.

Owing to the mohair industry's turbulent development patterns, the late 1800s saw the establishment of numerous industry structures to ensure the ongoing existence of the industry. The Angora Goat Stud Breeders Society of South Africa was established in 1892. By keeping records of pure-bred Angora goats, the Society aimed to encourage the breeding of Angora goats in South Africa in collaboration with the South African Mohair Growers Association. The latter was established in 1896 for the purpose of educating and encouraging farmers to improve their Angora herds, to maintain and improve the purity of the Angora breed and to improve the quality of mohair as a commodity (Jordaan, 2005; Van der Westhuysen *et al.*, 1981).

In 1951 an inspection fee was instituted by the government through the Ministry of Agriculture and collected by the Agency of Mohair Merchants. The fee was used to contribute to a public fund under the control of the Minister of Agriculture for, among other things, the promotion of mohair. At that time, the Minister of Agriculture appointed a Mohair Advisory Board with the primary objectives of proposing and executing projects, conducting research and engaging in promotional activities that would benefit the South African mohair industry (Jordaan, 2005; Van der Westhuysen *et al.*, 1981).

In 1965, in the face of a growing need for the Mohair Advisory Board to enter into contractual agreements with the mohair producers and buyers but hampered by its weak legal status, the Advisory Board was transformed into the Mohair Board, under the

Agricultural Marketing Act of 1937. The primary role of the Mohair Board was to promote mohair (supported by research and publicity) and to regulate the marketing thereof (Makhura, 2001; Van der Westhuysen et al., 1981).

Mohair South Africa (2011) reports that following a series of agricultural marketing reforms in South Africa, the Mohair Board was disbanded in 1997 and replaced by Mohair South Africa. This new entity was established to perform various functions aimed at advancing the mohair industry as a whole, including enhancing the consumption of South African mohair which would lead to sustainable demand and profitability for all role players, ranging from producers to processors, buyers and manufacturers (Mohair SA, 2011).

In the 1970s the Mohair Control Board was given the sole right by the South African Mohair Growers Association (SAMGA) to market and set prices for the country's mohair (Jones, and Muller, 2016). In the 1990s the Mohair Control Board appointed Boeremakelaars (Kooperatief) Beperk (BKB) as the sole agent to undertake mohair preparation and handling on behalf of the Board. However, in 1992 the Mohair Control Board was requested by SAMGA to terminate the contract with BKB and to take over the function of clip preparation in an attempt to reduce mohair marketing costs (Jones and Muller, 2016).

In 1988 the Mohair Control Board took a decision to restructure the mohair industry with more emphasis being given to commercialisation. The reasons for this move were:

- To ensure that the Mohair Control Board could make more of its own decisions without government interference;
- Commercialisation would help to neutralise the problems caused by political sanctions;
- Changes were necessary to establish and develop local manufacturing;
- Changes would offer producers the opportunity of participating in, and benefitting from, value-adding activities further along the supply chain.

The Marketing of Agricultural Products Bill was passed in 1997 as the Marketing of Agricultural Products Act (MAP Act, No. 47 of 1996). This meant that the Mohair Control Board's governance over the marketing of various agricultural products would be phased out and a free market environment would be restored (Mncube and Grimbeek, 2016).

When the Mohair Control Board was disbanded in 1997 and replaced by Mohair South Africa (an independent private sector organisation), the control board's assets were transferred to the Mohair Trust so that they could be safeguarded for future use in the interests of advancing the mohair industry. Mohair South Africa was established to act as the functional or executive arm of the mohair industry with the primary purpose of advancing mohair as a fibre. Mohair South Africa is funded by the Mohair Trust, with annual budgets and business plans submitted to the Trust for evaluation against the objectives of the Trust (NAMC, 2015). This transition resulted in the establishment of mohair industry structures, including the South African Mohair Growers Association (SAMGA) which is the producer organisation that supports and lobbies for Angora goat farmers. The organisation is responsible for promoting the production of mohair and the general farming of Angora goats, while also continuously negotiating with government and non-governmental organisations about issues at producer level (Mohair SA, 2015).

According to Van Schalkwyk (2003), the Mohair Trust was established to perform functions aimed at advancing the entire mohair industry. The Trust's vision is to seek international partnerships and alliances that will boost the consumption of mohair and lead to sustainable demand and profitability for all role players. The Trust's main objectives are to manage the assets in such a way that income is optimised for the advancement of the mohair industry through the promotion of mohair production within South Africa and the stimulation of demand for mohair both inside and outside the country. During the dissolution process, the assets (both monetary and fixed property) were transferred to the Mohair Trust. The mohair industry bodies and the then Minister of Agriculture, Forestry and Fisheries agreed that to keep the Trust evergreen, the assets should be invested and only the interest generated could be used for industry operations and project funding (Van Schalkwyk, 2003).

The Mohair Empowerment Trust was established in March 2010 to promote BEE within the mohair industry. The business activities of the Trust are aimed at ensuring that previously disadvantaged farmers are empowered and are able to access the benefits offered by the industry. The Trust seeks to ensure that a well-capacitated pool of emerging farmers graduate to the level of commercial Angora goat farming, thereby accelerating the entry of black entrepreneurs into the industry. The Mohair Trust makes funds available to the Mohair Empowerment Trust to engage in transformation activities (Mohair SA, 2015).

In summary, structural changes in the mohair industry in South Africa resulted in Mohair South Africa being established. This move has had significant benefits for the growth and development of the industry (both among smallholder and commercial farmers) in terms of better access to markets, good prices and access to industry services, such as information. Today, mohair can be sold at auctions or directly to brokers and processors, such as knitting companies.

3.4. THE SOUTH AFRICAN MOHAIR SUPPLY AND VALUE CHAIN

3.4.1. Introduction

Visser and Van Marle-Köster (2016) state that the marketing channels for mohair are similar to those for wool. The authors also acknowledge that food and fibre supply chains tend to be particularly complicated and elongated. They further highlight that the mohair supply chain and value-adding activities are characterised by numerous transformation stages, extremely long lead times, and the geographical dispersion of production, processing, manufacturing and consumption across the four hemispheres of the world (see Figure 3.2) (Visser and Van Marle-Köster, 2016).

Figure 3.2 depicts the mohair marketing channels in South Africa and shows that smallholder farmers feature mainly at the production level. This is because most smallholder farmers use brokers to sell mohair on their behalf, which act as the farmers' marketing channels. As a result, the identity of the mohair produced by the smallholder farmers is lost as sales are mostly executed by middlemen (Mohair SA, 2015).

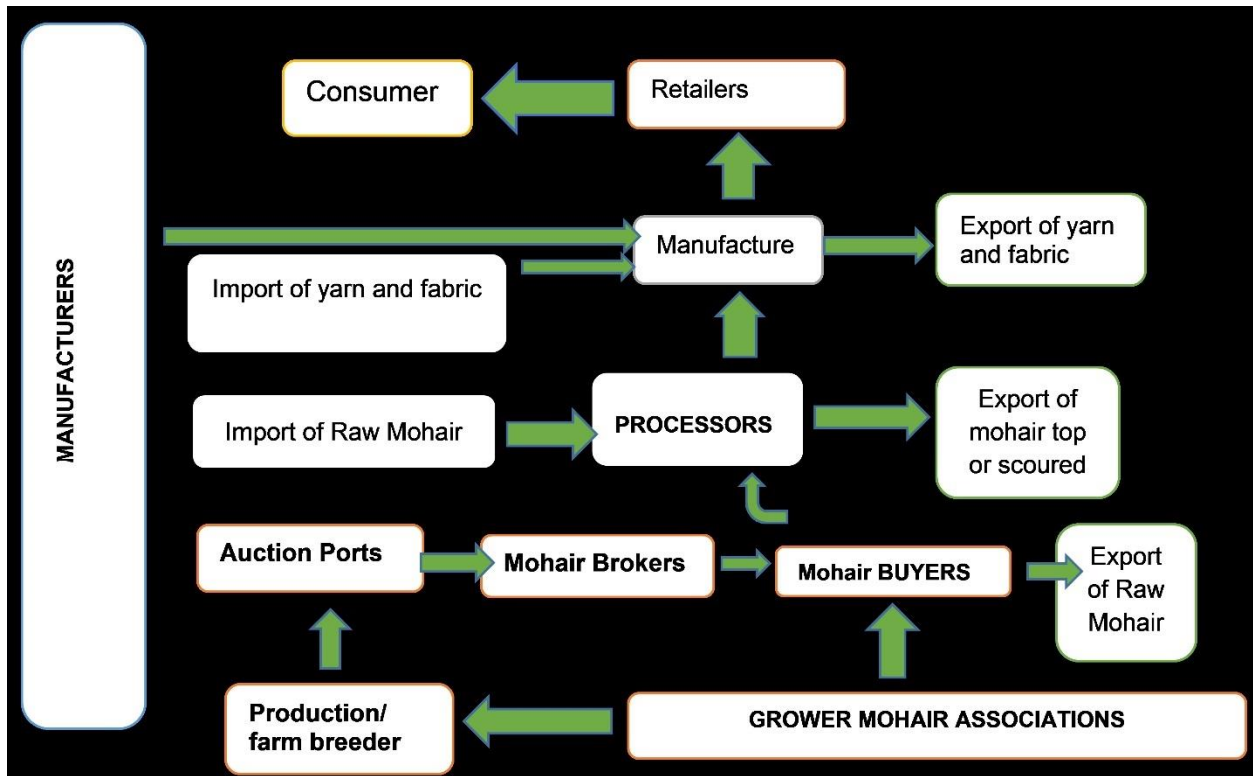


Figure 3.2: South African mohair marketing channels

Source: Mohair SA (2015)

The different mohair marketing channels and the role played by each actor are discussed below.

a) Production

Angora goats are generally shorn twice a year, during March/April (referred to as the summer clip) and August/September (referred to as the winter clip) (Van der Westhuysen *et al.*, 1981). After shearing, the mohair is classed on the farm into a number of categories, broadly based on the quality of the mohair. Mohair quality is generally judged on the basis of length, fineness, style and character, and degree of contamination. After classing, the mohair is baled and either sent to a broker to offer for sale or to a merchant, who buys the mohair, re-classes it and then also offers it for sale to mohair buyers.

In comparing the shearing procedures used by large-scale and small-scale farmers, respectively, Mohair SA (2015) indicates that the large-scale farmers use their own capital and labour, whereas smallholder farmers usually make use of contract shearing services.

However, in some instances, where farmers produce only small amounts of mohair, they usually participate in collective shearing at a central point, i.e. community shearing sheds (Mohair SA, 2015). Farmers, or any other persons who have mohair-classing knowledge and experience, sort mohair at the shearing sheds according to texture, length, strength and quality. Then, different classes of mohair are packaged into bales and individually marked. Mohair produced by small-scale farmers is usually classed at the shearing sheds and manual records are kept of their individual contributions to each bale. The farmers then receive payment accordingly (Mert *et al.*, 2015).

b) Auctions

The South African Mohair Exchange is entrusted with facilitating open auctions between the producers and buyers of mohair in South Africa. Brokers serve as intermediaries who prepare and offer the mohair for sale on auction (Milne, 2008). According to Mohair SA (2015), approximately 32 large auctions take place in Port Elizabeth in the Eastern Cape Province throughout the year. On average, auctions are held 14 times per year (seven times in the summer and seven times in the winter). However, marketing brokers or middlemen also hold individual, smaller auctions from time to time. On auction days, bales from individual producers are separated into different lots, and then a sample is drawn from each bale and physically displayed for buyers to view.

c) Brokers

According to Visser, Crooijmans and Köster (2010), the primary function of a broker is to assemble wool and mohair from the producing areas, to prepare and to offer the mohair for sale on behalf of the producers, and to organise the transportation of mohair where and if necessary, on behalf of the buyers. Preparing mohair for sale implies: verifying the classing of the mohair by expert appraisers at each of the respective brokerage firms and also through independent testing by the South African Mohair Testing Bureau; exhibiting samples of the mohair to be offered for sale for inspection by mohair buyers; and preparing a catalogue of all the mohair that will be available for sale on a specific auction in which all the technical details (length, fineness, style, and 28 character and degree of contamination of the mohair) of each lot of mohair are specified. All of South Africa's mohair brokers are situated in Port Elizabeth, with the larger firms having networks that

extend throughout the mohair-producing areas of South Africa. The two largest brokerage firms in South Africa prepare roughly 80% of all South African mohair for sale on behalf of mohair producers. The remaining 20% is prepared by various smaller brokers and merchants (Visser *et al.*, 2010).

d) Processing

There are seven major buyers of mohair acting on behalf of local and international processors, with direct sales occurring on a small scale. The processors process mohair into smooth hair or it is scoured and delivered to the manufacturers. The main functions of the manufacturers are to produce products such as yarn, fabric, blankets, scarves, socks, bed covers and other mohair-related products. Mohair can be exported and imported at each stage of the value chain, from raw wool to yarn, fabric and fully made-up items (Mohair SA, 2015).

e) Retailers

Matswalela (2015) emphasises that mohair brokers also render support services to producers by acting as advisors to retail outlets that sell farm supplies, by offering real estate services and by offering a comprehensive advisory service to their producers which includes general production advice, stud services (ram purchases), flock classing, shearing shed visits, clip preparation and clip accreditation, transport co-ordination, dissemination of market-related information, shearing services and fleece testing. The retail sector for products containing mohair ranges from home industries that offer craft products to exclusive boutiques that offer custom-tailored products. Retail outlets for products that contain mohair include stores offering exclusive men's and ladies' wear, blankets, shawls, scarves and furniture items such as carpets and curtains, and decoration services (Matswalela, 2015).

3.5. FACTORS AFFECTING SMALLHOLDER MOHAIR FARMERS

The majority of smallholder mohair producers are found in the former homeland areas of the ECP and QwaQwa, as well as in the peri-urban areas of the Western Cape and southern Free State. Comparisons of the factors affecting smallholder and commercial farmers, respectively, in these regions are provided below.

