



**Development of an Extension Framework for Smallholder Farming in the Western
Cape Province of the Republic of South Africa**

By

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A handwritten signature in black ink, appearing to be "MLP", written over the printed name.



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ABSTRACT

Despite the role of extension being that of improving farming efficiency, public sector extension services is perceived to be ineffective and inadequate in improving sustainable smallholder farming. Several attempts have been made to improve the agricultural extension sector of the South African economy. However, there is still a growing concern for provision of effective and sustainable agricultural extension services to the majority of resource poor farmers who are involved in the bulk of agricultural production. The importance of the agricultural extension system therefore, remains that of a support service to enhance the ability of farming communities to respond to historic challenges and to exploit new opportunities.

The aim of this study was to formulate an extension framework for smallholder farming in the Western Cape Province. The objectives of the study were to determine the effectiveness of government extension services, to assess the factors that could influence the linkages between smallholder farmers and extension services, to examine factors that could be perceived by public extension officers as challenges in smallholder farming, to evaluate the usefulness of new innovations introduced through the extension service department and to develop a framework for extension service delivery in the Western Cape in order to improve the effectiveness of this service.

The study used an explanatory research design which involves both qualitative and quantitative research approaches. The study consisted of a randomly selected sample size of 213 smallholder farmers and the sampling technique was non-probability sampling such as typical case purposive sampling. The study revealed through descriptive analysis that the gender representation in the sample was more skewed towards the female (68.08%) majority. The age difference within the sample was also skewed towards youth and economically active smallholder farmers with the majority of respondents being illiterate and semi-illiterate in their educational profiles. Hence, 83.57% of these farmers benefited from short learning government agricultural training. Furthermore, the study revealed that in a less complex environment, sufficient agricultural advice, expert linkage and usage of video have significant impact on the effectiveness of government extension services with regards to smallholder farmers.

In a more complex situation the evidence suggests that an increase in expert linkages and usage of videos are the most influential factors to drive the effectiveness of government extension services in these types of farmers. In addition, the findings indicate that at lower levels of educational achievement both male and female smallholder farmers view expert linkages as the most effective factor that could improve government extension service followed by the provision of sufficient agricultural advice and usage of video. The rankings amongst both male and female educated smallholder farmers suggest that the usage of video and expert linkage are the most effective instrument that could improve government extension services.

The results further indicate that contacts, capacity building and demonstration have higher impact on the linkages between smallholder farmers and extension officers when network, communication and coordination were held constant. These imply that in an ideal situation, contacts, capacity building and demonstration have a higher degree of impact in determining the incremental and sustainable linkages for these stakeholders. However, poorly educated male smallholder farmers suggest that demonstration was more important in linking them with extension service whilst the female counterparts think that frequency of contacts was the most likely factor that could have linked them to this service. Higher educated smallholder farmers suggested that capacity building and demonstration were the most likely factors that could link them to extension services regardless of their gender differences.

The results for the factors that could determine challenges and perceptions of extension services revealed that lack of financial access could significantly reduce the likelihood of extension services to be perceived positively whilst technology access was viewed to be significant in increasing the likelihood of extension services to be perceived as positive. Furthermore, access to technology is viewed by both male and female smallholder farmers as the key challenge to the image of the public extension officers with the lack of finance being regarded as the most challenge for male who have TVET and degree qualifications. The findings regarding the effectiveness of government extension point out that the extension service in Western Cape Province still require significant and sufficient linkages, advice and usage of videos to be effective. The study revealed that it was almost impossible to develop a one-size fit all approach, but suggested some key elements for such a framework to be able to respond to the needs of smallholder farmers.

Regarding the linkages between farmers and extension services, the study has uncovered that there are varying linkages which point out that high impact linkages could be established through frequency of contacts, capacity building and demonstration. Furthermore, it is also evident that the challenges and the perception in the extension services still exist despite various initiatives and to avert such challenges and perception, financial and technical technology access is suggested to be essential.

Keywords: Extension, Linkages, Innovation, Development, Service, Smallholder farmers

DECLARATION OF ORIGINALITY

I, Mohale Peter Schopetsa, do hereby declare that this is the result of my own investigation and research and that it has not been submitted for a degree at any other institution of higher learning.



M.P. Schopetsa

22.12.2018

Date

DEDICATION

I dedicate this work to God Almighty my Creator, my strong pillar, my source of purpose, wisdom, knowledge and understanding. He has been a source of strength during this journey and on His wings only have I soared. I also dedicate this work to my lovely wife, Rhulani, who has been a constant source of support and encouragement during this very important journey of my life. I am truly thankful for having you in my life, thank you! To my children Lethabo, Thabi and Nkateko who have been affected in every way possible by this quest, sincere thanks to you. My love for you can never be quantified. God bless you.

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LIST OF ACRONYMS

AKIS	Agricultural Knowledge and Information System
ARC	Agricultural Research Council
CAADP	Comprehensive Africa Agricultural Development Programme
CASE	Community Agency for Social Enquiry
CASP	Comprehensive Agricultural Support Programme
CBE	Commodity-Based Extension
CBOs	Community-Based Organizations
Conex	Department of Conservation and Extension
CSOs	Civil Society Organisations
DAFF	Department of Agriculture Forestry and Fisheries
DBSA	Development Bank of South Africa
DEVAG	Department of Agricultural Development
DRDLR	Department of Rural Development and Land Reform
EU	European Union
FBOs	Faith Based Organizations
FFS	Farmer Field School
FTs	Farmer Technicians
GDP	Gross Domestic Products
GNP	Gross National Product
ICT	Information Communication Technology
IF	Implementation Framework
IGDP	Integrated Growth and Development Plan
LRAD	Land Redistribution for Agricultural Development
MDG	Millennium Development Goals
NALEP	National Agricultural and Livestock Extension Programme
NAMC	National Agricultural Marketing Council
NDA	Non-disclosure Agreement
NDP	The National Development Plan
NAEP	National Agricultural Extension Policy
NEPAD	New Partnership for Africa's Development

NERPO	National Emergent Red Meat Producer's Organization
NGOs	Non-Governmental Organisations
PDOA	Provincial Department of Agriculture
PPP	Public-Private Partnerships
SAPs	Structural Adjustment Programmes
SL	Sustainable Livelihoods
SPSS	Statistical Package for Social System
SRA	Strategy to Revitalise Agriculture
T&V	Training and Visit
TOT	Transfer of Technology

CHAPTER 1

OVERVIEW OF THE STUDY

1.1 INTRODUCTION

It is the goal of the South African government to see agriculture playing a pivotal role in the socio-economic emancipation of the rural people and those living and farming in commonages. The National Development Plan sets a goal of one million new jobs in the agricultural sector and related industries nationally by 2030 (NDP, 2013). A key part of the plan is to pick and support commercial farming sectors which can expand on a