3.5.1. Quality and quantity

Visser and Van Marle-Köster (2016) state that most smallholder farmers are found in the rural areas of the Eastern Cape, which are governed by traditional authorities. Here farmers tend to share the grazing area. On the other hand, commercial farmers have their own grazing fields under independent farm operations. This has led to the quality and quantity of mohair produced varying from season to season, which has created difficulties for the marketing of such mohair. The smallholder farmers find it difficult to devise and implement breeding programmes as all varieties of goats intermingle in the veld. This problem is exacerbated during the mating season, with producers having to guard the goats' day and night to avoid crossbreeding. The same cannot be said of the commercial farming sector (Visser and Van Marle-Köster, 2016).

3.5.2. Building human and physical capacity

The primary focus of mohair industry-led transformation initiatives is working towards continuous improvement by building on the positive results achieved already (Matswalela, 2015). Part of this focus is directed at the primary components of transformation initiatives, which include strengthening the mohair grower associations, better equipping the shearing sheds, and providing training and capacity-building to growers and shearers (including basic education and introductory finance and business management training).

According to Mabaya *et al.* (2011), capacity-building is important for addressing the human capital weaknesses among officials and growers. Capacitating the communities where mohair is in abundance allows the quality and quantity of mohair produced to improve and growers to be given expanded access to the mainstream market. Commercial farmers are well-equipped with knowledge, and are able to access training and information at their disposal and implement these to good effect. According to NWGA (2016), there are currently over 756 communal sheds with approximately 20 farmers per shed representing about 15 000 smallholder and communal mohair farmers. Mabaya *et al.* (2011) add that the number of communal shearing sheds able to realise an average

price equal to or better than the national average price is one of the indicators used to measure the effectiveness of transformation initiatives (Mabaya *et al.*, 2011).

3.5.3. Barriers to entry

In a paper produced by the Department of Agriculture, Forestry and Fisheries (2016), it was stated that small-scale farmers face certain barriers to entry in the mohair industry. These include:

- The lack of adequate and easily accessible sheltering which is needed because of Angora goats' sensitivity to extreme weather conditions; moreover, it is costly to erect more than one large shelter in different locations on a farm;
- The lack of sufficient shearing and mohair-sorting equipment;
- The lack of appropriate hair sorting and classing knowledge (among both farmers and labourers), and training in the techniques of shearing and sorting.

The paper further states that smallholder farmers are exposed to very difficult circumstances and often share land on a communal basis. It recommends that, for the mohair producers to fully reap the benefits of a deregulated marketing system, they must have access to effective and well-functioning infrastructure that allows the free flow and availability of marketing information. The challenges of grazing on communal land, such as overgrazing, can be addressed through the establishment of rotational grazing camps. Improving the management of livestock will minimise losses, thereby optimising production and improving the contribution of livestock to the livelihoods of communities (NDA, 2016).

Coetzee, Montshwe and Jooste (2005) report that extension officers can play a crucial role by providing links between farmers and organisations. The authors further indicate that smallholder farmers should identify problems and direct their requests at relevant organisations. Yet small-scale farmers face a number of marketing-related problems, especially in rural areas. These can be summarised as follows:

- A lack of knowledge about classing, packing, mohair marketing channels and marketing opportunities;
- A lack of cooperation among smallholder farmers which, if activated, would improve their marketing knowledge and skills and facilitate the exchange of information; and
- A lack of necessary infrastructure which adds to the cost of transporting mohair from the rural areas.

3.6. SUMMARY

This chapter provided a description of the study area, highlighting the fact that the Eastern Cape Province is regarded as South Africa's mohair hub with more than 50% of mohair production being exported. The mohair industry has the potential to bring about more socio-economic benefits to smallholder farmers in the form of higher incomes and improved employment prospects, which in turn would help to alleviate poverty. Nevertheless, smallholder farmers are still facing major challenges with respect to both production and marketing. The chapter provided some background on the mohair industry and its various institutions, coupled with the role that they play in the advancement of the industry. This has highlighted the need for more interventions like those initiated by the Mohair Trust which have the potential to deliver new and stronger benefits to smallholder farmers in the designated areas. Furthermore, the chapter described the South African mohair marketing chain, showing how it starts with production and progresses towards the retail stage, while detailing the function of each player in the chain. These players work together to generate sales of mohair products of different qualities and quantities to fashion- and price-conscious consumers worldwide.

CHAPTER 4: METHODOLOGICAL APPROACH

4.1. INTRODUCTION

As discussed in Chapter 1, the main objective of the study is to determine whether smallholder mohair farmers have benefitted from the agrarian transformation projects instituted by the Mohair Trust in the Eastern Cape Province (ECP) of South Africa. When launched in 2006, the Mohair Trust transformation projects were seen as having the potential to contribute to the socio-economic development of the smallholder farming community. Since their launch, however, their impact (whether positive or otherwise) has not been determined. To address the research question/topic, a survey was conducted using face-to-face interviews and a structured questionnaire. A sample of 150 smallholder mohair farmers was selected for the interviews. Obtaining a sufficiently large sample size is crucial for achieving quality research results as it can determine the average values of data and avoid errors. Most importantly, a large sample size is more representative of the population, which limits the influence of outliers or extreme observations.

The OLR model was employed as it was deemed to be the best analytical tool for determining the socio-economic benefits of the mohair-led agrarian transformation initiatives (see Chapter 2). The OLR has the ability to predict the independent variables that impact the socio-economic circumstances of smallholder farmers. This translates into the identification of the most important factors to consider when implementing projects such as those of the Mohair Trust. One of the main strengths of the OLR model is its ability to refer specifically to the problem in which the dependent variable is binary, i.e. the number of available categories is two. For example, enterprise development can have either of two measures (developed or not developed). It is noteworthy that the model measures the relationship between a categorical dependent variable and one or more independent variable(s) which are usually but not necessarily continuous. This model also has the potential to deal with socio-economic factors and to estimate the probability of a certain event occurring. The OLR model is very popular and widely used. Its popularity

largely stems from its ability to predict the independent variables that have a significant effect on the dependent variable, and to what extent (Jiang and Wallace, 2017).

As discussed in Chapter 2, several authors have applied the OLR model in development studies around the world, including a number in Africa. These include studies by Dingde *et al.* (2015), Gillespie and Mishra (2011), Lyocks *et al.* (2013) Anderson (2013), Ekundayo and Ajayi (2009) and Adeyemo and Kayode (n.d.). Fagerland and Hosmer (2016) are of the opinion that the goal of the OLR model is similar to that of the Ordinary Least Squares (OLS) regression. The OLR model addresses a dependent variable in relation to one or more independent variables. The OLR model is normally used to predict dependent variables based on knowledge of one or more independent variables. It is useful only for continuous dependent variables, whereas logistic regression is for dependent variables that are categorical.

However, Harrell (2015) presents the OLR model as follows:

$$y_i = x_i\beta + \varepsilon_i \dots\dots\dots (1)$$

However, due to the categorical dependent variable, we must instead use:

$$c_x(x) = \ln \left[\frac{P(Y \leq j | x)}{P(Y > j | x)} \right]$$

And:

$$\ln \left[\frac{\sum \text{pr(event)}}{1 - \sum \text{pr(event)}} \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_i X_i \dots\dots\dots (2)$$

Or

$$\ln \left[\frac{\sum \text{pr}(Y \leq j | x)}{1 - \sum \text{pr}(Y \leq j | x)} \right] = \alpha_j + \beta_i X_{i,1} \dots\dots\dots (3)$$

$i=1 \dots k, j=1, 2, \dots, p-1$

Where:

α_j or β_0 = Threshold

β_1 = Parameter

$X_{i,1}$ = Sets of predictors

Equation 3 represents an ordinal logistic model for k predictors with p-1 levels response variable. The OLR model works better under the following assumptions:

- The measurement of the dependent variable is on an ordinal level;
- One or more of the independent variables are continuous, categorical or ordinal;
- There is no multi-collinearity; this occurs when two or more independent variables are highly correlated with each other; and
- There are proportional odds, i.e. each independent variable has an equal effect at each cumulative split of the ordinal dependent variable.

As mentioned above, the assumptions of the OLR model should be tested in order, because if a violation to the assumption is not corrected, it will no longer be possible to use the OLR model. If these assumptions are violated, the results of the model may not be valid (Vaitheeswaran *et al.*, 2016).

Multi-collinearity, as pointed out by Montgomery (2001), is a statistical phenomenon used when there is a perfect or precise relationship among the predictor variables. If multi-collinearity exists within the variables, it becomes difficult to predict consistent estimates of their discrete coefficients. This may result in incorrect inferences about the relationship between the outcome variable and predictor variables. It is interesting that multi-collinearity can be detected through the Variance Inflation Factor (VIF) which measures the severity of multi-collinearity in an OLR model analysis. Should the VIF values exceed 5 or 10, this will imply that the related regression coefficients are poorly estimated and multi-collinearity exists (Montgomery, 2001).

In order to deal with multi-collinearity, Joshi, Kulkarni and Deshpande (2012) suggest that one or more predictor variables be dropped in order to lessen the multi-collinearity. Alternatively, if none of the predictor variables can be dropped, two methods can be performed, namely, ridge regression or principal component regression. In addition, Fagerland and Hosmer (2016) refer to ridge regression as a remedial measure used to alleviate multi-collinearity among regression predictor variables in a model, whereas principal component regression can be defined as regression analysis that is based on principal component analysis. The main advantage of this regression is that instead of regressing the dependent variable on the explanatory variables directly, the principal components can be used as regressors (Fagerland and Hosmer, 2016).

Chatterjee and Hadi (2015) report that although the OLR can be advantageous when predicting the dependent variables, in some instances this method can require additional procedures to ensure that the results are able to be interpreted. Such instances occur when the researcher wishes to include multiple variables with more than two levels in an ordinal regression estimation model. These stages include recording the categorical

variable as a number of distinct, dichotomous variables. This type of recording is called dummy coding.

Peugh and Heck (2017) add that dichotomous predictor variables (i.e. Yes or No, etc.) may be directly entered as predictor or predicted variables in an OLR model. When entered as predictor variables, the explanation of regression masses depends on the way the variable is coded. If the variable is coded as 0 and 1, the regression effect is added to or subtracted from the predicted value of Y, depending on whether it is positive or negative. In addition, the authors point out that the addition of variables in the OLR model will constantly increase the unadjusted R^2 value. If the supplementary predictor variables are already interrelated with the predictor variables in the model, then the collective results are difficult to predict. In some instances, the collective result will provide only a slightly better prediction, while in other instances, a much better prediction than anticipated will be the outcome of combining two interrelated variables (Peugh and Heck, 2017).

Hayes and Montoya (2017) point out that one of the interesting features of the OLR model is that it has the ability to determine the impact of independent variables on the dependent variable and the extent of that impact. The different dichotomous variables are grouped and assigned values of 0 and 1. In this case, the extent of influence will be measured on different levels depending on the number of dimensions the dependent variable has created. Although the OLR model can be effective for predicting the probability, it is notoriously hard to interpret. This limitation leads to multi-collinearity which causes the regression coefficients to be misinterpreted. The model requires more assumptions and a large sample size. The main disadvantage of this model is its lack of flexibility. In many applications, the hypothesis of a linear dependency among the predictor variables and log-odds ratio, and hence a linear decision limit in the instance, is not effective (Hayes and Montoya, 2017).

It is critical that two objectives of this study are analysed using the OLR model, i.e. to analyse the effectiveness of the enterprise development initiatives of the Mohair Trust and to evaluate the capacity development spin-offs of these initiatives for smallholder

farmers. This chapter outlines the data and methodological approach used in the study. In particular, emphasis is placed on the research design, the sampling techniques and size, the data collection instrument, and the data analysis and model specifications, respectively.

4.2. RESEARCH DESIGN

According to Pietersen and Maree (2007), the research design can be defined as a plan used to guide the researcher in establishing how to determine the nature of the relationship between variables. The authors further report that the purpose of the research design is to allow generalisation from a sample to a particular population in order to make inferences about certain characteristics, behaviours or attitudes pertaining to that population (Pietersen and Maree, 2007).

Both quantitative and qualitative research designs were employed in this study. A quantitative research design has the potential to reduce errors, bias and extraneous variables. It also provides answers to questions regarding the relationships that exist among measured variables which explain phenomena such as income and age. The potential strength of a qualitative research design, in turn, lies in its ability to identify intangible socio-economic factors, such as gender, marital status, religion and ethnicity.

4.3. SAMPLING TECHNIQUES AND SIZE

According to Montgomery (2017), a sampling technique can be defined as a process of selecting a sample from a population in order to obtain specific information that represents the population as a whole. Furthermore, a sampling method is a means of selecting the eligible population for a research study. This study employed a purposive sampling technique, which was deemed to be the most appropriate given the parameters of the study. Purposive sampling is mostly used in agricultural research because of its flexibility, i.e. it allows the researcher to judge the subjects that are typical or representative of the phenomenon being studied. According to Atinkut, *et al.* (2017), a purposive sampling technique allows the researcher to apply his or her knowledge of the problem statement and to pick the participants considered most relevant to the study. He further states that

this sampling technique is more convenient and economical than other sampling methods. To create the study population, a list of 150 smallholder mohair producers was obtained who participate in or form part of the Mohair Trust initiatives. The reason for not choosing non-participants of these projects was to focus specifically on the actual beneficiaries of the initiatives and to make informed recommendations to the Mohair Trust. All of these smallholder farmers were included in the survey population in order to reduce the risk of bias, while also increasing the validity and accuracy of the results. The survey was conducted in 2016.

Kelleher, Etheridge and McVean (2016) are of the view that the basic guideline for selecting a representative sample size is that it depends on the degree of discrepancy among samples. The authors assert that the main advantage of a large sample size is that it provides more information about the discrepancies between samples than a smaller sample size. In addition, the more homogeneous the population is in terms of farmer characteristics, the less the need for large sample sets.

Studies cited by Montshwe (2006) define a sample size as a collection of sampling units drawn from the sampling frame, e.g. a sample is a fixed part of a statistically determined population whose properties are studied to gather information pertaining to the entire population. The sample size of this study (150 smallholder farmers) was representative of the total population. According to Montshwe (2006), the use of sampling involves the determination of the sample size, recognising that it should be representative enough to allow a reliable statistical analysis. A sample size depends fundamentally on the degree to which the sample population estimates the characteristics and qualities present in the entire population.

Brentrup *et al.* (2016) indicate that the way sample units are selected is very important. The sample units should be sufficiently representative as to make generalisations from the sample to the larger population. In addition, a statistically adequate sample is one that is of such a size that the inferences drawn from the sample are accurate to a given confidence level. Vossmeier (2016), in turn, explains representativeness as the sample

selected having approximately the same characteristics as the population relevant to the research study.

4.3.1. Survey technique

The participation of farmers in this study was voluntary, i.e. based on their willingness to participate. The identity of the farmers, such as their names and financial information, was treated with confidentiality. Farmers were personally informed about the study by the extension officers in the area who also assisted by translating the questionnaire into the language (IsiXhosa) understood by the various respondents.

Two research techniques were used, i.e. qualitative and quantitative research methods. Pietersen and Maree (2007) point out the difference between the two research methods, indicating that qualitative research is primarily used to explore and gain an understanding of underlying reasons, opinions and motivations. It has the ability to provide insights into the problem with common methods applied in this type of research including focus groups, individual interviews and observations. Quantitative research, on the other hand, is applied to quantify the problem by means of generating numerical data that can be transformed into usable statistics. This may be by quantifying opinions, attitudes, behaviours and other defined variables through face-to face interviews and telephone interviews (Pietersen and Maree, 2007).

For this study, both qualitative and quantitative methods were selected due to their ability to ease the time and cost burden. The instrument used in the survey was a structured questionnaire, which was completed by means of face-to face interviews. A structured questionnaire was deemed necessary as it allowed farmers to be as open and honest as possible. The questionnaire included both closed and open-ended questions, and notes were taken during each interview. The questionnaire design was informed by the literature review in Chapter 2. The questionnaire comprised four different sections with information being solicited about respondents' socio-economic circumstances, access to markets and information, land ownership, and details about the enterprise and its financial situation.

The farmers interviewed were both male and female; hence, the study also analysed the gender representation across the various transformation projects.

4.4. DATA ANALYSIS AND INTERPRETATION

The study hypothesised that the smallholder mohair farmers participating in the agrarian transformation initiatives benefit from such initiatives. The study used descriptive diagrams which included tables, bar graphs and pie charts to analyse the socio-economic impact of the Mohair Trust initiatives on smallholder farmers. Descriptive statistics were used as an analytical tool to describe the basic characteristics of the data obtained in the study. This analytical tool thus provided a simple summary of the variables and their measures.

The data was first entered raw into the Excel sheet and exported to a Statistical Package for the Social Sciences (SPSS) for coding and cleaning, and analysis. The data was cleaned, to avoid errors, and arranged in a presentable manner such as attaching values to variables, i.e. 1-male; 2-female. The SPSS package was used for the purpose of running the empirical analysis (model) and frequency tables. The OLR was used to measure the impact of X variables on the Y variable. This was done in order to identify the factors/variables to consider in the implementation of development/transformation projects such as those of the Mohair Trust.

4.5. MODEL SPECIFICATION

The OLR was used to determine different farmer attributes in relation to capacity and enterprise development. The variables for enterprise development and capacity development were treated separately. This was done in order to determine the extent of the impact of one variable on the dependent variable. Based on the discussions in Chapter 2 and the broader context of this study, the OLR is presented as follows:

$$\ln \left[\frac{\Sigma \text{pr}(\text{event})}{1 - \Sigma \text{pr}(\text{event})} \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_i X_i \dots \dots \dots (2)$$

Where:

$$Y \text{ represented by } \ln \left[\frac{\Sigma \text{pr}(\text{event})}{1 - \Sigma \text{pr}(\text{event})} \right] = \text{Enterprise development}$$

Y (Enterprise development) was measured by two occurrences such as developed or not developed. This was done in order to quantify enterprise development.

X₁ = Village/region where the farmer was located

X₂ = Farming status of the farmer

X₃ = Education level of the farmer

X₄ = Total income of the farmer

X₅ = Market access

X₆ = Age of the farmer

Capacity development (Y) was measured as the farmers being capacitated or not capacitated. This was done in order to quantify capacity development.

$$Y \text{ represented by } \ln \left[\frac{\Sigma \text{pr}(\text{event})}{1 - \Sigma \text{pr}(\text{event})} \right] = \text{Capacity development}$$

X₁ = Gender of the farmer

X₂ = Land status of the farmer

X₃ = Total on-farm income

X₄ = Total non-farm income

X₅ = Farm acquisition

X₆ = Training received

X₇ = Record keeping

X₈ = Age of the farmer

In Chapter 2, various studies were reviewed in the literature and key variables were identified that contribute to enterprise and capacity development. These studies included the one by Dingde *et al.* (2015), Lyocks *et al.* (2013) and Anderson (2013), to mention a few.

4.6. SUMMARY

This chapter discussed the methodological approach, as well as the studies that employed the OLR and the variables that were included. The chapter also outlined the procedure to be followed when using the OLR approach and the reasons for performing tests before the model is applied. This chapter thus served as a basis for the empirical analysis performed in the study.

CHAPTER 5:

DESCRIPTIVE PROCEDURE AND RESULTS

5.1. INTRODUCTION

The literature review in Chapter 2 revealed that agricultural transformation has the ability to contribute to socio-economic growth and development. However, there are a number of factors (such as land reform and inadequate implementation of agricultural policies) that, due to their sensitive nature, have been delaying the transformation process in the agricultural sector.

The sensitivity surrounding transformation arises from the fact that it is racially oriented and poses threats to existing landowners. The literature further points out that different countries have seen centuries pass before the agricultural sector has been successfully transformed. Often countries' progress has been due to various technologies adopted which have improved and accelerated agricultural sector transformation. In contrast, South African transformation has focused entirely on promoting greater inclusivity in terms of contribution to and representation in the mainstream of the economy. Yet transformation of the sector can take several forms, i.e. the adoption of new technology, more equitable participation from a gender and racial perspective, greater value chain engagement, the adoption of green methodologies, and the promotion of stronger ownership and participation of smallholder farmers in the mainstream of the economy. In a nutshell, agricultural transformation can occur either in a good way or a bad way. In the South African context, public-private partnerships (PPPs) will help in the advancement of transformation in the agricultural sector.

With reference to the objectives of this study, Müller (2017) stresses that socio-economic circumstances are often measured as a combination of education, income and employment, which together are commonly conceptualised as the social standing or class of an individual or group. In an agricultural context, socio-economic well-being can also be determined from the resources a farmer has in his or her possession, e.g. land and its

relative size, size of the herd, access to credit, skills level and training opportunities, and marketing information.

The objective of this chapter is twofold: to give an overview of the data relating to the socio-economic and/or demographic characteristics of the surveyed farmers in order to determine their characteristics, and to present the data on socio-economic variables relating to enterprise and capacity development using descriptive statistics in the form of tables and graphs as well as statistically, using means, standard deviations and frequencies.

5.2. SOCIO-ECONOMIC CHARACTERISTICS

Tables 5.1 to 5.4 present the socio-economic characteristics of the respondents in frequency and percentage terms. As outlined in Chapter 2, socio-economic factors such as gender, marital status, racial group, education level, age, income, and employment status and farming status are key to determining the trends in the characteristics of farmers. These factors were therefore investigated in order to arrive at informed decisions for the implementation of future transformation initiatives, such as those in the mohair industry.

According to the findings, the majority (72.7%) of respondents were men, with the remaining 27.3% being women (Table 5.1). In terms of marital status, the majority (64.0%) of respondents were married, while 29.3% were single, 5.3% were widowed and 1.3% were divorced. Of the total respondents, 72.7% were African, 21.3% were coloured and the remaining 6.0% were white. The education levels of the respondents also differed significantly. On the one hand, almost a quarter of the respondents did not have a matric (or any formal education) while on the other, almost 50% had tertiary education of some sort.

The education level attained by the farmer was important in this context because an increase in a farmer's education results in an increase in his or her farm management capacity and (financial and operational) skills. This then contributes to the growth and

development of the farming enterprise, provided the farmer is capacitated with relevant training that enables him or her to make the right business decisions.

Table 5.1: Socio-economic characteristics of the surveyed farmers

Variable	Measurement	Frequency (N=150)	Percentage (%)
Gender	Male	109	72.7
	Female	41	27.3
Marital status	Single	44	29.3
	Married	96	64.0
	Widowed	8	5.3
	Divorced	2	1.3
Race	African (Black)	108	72.7
	White	9	6.0
	Coloured	32	21.3
Education level	No formal education	37	25.3
	Matric	42	28.0
	Diploma	31	20.7
	Degree	37	24.7
	Postgraduate	2	1.3

The reason for the higher percentage of men in the mohair industry transformation projects might be that the agricultural sector is generally male dominated as it is regarded as a physically demanding field, depending on the farming activity. Women are more inclined to assume home-based responsibilities, i.e. looking after the children, cooking and partaking in less physically demanding activities and/or jobs.

5.2.1. Age and farming experience

Table 5.2 below presents the average age and farming experience of the respondents in years. Farming experience in the context of this study is defined as the number of years the participant has been involved in the farming operation. Table 5.2 also shows the minimum and maximum ages and farming experience of the farmers. It shows that the average age of the respondents was 46 years, while the minimum age was 20 years and the maximum age was 71 years. The average farming experience of the respondents was eight years, with the minimum being one year and the maximum being 30 years.

It is assumed that the more farming experience the farmer had, the greater his or her capacity to acquire and retain farming knowledge. In addition, the age of the farmer appeared to be one of the main factors affecting his or her productivity and efficiency. Productivity is measured as the ratio of agricultural outputs (per person) to agricultural inputs which are used as indices for the economic performance. This is an important determinant of the income of the population engaged in farming activities. The higher the age of the farmer, the lower his or her productivity was and the lower the enterprise's performance and output were. The reason for the high average age of respondents might be that youth are generally not interested in agriculture, i.e. they regard it as a 'dirty field' due to their lack of awareness and understanding of agricultural career paths. They might also hold the view that most people participate in agriculture in their old age, especially after or nearing retirement.

Table 5.2: Age and farming experience in years

Item	Age (years)	Farmer experience (years)
Mean	46	8
Standard deviation	11	5
Minimum	20	1
Maximum	71	30

5.2.2. Main employment and farming status

Table 5.3 below presents the employment and farming status of the respondents before and after the introduction of the transformation initiatives in the mohair industry. This was investigated to determine if there were significant changes in the farming status of the farmers and to establish reasons for the changes. A higher percentage after the introduction of the Mohair Trust initiatives would mean that farmers are benefitting. The results show that the majority of those who were employed (35.7%) were self-employed. In other words, these were full-time farmers even before they began participating in the Mohair Trust initiatives. The remaining 31.3% were employed either as farm workers or by other private sector companies operating in or outside the agricultural sector. Also, interesting to note is that 10.7% of respondents were employed by the public sector, e.g. in local/provincial government. Following the introduction of the Mohair Trust initiatives,

employment increased by a noticeable 20.7%, resulting in unemployment falling to a mere 5.3%.

The results on respondents' farming status before and after the launch of the transformation initiatives showed that the majority (46%) were involved in farming full time, with this proportion increasing to 63.3% after the start of the initiatives. However, 43.3% and 36.6%, respectively, were farming part time before and after the initiatives, with a minority (10.7%) not farming at all. In view of the current situation in South Africa, the latter figure is particularly low. However, it should be noted that this result only pertains to those who participated in the study.

The biggest reduction was reported in the number of farm workers and people employed by the private sector. Based on the results of the descriptive statistics, it is clear that the introduction of the mohair transformation initiatives actually led to an increase in the number of participants – people who might previously not have been part of the agricultural sector. Moreover, it assisted farm workers to establish their own businesses. The latter is also clear from the increase in the number of self-employed farmers following the introduction of the Mohair Trust initiatives.

Table 5.3: Employment of farmers before and after the transformation initiatives

Employment				
Before the initiatives			After the initiatives	
	Frequency (N=150)	Percentage (%)	Frequency (N=150)	Percentage (%)
Farming (self-employed as farmer)	47	35.7	78	52.0
Farming (farmworker)	35	22.4	13	8.3
Private sector (commercial)	41	31.3	43	29.0
Public sector (government)	27	10.7	16	10.7
Farming status				
Before the initiatives			After the initiatives	
Full-time farming	69	46	95	63.3
Part-time farming	65	43.3	55	36.6
Not farming	16	10.7	n/a	n/a

It can be deduced from Table 5.3 that about 40% of the respondents had alternative employment before and after the transformation initiatives and continued to farm on a

part-time basis. This might be due to mohair farming being associated with risks such as animal welfare, with some participants perhaps opting to employ farm managers to look after the animals. The income received from other forms of employment might then be used to subsidise the farm income.

In line with the above findings, the results pertaining to farming status confirm that the Mohair Trust initiatives have made a notable contribution to the financial sustainability of the mohair industry. This is evident from the growth in the number of full-time farmers. This means that the introduction of the Mohair Trust initiatives has enhanced socio-economic benefits since farming enterprises have been able to employ more people, boost incomes, and so on. This also translates into greater capacity development due to a rise in employee numbers and an increase in output.

It can therefore be concluded that the transformation initiatives of the Mohair Trust have benefitted smallholder farmers, as evidenced in an increase in the number of farmers farming full time. This also suggests that public-private partnerships (PPPs) have been one of the success factors in the advancement of the mohair industry agrarian transformation initiatives.

5.2.3. Main source of income of the respondents

Table 5.4 below presents the main sources of income before and after the introduction of the transformation initiatives by the mohair industry. The results show that before and after the initiatives, most (59.3% and 66.7%, respectively) of the income came from farming activities. Furthermore, before and after the initiatives, 40.7% and 33.3% of respondents, respectively, received their income from non-farming activities.

Table 5.4: Main sources of income before and after the initiatives

Sources of income				
	Before the initiatives		After the initiatives	
	Frequency (N=150)	Percentage (%)	Frequency (N=150)	Percentage (%)
Farming	89	59.3	100	66.7
Non-farming	61	40.7	50	33.3

Figure 5.1 below presents the total income accruing to respondents from farming activities (in percentage terms) before and after the transformation initiatives by the mohair industry. Due to the confidential nature of the farmers' financial records, the total income was determined based on the income intervals outlined in the questionnaire.

The results show that before the launch of the initiatives, the majority (73%) of respondents' total income was less than R25 000, 23% of respondents' income was between R25 000 and R50 000, and only 4% of respondents' income was between R50 000 and R75 000.

However, after the introduction of the various initiatives, the percentage of respondents who received a total income of less than R25 000 from farming activities was 55%, showing a noticeable decline. Still using the before-and-after scenario, the proportion of those receiving a total income of between R25 000 and R50 000 rose to 29%. However, those receiving a total income of between R50 000 and R75 000, or more than R75 000, were still in the minority at 13% and 3%, respectively, after the introduction of the industry initiatives.

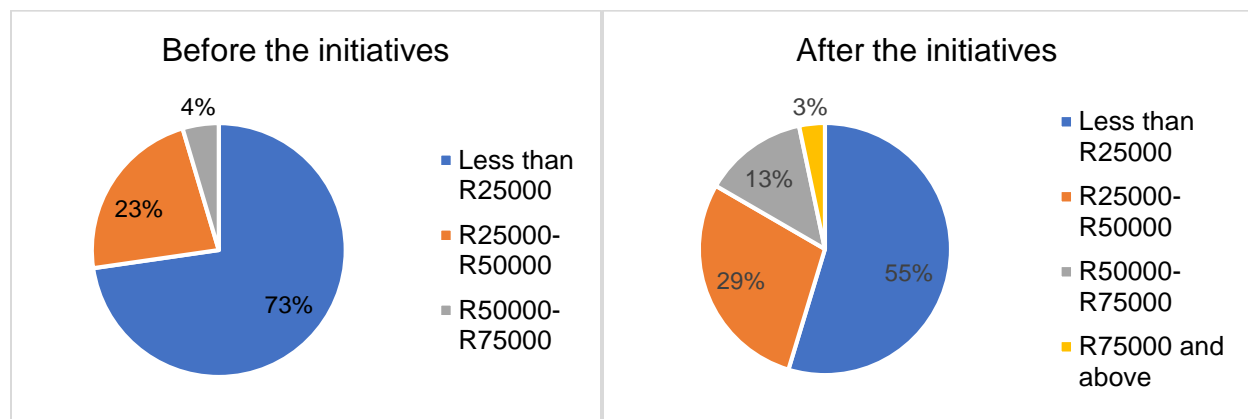


Figure 5.1: Total income from farming activities before and after the initiatives

Figure 5.2 below presents the total income earned by respondents from non-farming activities per month after the initiatives. The results show that 67.3% of respondents received a total income of less than R25 000, 24% received a total income of between R25 000 and R50 000, and only 8.6% of respondents received a total income of between

R50 000 and R75 000 from non-farming activities. Non-farming activities are activities that are not related to farming or agricultural activities, such as transporting kids to school and timber processing.

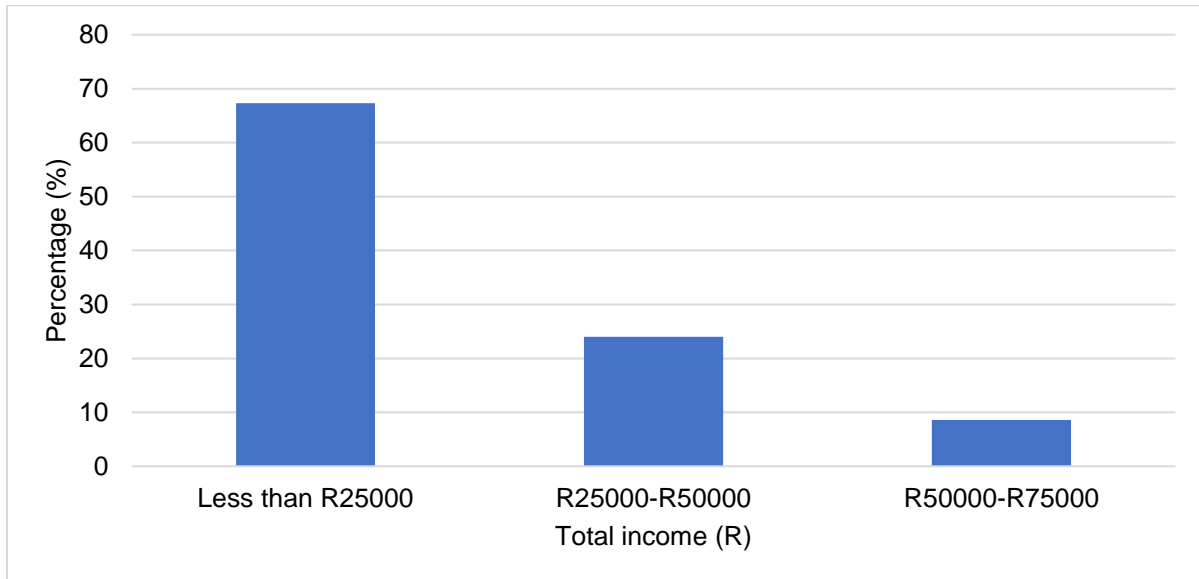


Figure 5.2: Total income from non-farming activities after the initiatives

The findings above show that the majority of smallholder farmers involved in the Mohair Trust transformation projects benefitted from these initiatives. According to DAFF (2010), between 2001 and 2010, the mohair prices in South Africa increased and producers attained a peak price of about R118 per kilogram. This was due to high volumes of mohair and the mohair industry being more competitive and profitable. This is evidenced in higher incomes, with more than 80% of these incomes derived from farming activities and less than 20% derived from non-farming activities.

5.3. MARKET AND INFORMATION ACCESS

This section presents the results relating to market and information access which were obtained from the survey. The purpose of this section is to provide statistics based on the respondents' access to markets and information. In the context of this study, market access is defined as the ability of the farmer to access and participate in both formal and informal markets. This was measured in terms of the distance between the farm and the market.

5.3.1. Market access

Louw *et al.* (2008) see market access as a cornerstone of enterprise development. This means that the greater the improvement in market access, the stronger the growth of an enterprise, which in turn invariably creates the need for more human capacity. Although farmers' access to the market did not change after the introduction of transformation initiatives, this does not suggest a major challenge for the mohair industry. However, graduating from smallholder farming to commercial farming remains a significant challenge. Farmers are motivated to produce on a sustainable basis. Empirical evidence has shown that profitable markets can change the livelihoods of poor farmers, but only if these farmers have access to these markets (Louw *et al.*, 2008).

Table 5.5 indicates that smallholder farmers' market access was the same before and after the introduction of transformation initiatives by the Mohair Trust. This illustrates that farmers have not benefitted from the initiatives where market access is concerned. More specifically, the results show that the majority (84%) of respondents had access to the market while only 24% did not. In terms of distance to the market, the majority (35.3%) of respondents travelled more than 100 km to reach the market, 21.3% travelled between 51 and 100 km, 16% travelled between 21 and 50 km, and 27.3% travelled between 0 and 20 km.

Table 5.5: Access to markets by the respondents

Variable	Measurement	Frequency	Percentage
Market access	Yes	126	84.0
	No	24	16.0
Market distance	0–20 km	41	27.3
	21–50 km	24	16.0
	51–100 km	32	21.3
	More than 100 km	53	35.3

It is evident from the results that there is a huge gap between farmers' access to markets and the distance involved, possibly attributable to poor infrastructure (i.e. roads, etc.). Findings by Chaminuka *et al.* (2008) confirm that factors determining access to markets include distance to the markets, the state of the roads, the cost of transportation and the frequency of visits to the markets.

5.3.2. Marketing channels

Figure 5.3 below presents the different marketing channels used by the farmers (in percentage terms). The results indicate that the majority (85%) of the farmers used brokers, 29% used auctions and a minority (7%) used knitting companies to market their mohair. Only 1% of respondents made use of other marketing channels. Among the reasons given for their marketing channel preferences were that the use of brokers reduced the cost of transport, while auctions pens were erected close to their farms and were thus convenient.

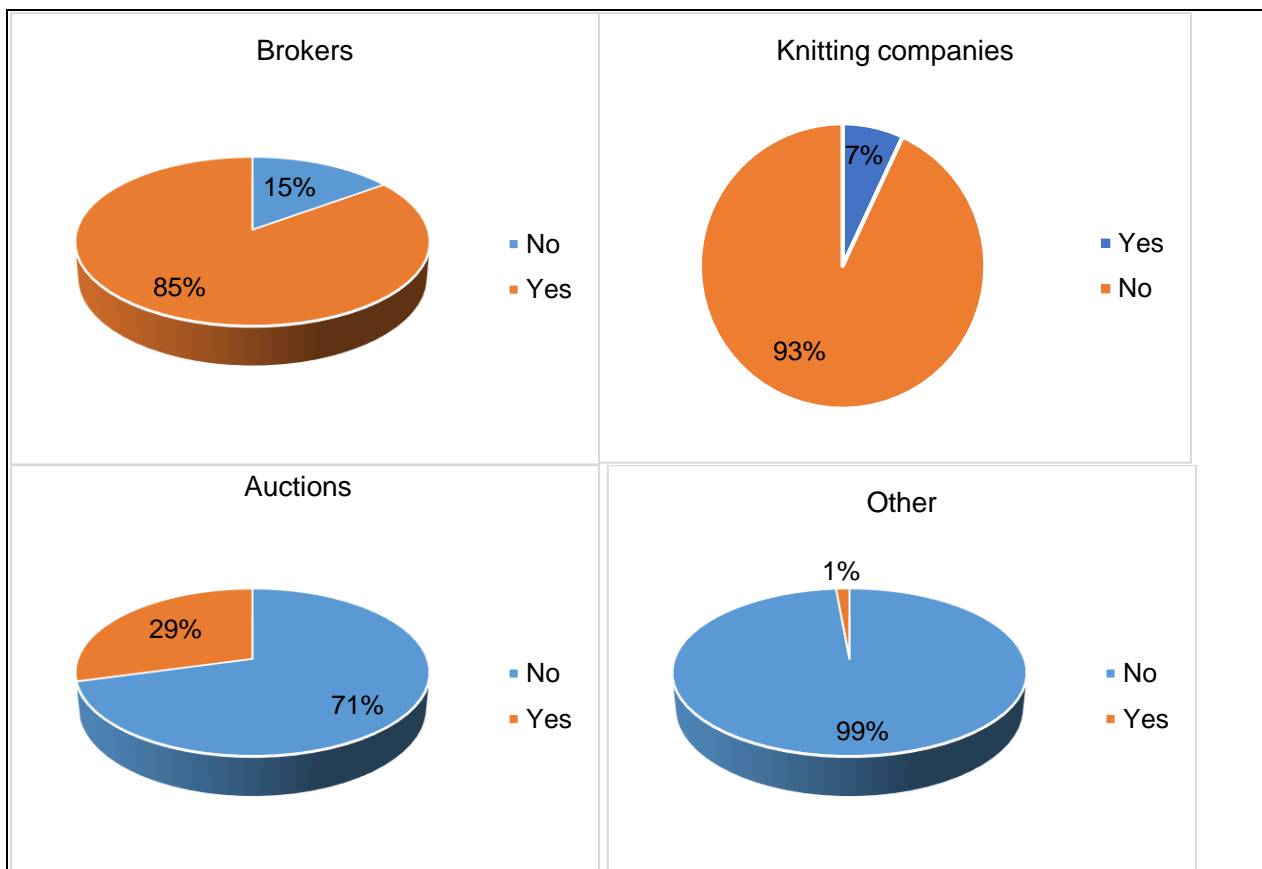


Figure 5.3: Marketing channels used by farmers

The introduction of the Mohair Trust initiatives clearly gave farmers more options to choose from in terms of marketing their mohair. The more marketing channels that are available to farmers, the more socio-economic benefits (such as increased incomes) accrue to them. This means that farmers have more capacity to choose the most suitable marketing channel through which to sell their mohair. In addition, the higher the demand

for mohair in the market, the better are the prospects of enterprises generating higher returns.

The results in Figure 5.3. are in line with the work of Norsida and Nasiha (2014) who found that the majority (81.5%) of farmers used the services of brokers to sell their produce. This was prompted by the long-term and trusting relationships that had been built up between farmers and brokers over the years. Notwithstanding this, farmers might also benefit, through transport cost savings, by selling their produce on different platforms, such as auctions, and in other markets.

Table 5.6 below presents different reasons for farmers changing their market, prompted by the introduction of transformation initiatives by the mohair industry (in frequency and percentage terms). The respondents were asked to state whether their market changed after the introduction of the Mohair Trust initiatives; and if so, what the contributing factors were. This factor was investigated in order to determine the major contributor to market changes and, furthermore, to make recommendations to the Mohair Trust on how enterprise development can be brought about more effectively. Table 5.6 and Figure 5.4 below show the responses from the farmers in this regard. The results show that 69.3% of respondents reported a change in market, while 30.7% reported no change. The reasons given for the market change were an increase in production (53.25% of respondents), assistance provided in the area of logistics (46.8%), quality improvements (62.6%), and easier market access due to group marketing (55.4%).

Table 5.6: Reasons for changes in the market

Market change	Frequency (N=150)	Percentage (%)
Yes	104	69.3
No	46	30.7



Figure 5.4: Impact before and after the Mohair Trust initiatives

The initiatives by the Mohair Trust provided the farmers with a wide range of benefits, as illustrated by the higher percentage of beneficiaries changing their market as a result of (for example) group marketing, which increased production and improved the quality of the mohair produced.

Figure 5.5 below presents the different ways that farmers sold their mohair before and after the launch of the transformation initiatives by the mohair industry. The results show that 89% of respondents sold their mohair as a group before the initiatives, which then increased to 95% after the initiatives. Only 8% of farmers sold their mohair individually before the initiatives, which then dropped to 4% after the initiatives. On the other hand, 3% and 1% of the respondents, respectively, sold their mohair using other sales channels before and after the launch of the initiatives.

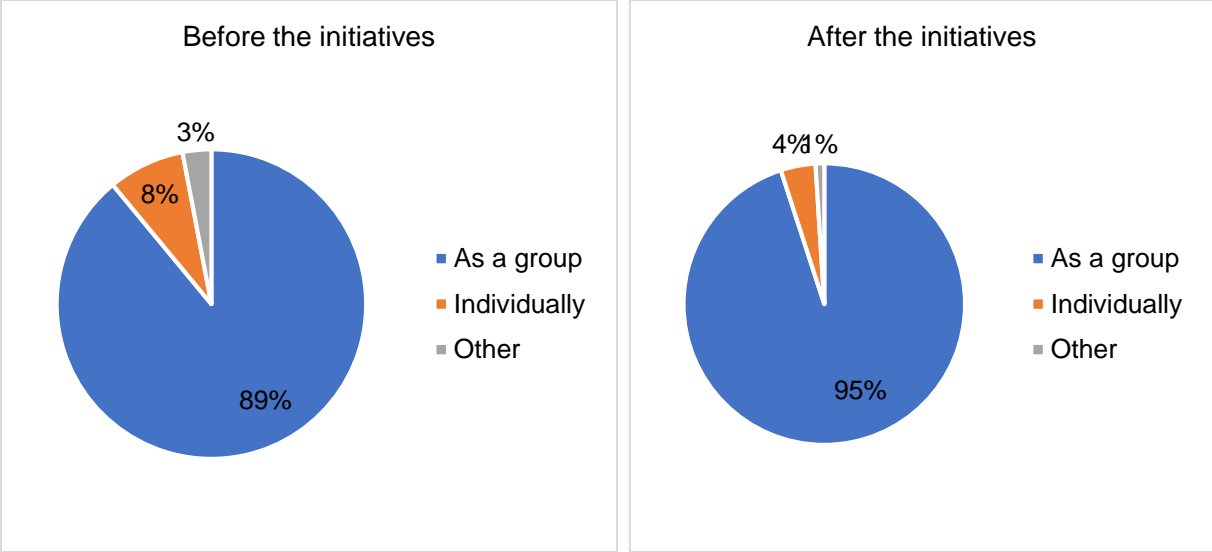


Figure 5.5: Sale of mohair before and after the initiatives

It is common knowledge that formal markets refuse to procure products in small quantities and of poor quality from isolated smallholder farmers (Glover and Kusterer, 2016). However, most of the smallholder farmers in the mohair industry combine their mohair to make up bales and sell these as a group in order to meet the demands of the market. The results show that through the initiatives launched by the Mohair Trust, farmers benefitted from the group marketing of their mohair.

Figure 5.6 below presents the farmers’ access to international markets before and after the transformation initiatives by the mohair industry. Before the initiatives, the majority (85%) of respondents did not have access to international markets, while only 15% had such access. After the initiatives, the majority (80%) still did not have access to international markets, while the proportion of those with access had risen to 20%.

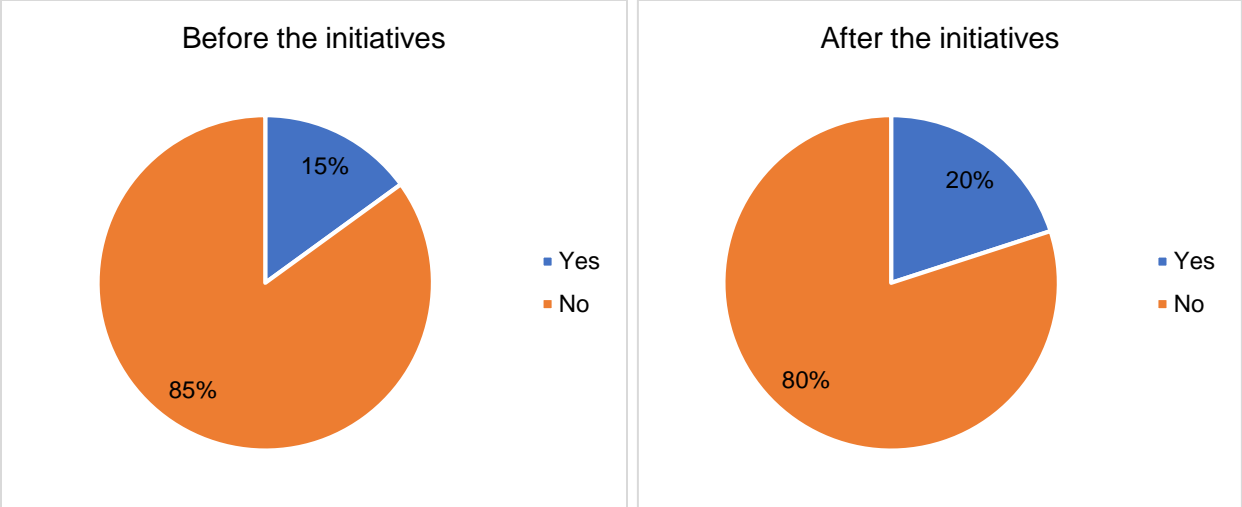


Figure 5.6: Farmers’ access to international markets before and after the initiatives

As previously indicated, mohair is an export-oriented product with approximately 90% of the hair shipped raw or in a semi-processed state. It is therefore important to establish whether or not the smallholder farmers through the Mohair Trust-led agrarian transformation initiatives have experienced socio-economic development benefits such as earning foreign exchange.

Figure 5.6 above shows that the majority of farmers were still facing challenges in accessing export markets in the face of onerous product quality standards associated with exporting. The Mohair Trust initiatives only increased export market access from 15% to 20%, which is not a significant improvement. This might be due to brokers acting on behalf of farmers in their export activities. Accessing international markets, to which large volumes of mohair are regularly exported, requires in-depth knowledge of the markets’ dynamics and how they operate within foreign countries, including quality standards established through trade policies and formal trade agreements. In this regard, smallholder farmers need to be better capacitated in the area of trade, especially through training.

5.3.3. Access to information

As pointed out in Chapter 2, access to information is one of the key factors determining capacity development and the success of an enterprise. Consequently, if farmers can use the information they receive, it will ultimately translate into the socio-economic benefits that flow from the agrarian transformation initiatives. Table 5.7 below presents farmer perceptions about information types and sources, and how information is disseminated. The reason for investigating the farmers' access to information was to ascertain whether the information was reliable, adequate and timely.

The results show that the majority (83.3%) of respondents perceived information to be important, with 16.7% not considering it to be important. Nevertheless, 47.4% of respondents received information from mohair industry associations, 44.7% from extension officers, 7.3% from government entities and 0.7% from research institutions. Of the information received, 16.7% was about production, 39.9% was about market prices and 37.3% was about marketing activities/auctions. The respondents reported that 38% of the information received was on a monthly basis, with 62% of information received at other times. Judging from the responses provided, it can be concluded that the information might not have been adequate, reliable and timely, or perhaps the participants did not know how to use the information to make well-informed decisions.

Table 5.7: Access to information by farmers

Question (s)	Measurement	Frequency (N=150)	Percentage (%)	
Do you perceive information as important?	Yes	125	83.3	
	No	25	16.7	
What is your main source of information?	Government	11	7.3	
	Research institutes	1	0.7	
	Mohair industry associations	71	47.4	
	Extension officers	67	44.7	
What types of information do you receive?	Production	Yes	25	16.7
		No	125	83.3
	Market price	Yes	59	39.3
		No	91	60.7
	Marketing/auctions	Yes	56	37.3
		No	94	62.7

What is your main information channel?	Email	18	12.0
	SMS	12	8.0
	Telephone call	3	2.0
	Personal channels	55	36.7
	Other	62	41.4
How often do you receive information?	Monthly	57	38.0
	Other	93	62.0

According to Table 5.7, the majority of smallholder farmers benefitted from the transformation initiatives, as shown in the higher percentage (71%) of farmers receiving information from mohair industry associations. The more information and knowledge that are disseminated to the farmers, the more capacitated they become, which equips them to improve their farming operations.

5.4. LAND OWNERSHIP

Land ownership was identified earlier as a key contributing factor in realising socio-economic benefits since land is the basis for most farming activities and it is the primary income generator. This section presents the results of land ownership (in frequency and percentage terms).

Table 5.8 presents information relating to land size, land acquisition, type of ownership and expansion items. The results show that 51% of the land area of respondents was leased, 39% was owned under a title deed and 9% was simply used with permission. In terms of land size, the majority (39%) of respondents used more than 100 ha, 26% occupied between 0 and 20 ha; 25% used between 21 and 50 ha and 9% occupied between 51 and 100 ha. In addition, 58% of respondents had acquired the farms through land reform, 18% through group farming, 14% through private purchase and 10% through restitution. Important to note are the expansion items identified by the respondents who indicated that this intervention by the Mohair Trust resulted in the expansion of land (79%), farming operations (91%) and production (49%). An expanded farming operation might be the result of new activities that are introduced on the farm, such as crop farming, to supplement cash flow.

Table 5.8: Land information pertaining to farmers

Variable/question	Measurement	Frequency (N=150)	Percentage (%)	
Land ownership	Lease	77	51	
	Title deed	59	39	
	Permission to occupy	14	9	
Expansion item	Land	Yes	118	79
		No	32	21
	Goats	Yes	16	10
		No	134	90
	Farming operations	Yes	135	91
		No	15	9
	Production	Yes	74	49
		No	76	51
Land size	0–20 ha	39	26	
	21–50 ha	38	25	
	51–100 ha	14	9	
	More than 100 ha	59	39	
Farm/land acquisition	Private purchase	21	14	
	Land reform	87	58	
	Group farming	27	18	
	Restitution	15	10	

As shown in Table 5.8, the majority of respondents were farming on leased land. Most of the farmers, in indicating the size of their herds as ranging from 20 to 1000 goats and other production details, demonstrated that there was potential to expand their farming operations. Land is regarded as a leading agricultural resource and plays a crucial role in agricultural productivity. Leasing land for farming has historically come with significant risks for both the farmer and the landowner. For example, land that has been leased for extended periods can lead to exhaustion, characterised by poorly maintained infrastructure due to a lack of investment by the farmer (lessee). In the case of mohair farming, the fact that most farmers operate on leased land can create cash flow problems since they might have leased the land for relatively short periods and had to pay lease (and sometimes renewal) costs. Ashby and Ashby (2011) name some of the disadvantages of leased land as follows:

- No exposure to capital gain;
- Uncertainty about continued access to land;
- May not enjoy long-term benefits of investment in land productivity; and

- Exposure to full production and market risks.

However, the authors indicate that leased land can also deliver benefits to farmers. For example, a group of farmers leasing a piece of land together are able to share the costs of marketing, production and transport. This enables them to take advantage of economies of scale which should enhance their profitability.

5.5. ENTERPRISE AND FINANCIAL INFORMATION

This section presents the results on enterprise information and finance (in frequency and percentage terms). As discussed in Chapter 2, enterprise development involves the use of resources that are invested in a farming enterprise to enable the farmer to perform day-to-day farm activities. The expansion of such resources (land, size of the herd, access to the shearing shed and credit) will lead to enhanced farming operations and more profitable enterprises. An increase in output invariably means that more inputs (i.e. labourers and/or support services) are required. Furthermore, for the farmer to engage in farming activities, he/she needs to engage in activities such as business plan development, record-keeping, marketing and financial management.

Table 5.9 below shows that the majority (76%) of respondents had been involved in the project for more than 21 years, 16% had been involved for between 11 and 20 years, and 6% had been involved for between 1 and 10 years. In terms of number of goats owned, the majority (66%) owned fewer than 100 goats, 24% owned between 100 and 200, 5% owned between 201 and 300, and 4% owned more than 300. The majority (57%) had access to the shearing shed before the initiatives and 87% had access to the shed after the initiatives.

Before the initiatives, the majority (66%) of respondents borrowed money for their enterprises, with only 51% borrowing money after the initiatives. In addition, the majority (49%) financed their enterprises through commercial banks, 34% through the Land Bank, 9% through industry associations and 6% through other financial institutions. According to the results, 84% of respondents had business plans and 12% did not; 87% kept records and 12% did not; 59% had undergone training and 40% had not. In terms of the labour

force, 79% of respondents made use of casual labour, 67% made use of seasonal labour and 70% made use of permanent labour.

Table 5.9: Enterprise and financial information

Question/variable	Measurement	Frequency (N=150)	Percentage (%)
Years in the project	1–10 years	8	6.7
	11–20 years	25	16.7
	21 years and above	117	76.6
Total number of goats	Less than 100	99	66.0
	100–200	36	24.0
	201–300	8	5.3
	More than 300	7	4.7
Shearing shed access (before)	Yes	86	57.3
	No	64	42.7
Shearing shed access (after)	Yes	131	87.3
	No	19	12.3
Did you borrow money for your enterprise (before)?	Yes	100	66.7
	No	50	33.3
Did you borrow money for your enterprise (after)?	Yes	77	51.3
	No	73	48.7
How did you finance your farming enterprise?	Land Bank	52	34.7
	Commercial bank	74	49.3
	Industry association	14	9.3
	Other	10	6.7
Business plan	Yes	126	84.0
	No	24	16.0
Training	Yes	89	59.3
	No	61	40.7
Record-keeping	Yes	131	87.3
	No	19	12.6
Casual labour	No	95	79.8
	Yes	24	20.2
Seasonal labour	No	80	67.2
	Yes	39	32.8
Permanent labour	No	35	29.4
	Yes	84	70.6

Bienabe *et al.* (2004) assert that access to storage facilities increases farmers' flexibility to sell their products, as well as easing their ability to negotiate with buyers. George (2009) alludes to the fact that the option of formal financial institutions lending money to

smallholder farmers is generally viewed as carrying high transactional costs and risks. In general, agriculture is characterised by low profit margins and slow turnaround periods, making it difficult for small-scale farmers to access funding due to a lack of access to collateral. A lack of security to repay loans, low profitability and macroeconomic uncertainty make banks view the agricultural sector as high risk (George, 2009). As shown in the above results, the majority of the farmers were funded through loans from commercial banks and the Land Bank. This confirms that there have been a number of innovative attempts to fill the funding gap between smallholder farmer needs and available sources of finance, including more tailored facilities offered through public programmes such as CASP and AgriBEE, and by farmer/sector organisations and commercial banks (George, 2009).

DAFF (2014) indicates that between 2000 and 2010 some interesting trends were noted in terms of the dominance of private stakeholders in the provision of agricultural finance in South Africa. For example, the commercial banks were the largest lenders (37.5%) to the agricultural sector. This is in line with the results presented in Table 5.9.

In addition, with reference to Table 5.9, Vink (2000) states that although the permanent labour force is expected to decline over time, there is some evidence that the number of seasonal and temporary workers could increase. In addition, the decline in the number of jobs provided by the agricultural sector over the past few decades has intensified as a result of bad policies that have suppressed export opportunities, discouraged the development of labour-saving technology and actively encouraged the adoption of capital-intensive farming practices.

5.6. SUMMARY

This chapter emphasised that the challenges associated with land are still a major concern. However, commercial banks have played a crucial role in providing finance to smallholder farmers, and industry associations have assisted farmers with technical advice and information sharing. The evidence produced by other authors is in line with the findings in this study, especially in relation to access to finance, land and markets. Group farming seems to be the dominant strategy in the mohair industry due to individual

smallholder farmers' inability to assemble the required number of bales and mohair of consistent quality to meet market demand. It can therefore be concluded that there is a strong correlation between socio-economic factors such as gender, employment status, age, population group and income, and the benefits of the agrarian transformation initiatives. These socio-economic factors can make a significant contribution in terms of new job opportunities, the creation of full-time employment rather than part-time employment, and the displacement of regular employment with casual labour.

CHAPTER 6: EMPIRICAL PROCEDURE AND RESULTS

6.1. INTRODUCTION

This chapter builds on the discussions in the previous two chapters, which focused on the descriptive information pertaining to the smallholder farmers participating in the survey. The main objective of this chapter is to determine the different attributes of the farmer in relation to capacity and enterprise development. This is to identify the selection criteria to consider in the establishment and implementation of future agrarian transformation initiatives, such as those of the Mohair Trust.

It is crucial to examine the independent variables that predict enterprise development and those that predict capacity development, with specific reference to the mohair industry in South Africa. The chapter therefore analyses the variables for enterprise development and capacity development separately.

6.1.1. Analysis of enterprise development among smallholder farmers

Table 6.1 shows a dependent variable that was created from section 4 in the questionnaire: 'Enterprise information and Finance'. This was done to quantify the change in enterprise development from before the transformation initiatives to after the initiatives by the Mohair Trust. As defined earlier, enterprise development is the commitment by farmers, communities, government and the private sector of their time, knowledge and capital to improve and grow farming enterprises. In Chapter 4, it was clearly shown that there is a consensus among several authors, including Chatterjee and Hadi (2015), Peugh and Heck (2017), and Hayes and Montoya (2017), that when there are multiple dimensions of the variables, as in enterprise development, the grouping of such variables makes it easier to interpret the results. The dummy predictor variables in Tables 6.1 and 6.2 (i.e. Yes or No, etc.) may be directly entered as predictor or predicted variables in the OLR model. This is shown by assigning 0 and 1 coding to the variables in order to determine the impact. The variables chosen to be representative of enterprise development and capacity development were based on the extent of impact and the

relationship between the X and Y variables. The choice in this study was supported both by the literature and the previous studies that were reviewed.

The process in Table 6.1 was followed in order to determine the extent of change on any enterprise development dimensions as a result of the independent variable. This was determined on the basis of the odds value (Exp B), as shown in Table 6.8. The OLR model included the dependent variable which was newly created for enterprise development (see Table 6.1). Independent variables included village, age, education, farming status, market access and total income from the farming enterprise. The reason for the choice of questions relating to before and after was to establish an association between the two events. This was also to make it easier to group the variables and establish if there was a change in enterprise development in terms of its effectiveness.

Because of the challenges facing the smallholder mohair farmers and the cost associated with erecting a shearing shed on their own, it was evident that factors/variables such as access to a shearing shed, storage facilities, access to funding, location, age, education, farming status, market access and income need to be determined in order to assess the effectiveness of a mohair farming enterprise. Access to funding implies that the farming enterprise is likely to have a positive cash flow, whereas a business plan serves as a guiding document for improved management and the conversion of an enterprise into a profit-generating entity. Most importantly, it was deemed necessary to create new variables for enterprise development as borrowing money does not always mean the farmer has a positive cash flow. The disadvantage of borrowing could be the difficulties farmers face in repaying the money, which could even lead to the collapse of the farming enterprise.

Table 6.1: Process followed when generating new variables for enterprise development

Before questions	After questions	Enterprise development (newly created variables)	Implication
Before being part of the Mohair Trust initiatives, did you have access to a shearing shed?	After being part of the Mohair Trust initiatives, do you now have access to a shearing shed?	Shearing shed change variable: Only participants who said "No" before and "Yes" afterwards were assigned the number 1 for the new variable; all other participants were scored as 0.	1 = positive change 0 = negative change or no change
Did you have housing to store your mohair before being part of the initiatives?	Do you have housing to store your mohair after being part of the initiatives?	Housing change variable: Only participants who said "No" before and "Yes" afterwards were assigned the number 1 for the new variable; all other participants were scored as 0.	1 = positive change 0 = negative change or no change
Did you borrow money for your enterprise before being part of the initiatives?	Have you borrowed money for your farming enterprise after being part of the initiatives?	Borrow money change variable: Only participants who said "No" before and "Yes" afterwards were assigned the number 1 for the new variable; all other participants were scored as 0.	1 = positive change 0 = negative change or no change
Did you have a business plan before you were part of the initiatives?	Do you now have a business plan?	Business plan change variable: Only participants who said "No" before and "Yes" afterwards were assigned the number 1 for the new variable; all other participants were scored as 0.	1 = positive change 0 = negative change or no change
A total was calculated by summing all of the above change variables into a single enterprise development variable. This new variable was coded as follows: 0 = no change on any enterprise development dimensions; 1 = positive change on one enterprise development dimension; 2 = positive change on two enterprise development dimensions; 3 = positive change on three enterprise development dimensions; 4 = positive change on four enterprise development dimensions.			

Source: Survey (2016)

6.1.2. Analysis of capacity development spin-offs for previously disadvantaged communities

Table 6.2 shows a dependent variable that is representative of capacity development. This was to quantify the change in capacity development from before to after the initiatives by the Mohair Trust. The variables included in the model were guided by the literature review and the previous studies outlined in Chapters 2 and 4, respectively.

Table 6.2: Process followed when creating new variables for capacity development

Before questions	After questions	Capacity development (newly created variables)	Implication
Did you receive information on a frequent basis before being part of the Mohair Trust initiatives?	Did you receive information on a frequent basis after being part of the Mohair Trust initiatives?	Information change variable: Only participants who said "No" before and "Yes" afterwards were assigned the number 1 for the new variable; all other participants were scored as 0.	1 = positive change 0 = negative change or no change
	After being part of the initiatives, in which of the following did you expand: land, goats and/or production?	Expansion change variable1: Participants who indicated expansion in any of the mentioned categories were assigned the number 1 for the new variable. Participants who did not indicate expansion in any of the mentioned categories were assigned the number 0.	1 = expansion took place 0 = no expansion took place
A total was calculated by summing all of the above change variables into a single capacity development variable. This new variable was coded as follows: 0 = no change on any capacity development dimensions; 1 = positive change on one capacity development dimension; 2 = positive change on two capacity development dimensions; 3 = positive change on three capacity development dimensions; 4 = positive change on four capacity development dimensions.			

Source: Survey (2016)

The OLR model included the newly created variable for capacity development. The independent variables were age, gender, land ownership before the initiatives, involvement in mohair production before the initiatives, total income before the initiatives, total income from non-farming activities, farm acquisition, training received and record-keeping. The Mohair Trust is also entrusted with the responsibility of upskilling farmers with the technical know-how of mohair production. These variables were selected due to their influence in terms of capacity development.

6.2. RESULTS AND DISCUSSIONS

The results of the OLR model are presented and discussed in this section. As indicated earlier, the next sub-section is aimed at proving the assumptions for the OLR model, followed by the results of the model.

6.2.1. Evaluation of the enterprise development of smallholder farmers through the Mohair Trust

As discussed in Chapter 4, the assumptions relating to the OLR need to be satisfied before the model can be applied to check its effectiveness. To evaluate the enterprise development variable using the OLR model, several tests must be carried out to satisfy the requirements of the model. In this regard, multi-collinearity, proportional odds, model fitting and the model effects were all tested using the SPSS analytical tool. The ensuing sub-sections present the evidence of how the OLR model assumptions were satisfied.

6.2.1.1. Testing the assumptions of the OLR model

Table 6.3: Testing the assumption of multi-collinearity for enterprise development

Coefficients		
Variable	Collinearity statistics	
	Tolerance	Variable inflation factor (VIF)
Age	0.670	1.492
Farming status	0.667	1.500
No matric	0.601	1.663
Matric	0.627	1.596
Diploma	0.656	1.525
Market access	0.780	1.282
Total income before initiatives	0.791	1.264

Aberdeen	0.506	1.976
Cradock	0.620	1.612
Jansenville	0.649	1.540
Somerset East	0.522	1.917

Source: Researcher's own calculations

Based on the findings in Table 6.3. it can be concluded that there are no problems with multi-collinearity in the data. This was proved by all tolerance values being greater than 0.1 and all VIF values being less than 10. Since the first assumption of the OLR model was met, Table 6.4 below presents the results of the tests in terms of the proportional odds.

Table 6.4: Testing the assumption of proportional odds for enterprise development

Test of parallel lines ^a				
Model	-2 log likelihood	Chi-Square	df	Sig.
Null hypothesis	217.568			
General	211.004 ^b	6.564 ^c	11	0.833

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.
b. The log likelihood value cannot be further increased after the maximum number of step-halving.
c. The Chi-Square statistic is computed based on the log likelihood value of the last iteration of the general model. The validity of the test is uncertain.

Source: Researcher's own calculations

With reference to the results of the process of testing the assumption of proportional odds, it can be concluded that the assumption was met. The conclusion can be drawn from an assessment through a full likelihood ratio test comparing the fit of the proportional odds model to a model with varying location parameters presented as $\chi^2(11) = 6.564$, $p = 0.833$. The tests pertaining to the assumption of model fitting are presented in Table 6.5.

Table 6.5: Model fitting for enterprise development

Model	-2 log likelihood	Chi-Square	Df	Sig.
Intercept only	253.292			
Final	217.568	35,724	11	0,000

Source: Researcher's own calculations

From the row highlighted in grey in Table 6.5 above, it can be seen that the final model statistically significantly predicted enterprise development, over and above the intercept-only model, $\chi^2(11) = 35.724$, $p < 0.001$. In other words, the independent variables add statistically significantly to the model. In order to determine which of the independent variables significantly predicted enterprise development, it is important to perform the test of model effects, as presented in Table 6.6 below.

Table 6.6: Test of model effects for enterprise development

Tests of model effects			
Source	Type III		
	Wald Chi-Square	df	Sig.
Village region	8.007	4	0.091
Farming status	2.616	1	0.106
Education	8.226	3	0.042
Total income before initiatives	8.251	1	0.004
Market access	0.327	1	0.054
Age	3.973	1	0.046
Dependent variable: enterprise development Model: (threshold), village region, farming status, education, total income before initiatives, market access, age			

Source: Researcher's own calculations

Now that the assumptions of the OLR model are tested and met, it is crucial to run the model and present the results. Most importantly, Table 6.6 reveals that only education (Wald $\chi^2(3) = 8.226$, $p = 0.042$), total income before initiatives (Wald $\chi^2(1) = 8.251$, $p = 0.004$), market access (Wald $\chi^2(1) = 0.327$, $p = 0.054$) and age (Wald $\chi^2(1) = 3.973$, $p = 0.046$) had a statistically significant effect on the prediction of the number of enterprise development dimensions on which change was reported by participants from before to after the initiatives. This was shown by the degree of freedom (df) which indicates the number of dimensions that can vary in an analysis. In contrast, the village where participants came from (Wald $\chi^2(4) = 8.007$, $p = 0.091$) and their farming status (Wald $\chi^2(1) = 2.616$, $p = 0.106$) had no statistically significant effect on the prediction of the number of enterprise development dimensions on which change was reported by the participants. In order to determine the nature of the effects of education, total income before initiatives, market access and age on enterprise development, the parameter estimates in Table 6.7 below must be consulted.

Table 6.7: Ordinal Logistic Regression (OLR) estimates for enterprise development

Parameter		B	Std. Error	95% Wald Confidence Interval		Hypothesis test			Exp (B)	95% Wald Confidence Interval for Exp (B)	
				Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
Threshold	Enterprise development =0	3.783	1.2345	1.364	6.203	9.391	1	0.002	43.960	3.910	494.201
	Enterprise development =1	5.392	1.2872	2.869	7.915	17.546	1	0.000	219.653	17.621	2738.028
Village/Region=1		-0.783	0.5552	-1.871	0.305	1.988	1	0.159	0.457	0.154	1.357
Village/Region=2		-0.938	0.7133	-2.336	0.460	1.729	1	0.189	0.391	0.097	1.584
Village/Region=3		0.580	0.5799	-0.556	1.717	1.001	1	0.317	1.787	0.573	5.568
Village/Region=4		-0.327	0.6269	-1.556	0.902	0.272	1	0.602	0.721	0.211	2.464
Village/Region=5		0 ^a							1		
Farming status=0		0.765	0.4732	-0.162	1.693	2.616	1	0.106	2.150	0.850	5.435
Farming status=1		0 ^a							1		
Education=1 (No Matric)		1.542	0.6039	0.358	2.726	6.520	1	0.011*	4.674	1.431	15.267
Education=2 (Matric)		1.268	0.5591	0.173	2.364	5.147	1	0.023*	3.555	1.188	10.636
Education=3 (Diploma)		1.251	0.5629	0.147	2.354	4.935	1	0.026*	3.492	1.159	10.526
Education=4 (Degree/Postgrad Degree)		0 ^a							1		
Total income before initiatives=0 (Less than R25000)		1.463	0.5092	0.465	2.460	8.251	1	0.004*	4.317	1.591	11.710
Total income after initiatives=1 (R25000–R75000)		0 ^a							1		
Market access=0		-0.260	0.4542	-1.150	0.630	0.327	1	0.054**	0.771	0.317	1.878
Market access=1		0 ^a							1		
Age		0.038	0.0191	0.001	0.076	3.973	1	0.046**	1.039	1.001	1.079
Dependent variable: Enterprise development											
Model: (threshold), village/region, farming status, education, total income, market access, age											
a. Set to zero because this parameter is redundant.											

P<0.05**, p<0.01*; Survey data (2016)

The results from the OLR model show that out of six variables included in the model, four were significant and positively predicted enterprise development (Y). These variables were age, education, income and market access. The relevance of the model and its impact on the prediction of enterprise development (Y) are explained in detail in Tables 6.3 to 6.6 above. The significant variables predicted by the model imply that these variables are important to consider when implementing initiatives such as those by the Mohair Trust. However, of the variables selected none of them – on a scale of 0-4 – scored a 3 or 4. The reason might be that most of the transformation initiatives were still

fairly new and in the process of development and growth, but a positive change (1) was recorded in enterprise development.

Age of the farmer

The age of the farmer is significant at Wald $\chi^2(1) = 3.973$, $p = 0.046$ with an odds ratio of 1.039 (95% CI, 1.001 to 1.079). This means that an increase in age (expressed in years) is associated with an increase in the odds of change being shown on a greater number of dimensions on enterprise development, from before to after the initiatives. The variable age was predicted to be positive.

Education of the farmer

The education of the farmer is significant at Wald $\chi^2(1) = 6.520$, $p = 0.011$ with an odds ratio of 4.674 (95% CI, 1.431 to 15.267). This means that the odds of farmers with no matric showing positive change in enterprise development was 4.674 (95% CI, 1.431 to 15.267) times that of farmers with a degree/postgraduate degree, which is a statistically significant effect, Wald $\chi^2(1) = 6.520$, $p = 0.011$. The same trend was evident among both farmers with matric and those with a diploma compared with those with a degree/postgraduate degree. Farmers with matric had 3.555 times greater odds of showing positive change in enterprise development than those with a degree/postgraduate degree, while farmers with a diploma had 3.492 times greater odds of showing positive change in enterprise development than those with a degree/postgraduate degree.

The odds of people with matric showing positive change in enterprise development was 3.555 (95% CI, 1.188 to 10.636) times that of people with a degree/postgraduate degree, which is a statistically significant effect, Wald $\chi^2(1) = 5.147$, $p = 0.023$. The odds of people with a diploma showing positive change in enterprise development was 3.492 (95% CI, 1.159 to 10.526) times that of people with a degree/postgraduate degree, which is a statistically significant effect, Wald $\chi^2(1) = 4.935$, $p = 0.026$.

The above results indicate that the initiatives undertaken by the Mohair Trust significantly benefitted the participants without matric more than it did those with a degree or

postgraduate degree. The same can be said for those with a diploma. This was evidenced in the positive effect of education on enterprise development.

Total income of the farmer

The income of the farmer was significant at Wald $\chi^2(1) = 8.251$, $p = 0.004$. This means that the odds of farmers with a total income of less than R25 000 before the initiatives showing positive change in enterprise development were 4.317 (95% CI, 1.591 to 11.710) times that of farmers with a total income of between R25 000 and R75 000 after the initiatives. In other words, farmers with a lower total income before the initiatives were much more likely to show positive change in enterprise development after the initiatives than farmers with a higher total income before the initiatives. The contribution of the Mohair Trust's transformation initiatives was likely to have been of greater benefit to the participants with an income of R25 000 or less than to those with an income of between R25 000 and R75 000.

Market access has long been a challenge for smallholder farmers in South Africa. However, the Mohair Trust's provision of production support and services has been able to unlock some markets, enabling farmers to sell their produce and invest in their business operations.

The above results are in line with the findings of Adeyemo and Kayode (n.d.) who, in their study on enterprise development, reported positive change in education and income levels. However, the findings of Dingde *et al.* (2015) reported that positive change in enterprise development was predicted by age and enterprise location.

6.2.2. Analysis of capacity development spin-offs for previously disadvantaged communities

As per the discussion under 6.2.1, similar tests were performed on the dependent variable, capacity development, with the aim of satisfying the assumptions of the OLR model. The model dictates that assumptions such as the testing of multi-collinearity,

proportional odds, model fitting and the model effects need to be performed for the model to be applied. The sub-sections below present the results of the tests performed.

6.2.2.1. Testing of the OLR assumptions

Table 6.8: Testing the assumption of multi-collinearity for capacity development

Coefficient		
Variable	Collinearity statistics	
	Tolerance	Variable inflation factor (VIF)
Gender	0.915	1.093
Lease	0.224	4.457
Title deed	0.216	4.628
Involved in production before initiatives	0.926	1.080
Total income before initiatives	0.862	1.160
Total income non-farm activities	0.843	1.187
Private purchase	0.358	2.797
Land reform	0.245	4.082
Group farming	0.333	3.005
Training received	0.924	1.082
Record keeping	0.846	1.182

Source: Researcher's own calculations

With reference to Table 6.8, it can therefore be concluded that there are no problems with multi-collinearity in the data relating to capacity development. This was proved by all tolerance values being greater than 0.1 and all VIF values being less than 10. Since the first assumption of the OLR model was met, Table 6.9 below presents the results of the tests in terms of the proportional odds.

Table 6.9: Testing the assumption of proportional odds for capacity development

Test of parallel lines ^a				
Model	-2 log likelihood	Chi-Square	df	Sig.
Null hypothesis	180.935			
General	169.303 ^b	11.633 ^c	12	0.476
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				
b. The log likelihood value cannot be further increased after the maximum number of step-halving.				
c. The Chi-Square statistic is computed based on the log likelihood value of the last iteration of the general model. The validity of the test is uncertain.				

Source: Researcher's own calculations

With regard to the results that emerged from testing the assumption of proportional odds, it can be concluded that the assumption was met. This conclusion is based on an assessment involving a full likelihood ratio test comparing the fit of the proportional odds model to a model with varying location parameters presented as $\chi^2(12) = 11.633$, $p = 0.476$. The tests pertaining to the assumption of model fitting are presented in Table 6.10 below.

Table 6.10: Model fitting information for capacity development

Model	-2 log likelihood	Chi-Square	Df	Sig.
Intercept only	208.072			
Final	180.935	27.136	12	0.007
Link function: Logit				

Source: Researcher's own calculations

From the row highlighted in grey in Table 6.10 it can be proven that the final model statistically significantly predicted capacity development, over and above the intercept-only model, $\chi^2(12) = 27.136$, $p < 0.05$. In order to establish which of the independent variables significantly predicted capacity development, Table 6.11 is deemed important.

Table 6.11: Test of model effects for capacity development

Test of model effects			
Variables	Type III		
	Wald Chi-Square	df	Sig.
Gender	0.038	1	0.846
Land ownership before initiatives	10.932	2	0.004
Involved in production before initiatives	0.282	1	0.595
Total income before initiatives	3.918	1	0.048
Total income from non-farm activities	0.299	1	0.585
Farm acquisition	3.398	3	0.334
Training received	1.042	1	0.007
Record-keeping	1.027	1	0.011
Age	0.359	1	0.054

Source: Researcher's own calculations

Now that the assumptions of the OLR model are tested and met, it is crucial to run the model and present the results. Most importantly, Table 6.11 reveals that only land ownership before the initiatives (Wald $\chi^2(2) = 10.932$, $p = 0.004$), total income before the initiatives (Wald $\chi^2(1) = 3.918$, $p = 0.048$), training received (Wald $\chi^2(1) = 1.042$, $p =$

0.007) and record-keeping (Wald $\chi^2(1) = 1.027$, $p = 0.011$) had a statistically significant effect on the prediction of the number of capacity development dimensions on which positive change was reported by participants from before to after the initiatives. In contrast, all other independent variables included in the model had no statistically significant effect on the prediction of the number of capacity development dimensions, referred to as the degree of freedom (df) on which positive change was reported by the participants. To determine the nature of the effects of land ownership, total income, training received and record-keeping on capacity development, the parameter estimates are presented in Table 6.12 below.

Table 6.12: Ordinal Logistic Regression (OLR) estimates for capacity development

Parameter Estimates											
Parameter		B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
				Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
Threshold	Capacity Development=1	0.947	1.5971	-2.184	4.077	0.351	1	0.553	2.577	0.113	58.962
	Capacity Development=2	4.232	1.6427	1.012	7.452	6.637	1	0.010	68.864	2.752	1722.980
Gender=0		-0.093	0.4778	-1.029	0.844	0.038	1	0.846	0.911	0.357	2.325
Gender=1		0 ^a							1		
Land ownership before initiatives=1 (permission to occupy)		1.506	0.8775	-0.214	3.226	2.947	1	0.086	4.510	0.808	25.182
Land ownership before initiatives=2 (title deed)		1.435	0.4578	0.537	2.332	9.820	1	0.002*	4.198	1.711	10.298
Land ownership before initiatives=3 (lease)		0 ^a							1		
Involved in production before initiatives=0		-0.303	0.5714	-1.423	0.816	0.282	1	0.595	0.738	0.241	2.263
Involved in production before initiatives=1		0 ^a							1		
Total income before initiatives=0 (Less than R25 000)		-0.934	0.4720	-1.859	-0.009	3.918	1	0.048**	0.393	0.156	0.991
Total income before initiatives=1 (R25 000 to R75 000)		0 ^a							1		
Total income from non-farm activities=0		0.249	0.4554	-0.644	1.141	0.299	1	0.585	1.283	0.525	3.131
Total income from non-farm activities=1		0 ^a							1		
Farm acquired=1		1.317	0.9849	-0.613	3.248	1.789	1	0.181	3.733	0.542	25.727
Farm acquired=2		1.358	0.8582	-0.324	3.040	2.504	1	0.114	3.888	0.723	20.904
Farm acquired=3		1.706	0.9263	-0.110	3.521	3.390	1	0.066	5.504	0.896	33.823
Farm acquired=4		0 ^a							1		
Receive training=0		-0.404	0.3960	-1.181	0.372	1.042	1	0.007*	0.667	0.307	1.451
Receive training=1		0 ^a							1		
Keep records=0		1.056	1.0427	-0.987	3.100	1.027	1	0.011*	2.876	0.373	22.198
Keep records=1		0 ^a							1		
Age		-0.011	0.0186	-0.048	0.025	0.359	1	0.054**	0.989	0.953	1.026

Dependent variable: Capacity development Model: (threshold), Gender, land ownership before initiatives, involved in production before initiatives, total income before initiatives, Total income from non-farm activities, farm acquisition, training received, record keeping, age a. Set to zero because this parameter is redundant.

P<0.05**, P<0.01*; N=150; Source: Survey data (2016)
 Marginal effects could not be calculated since SPSS V.24 was used in the analysis.

The OLR model results show that out of eight variables included in the model, only five were significant in predicting capacity development (Y). The significant variables were age, land ownership, income, training and record-keeping. The relevance of the model and impact on the prediction of enterprise development (Y) were explained in detail in Tables 6.8 to 6.11 above. The significant variables predicted by the model imply that these variables are important to consider when implementing initiatives such as those of the Mohair Trust.

Age of the farmer

The age of the farmer was significant at Wald $\chi^2(1) = 0.359$, $p = 0.054$. In other words, people of a younger age are more likely to show positive change in capacity development than those of a more advanced age. The trend was also evidenced in enterprise development, which means that a younger farmer is equated with the ability to be more efficient and productive in farming operations.

Land ownership of the farmer

Land ownership was significant at Wald $\chi^2(1) = 9.820$, $p = 0.002$ for the farmers whose land entitlement was through a title deed. This means that the odds of farmers with a title deed before the initiatives showing a positive change in capacity development were 4.198 (95% CI, 1.711 to 10.298) times higher than those of farmers with a lease before the initiatives. The effect of 'land ownership before the initiatives' on the number of dimensions of capacity development showed a positive change from before to after the initiatives. In other words, people with a title deed before the initiatives were much more likely to show a positive change in capacity development after the initiatives than people with a lease before the initiatives. Furthermore, having a title provides financial security which may translate into a farmer's ability to expand.

Total income of the farmer

The total income of the farmer was significant at (Wald $\chi^2(1) = 3.918$, $p = 0.048$). This means that the odds of farmers with a total income before the initiatives of less than R25 000 showing a positive change in capacity development were 2.545 (95% CI, 0.629 to 0.085) times less than those of farmers with a total income before the initiatives of between R25 000 and R75 000. In other words, people with lower total income before the initiatives were less likely to show a positive change in capacity development from before to after the initiatives than people with a higher total income before the initiatives.

Training received by the farmer

The training received by the farmer was significant at (Wald $\chi^2(1) = 1.042$, $p = 0.007$). This means that an increase in training (in mohair production, financial management, handling and classing) for the farmer resulted in an increase in capacity development.

Record-keeping by the farmer

The keeping of records by the farmer on farm operations was significant at (Wald $\chi^2(1) = 1.027$, $p = 0.011$). This means that the more capacitated the farmer was, the greater his or her ability to keep records on the day-to-day farming operation. The above results on training and record-keeping were in line with those of Beck (2007) who indicated that extension services are a means of capacitating farmers. Extension services play a crucial role in empowering farmers with practical farming techniques, knowledge and management skills. In addition, extension services provide essential information to farmers regarding agricultural initiatives and interventions, such as farm production methods, farm management and marketing (Beck, 2007).

A discussion on the growth of smallholder farming would be incomplete without reference to support services (Machethe, 2004). The above results show that the capacity initiatives of the Mohair Trust, such as training in farm management, shearing and Angora goat management, benefitted the farmers. In particular, as proven empirically, training and record-keeping are significant for the success of every farming enterprise.

6.3. SUMMARY

Chapter 6 analysed the different attributes of the farmer in relation to capacity and enterprise development with the aim of providing the selection criteria to be considered in the establishment and implementation of agrarian transformation projects in the future. The OLR model was applied to determine which of the independent variables predicted enterprise and capacity development. To ensure that the assumptions of the OLR model were met, tests were performed to check multi-collinearity, proportional odds, model fitting and model effect; while the dependent variables, enterprise development and capacity development, were quantified. The independent variables such as market access, education, total income and age were found to be critical considerations in the implementation of agrarian transformation projects. Variables such as land ownership, total income, training received, record-keeping and age were found to be critical factors for the establishment of agrarian transformation projects.

The participants with an income of less than R25 000 showed a positive change, with those having a title deed showing a more positive change than those holding a lease. In terms of education, participants with no matric, matric or a diploma showed a more positive change than those with a degree or postgraduate degree.

CHAPTER 7: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1. SUMMARY AND CONCLUSIONS

As discussed in Chapter 1, the objective of this chapter is to draw conclusions and recommendations from the results. The main purpose of the mohair industry transformation initiatives is to promote Black Economic Empowerment (BEE) within the mohair industry. The principal objective of the Mohair Trust is to provide training, support and assistance to emerging farmers to help them start up and manage agricultural operations. This is aimed at ensuring that previously disadvantaged farmers become empowered and can access the benefits offered by the industry. The industry, in turn, seeks to ensure that a well-capacitated pool of emerging farmers graduate to commercial Angora goat farming, thereby accelerating the entrance of black entrepreneurs into the industry.

In summary, the Mohair Trust makes funds available to the Mohair Empowerment Trust to engage in transformation activities. The success of these initiatives is evidenced in the results of this study. The industry has made great strides in developing and transforming the livelihoods of communities and the mohair industry in the Eastern Cape Province of South Africa. Nonetheless, there is still more to be done given the disparities in terms of youth participation, land ownership, investment in infrastructure (on-farm and off-farm) and employment.

Chapter 1 dealt with the problem statement and the objectives of the study. The primary objective of the study was to determine the benefits of agrarian transformation projects initiated by the mohair industry in the Eastern Cape Province. This was achieved through the secondary objectives which were: (a) Conduct a literature review that will guide the methodological approach, i.e. a survey and questionnaire design and appropriate methodology for statistical analysis; (b) Provide an overview of the industry and study region; (c) Measure the impact of socio-economic variables on enterprise and capacity

development using descriptive statistics; (d) Determine different attributes of the farmer in relation to capacity and enterprise development. This is to provide selection criteria to guide the establishment and implementation of future initiatives, such as those of the Mohair Trust; (e) Analyse the effectiveness of the enterprise development initiatives of the Mohair Trust and evaluate the capacity development spin-offs of these initiatives for smallholder farmers; (f) Analyse the value chain linkages for smallholder enterprises that have been created through the Mohair Trust; and (g) Draw conclusions and recommendations from the results. The primary data was collected by means of a questionnaire and analysed using SPSS.

International studies by (but not limited to) Sen (2016), Blank (2013), Timmer *et al.* (2012), Briones and Felipe (2013) and Sanghvi *et al.* (2011) emphasise that government policies were the main foundation for transformation in the United States, and were aimed at supporting research, introducing appropriate legislation, subsidising agricultural projects and improving access to low-interest credit. However, in Asia, agricultural transformation led to a decline in agriculture's share of employment, in contrast to a growing share of output, and rapid growth in labour and land productivity. The catalysts for agricultural transformation in Asia were the promotion of long-term productivity growth in agriculture and the facilitation of upgrades on farms and agro-enterprises within the value chain. Relevant studies indicate that Chinese reform focused strictly on smallholder farmers, manifesting as programmes introduced at the micro level through the supply of extension programmes in every region, and the provision of finance and support for technology adoption (Sen, 2016; Blank, 2013; Timmer *et al.*, 2012; Briones and Felipe, 2013; Sanghvi *et al.*, 2011).

Timmer (2009), Reardon, Delgado and Matlon (1992), Delgado (1997), Mudhara (2010), Beyerlee (2000), Tsakok (2011) and others assert that for a country to transform its agricultural sector, it needs to invest more in human development (skills), infrastructure and technologies, and to develop specific transformation policies for the sector. However, the transformation process involves multiple stages and can take decades, as evidenced in labour declining and productivity increasing in Asia and other parts of the world. Transformation can take different forms, which could be 'the good way or the bad way'.

For example, Zimbabwe transformed its agricultural sector the bad way by forcing white farmers off their land and assuming ownership under the guise of political entitlement. Agricultural transformation occurred in a good way in several South and North American and Asian countries, where citizens and farmers were empowered through industrialisation programmes, which in turn boosted their countries' GDP.

In this study, a sample of 150 smallholder farmers was obtained and a questionnaire survey was conducted for the purpose of data collection. Chapters 2 and 4 provided insight into the selection of variables and the model specification. Studies conducted by Ugwu and Odo (2014) emphasise the need for more programmes, such as the Comprehensive Africa Agriculture Development Programme (CAADP), New Partnership for Africa's Development (NEPAD), Southern Agricultural Growth Corridor of Tanzania (SAGCOT) and Agricultural Transformation Agency (ATA), to address issues associated with transformation in the agricultural sector in the SADC region. In South Africa, the success of industry transformation initiatives rests more specifically on the support provided by programmes such as the AgriBEE Fund, MAFISA and CASP, as well as public-private partnerships (PPPs) in fast-tracking agricultural transformation.

Farmers are motivated to produce on a sustainable basis. Empirical evidence has shown that profitable markets can change the livelihoods of poor farmers, but only if smallholder farmers have access to these markets. According to Louw *et al.* (2008), graduating from smallholder farming to commercial farming remains a considerable challenge.

The results of the descriptive analysis in this study provide the characteristics of farmers and the levels of success, and generalised that farmers have, notwithstanding the challenges, benefitted tremendously from the introduction of the mohair industry transformation initiatives. Results show that there were more men than women participating in these initiatives. Important, too, is the fact that there is a gap in terms of youth participation in these initiatives. This was evidenced in the average age of farming participants being 40 years, with average farming experience being eight years. The majority of the participants were African blacks, followed by coloureds and then whites. The most common education level among participants was matric, followed by no matric,

a degree, a diploma and a postgraduate degree. This implies that education plays a crucial role in making more informed decisions about and managing a farm. It was evidenced that the more capacitated a farmer is, the more productive he or she becomes.

The employment figures show that, after the introduction of the transformation initiatives, most of the participants became more active in farming, with numbers increasing from 111 (74%) before the initiatives to 142 (94.7%) afterwards. The number of people employed in the public sector declined (10.7%), several of whom moved into hands-on farming (52%) or the commercial sector (29%). This then led to more farmers' farming status changing from part-time (36.6%) before the initiatives to full-time (63.3%) afterwards. Alternative sources of income play a crucial role maintaining a positive cash flow and enable farmers to engage in farm diversification activities. This implies that if more resources such as finance and land are invested in the agricultural sector, the greater farmers' overall participation will be. Greater access to resources enhances a farmer's ability to farm, to advance his or her skills, and to become more innovative in how farm activities are conducted.

Income from farming rose from 59.3% before the initiatives to 66.7% after the initiatives, whereas income from non-farming activities decreased from 36.7% before the initiatives to 21.3% after the initiatives. The majority of farmers earned an income (both farming and non-farming) of less than R25 000 before and after the initiatives which indicated that there was little or no improvement in their income-generating potential.

Most farmers secured better market access after the introduction of the initiatives by using the services of brokers who acted as a marketing channel. Improved market access was also due to increases in production, quality and logistics assistance as well as group marketing. As a result, the majority of farmers switched from selling at auctions and knitting companies to giving the responsibility to brokers to act as their intermediaries and/or middlemen or selling as a group in order to make up bales and improve their incomes. The role of brokers is often questioned as they purchase products at a lower price and sell at a higher price due to their ability to negotiate favourable sales price with buyers. Information in this regard was obtained mainly from mohair industry associations

and extension officers as opposed to government and research institutes. Most of this information focused on market price dynamics, and production and marketing trends.

The majority of farmers in the industry leased land and their potential to expand (land, goats, production and farming operations as a whole) appeared to be very good. Most farmers borrowed money from financial institutions, with commercial banks being the leading source (49.3%) followed by the Land Bank (34.7%). Most also had business plans in place, underwent training, kept records and employed the majority of people who worked in their farming enterprises.

The empirical analysis results show that four out of six variables included in the model were positively significant and predicted enterprise development (Y). These variables were age, education, market access and income. Age was significant at $p=0.046$, education at $p=0.011$, income at $p=0.004$, and market access at $p=0.054$. Furthermore, the results of the empirical analysis reveal that out of eight variables included in the model, only four were significant and predicted capacity development (Y). These variables were land ownership, income, training and record-keeping. Land ownership was significant at $p=0.002$, income at $p=0.048$, training at $p=0.007$, and record-keeping at $p=0.011$. The study can confirm that the Mohair Trust, through its interventions (which are aligned to government imperatives), has significantly benefitted the smallholder farmers in the Eastern Cape Province. This is evident from, for example, increased incomes, more job opportunities, and the majority of farmers having been trained and keeping records on their farming operations.

7.2. RECOMMENDATIONS

7.2.1. Land ownership

The results of the study revealed that most of the farmers are farming on leased land under relatively short leases, which poses a threat to their ability to access credit because of the need to provide the lender with financial security. The leasing of land by farmers has created challenges for enterprises in terms of profitability and cash flow. As long as the agricultural sector remains vulnerable to risks such as drought, climate change,

market volatility, limited land ownership and uncertainty surrounding land reform (which has resulted in a decline in the number of commercial farmers), the transformation of the sector and industry as a whole will be constrained.

On the basis of the study, the following are recommended:

- Since the leasing of land for short periods affects the profitability and sustainability of farming enterprises, the lease period should be extended to at least 20 years or more to allow continuity and to keep attracting new entrants into mohair farming.
- The Department of Rural Development and Land Reform (DRDLR) should ensure that the beneficiaries of land reform programmes are encouraged to pursue the full ownership route. This process should be monitored on a regular basis to assist in fast-tracking ownership deals for smallholder farmers and generally boosting productivity.

7.2.2. Transformation levy and government programmes

Since the study found that smallholder mohair farmers face challenges in terms of accessing funds/credit, public-private partnerships (PPPs) become important. Lack of support from government and other related stakeholders has resulted in the slow pace of transformation in the agricultural sector due to a lack of investment. As a result, the following are recommended:

- Established entities such as the Mohair Empowerment Trust, Grain Farmer Development Association and National Emerging Red Meat Producers Organisation could play a role in driving sectoral transformation. Funds (perhaps in the form of, or in addition to, a once-off transformation levy) could be channelled into such entities and applied to different commodity groups and/or regions. In addition, involving rural development and treasury departments would help to create a more integrated approach to supporting emerging/smallholder farmers. Already there are some good programmes in place, such as CASP, the AgriBEE Fund, MAFISA and Recapitalisation, which could be tapped more vigorously.

Ultimately, adopting a holistic approach to the channelling of productive resources towards the small-scale farming community would go a long way towards enhancing its efficiency levels and long-term prospects.

- Collaboration between private and public sector entities, farmers and commodity groups/associations is crucial, particularly as it will encourage government and industry to jointly contribute, rand for rand, to transformation efforts in the agricultural sector. Industry would bring technical expertise while the government would oversee the process and lend its support in addressing socio-economic priorities, such as creating a job-friendly environment, improving food security, and bringing about greater gender and income equality.
- Investment (on-farm and off-farm) is central to agricultural development in South Africa and should be strongly encouraged and possibly incentivised, as farmers need to continuously improve and expand to meet local and international requirements.

7.2.3. Farmer support programmes

Although support has been provided to both new and long-established farmers through programmes such as CASP, the AgriBEE Fund, Letsema, the Recapitalisation and Development Programme and MAFISA, this has produced only a small number of smallholders who are involved in agribusiness, and of these very few are directly linked to markets. The success of smallholder farmers depends on a comprehensive farm enterprise support package, which should include:

- Favourable commodity pricing;
- Access to finance;
- Access to technical expertise/mentorship; and
- Firm contacts with the market.

Currently no substantial support package is in place. Another problem is that government initiatives tend to cause dependency and the sector is struggling. To avoid dependency, government should encourage farmers to try other means of financing their enterprises

such as loans or, alternatively, to invest the profits generated from farm operations. The government should consider providing better incentives for commercial farmers who are willing and capable of mentoring smallholder farmers. In addition, few land reform beneficiaries are progressing into sustainable farming enterprises; thus, up-skilling of new entrants in the farming sector is an urgent priority.

7.2.4. Policy orientation

The development of an inclusive transformation policy would assist by providing strategic direction on how to bring about sustainable transformation. There is no real policy on agricultural transformation in South Africa apart from AgriBEE and land reform, which has served to retard transformation in the sector. Clearly, the issue of race should not be the focal point of the policy; instead, greater emphasis should be given to critical areas such as technology adoption, access to finance, land ownership, investment in infrastructure, product improvement and skills development.

7.2.5. Recommendation for further research

This study has identified some of the successes and failures of agricultural transformation globally and locally. There were several gaps which limited the study findings such as the limited documented literature on agricultural transformation (other than that on industrial transformation) and a general lack of tangible outcomes. There is an urgent need for more empirical research on issues relating to the assimilation of smallholder farmers into the commercial farming sector. For example, research should investigate those variables (identified in the literature review) that impact agricultural transformation and how, in practical terms, transformation initiatives could integrate smallholder farming operations into the processing segments of the agricultural value chain.

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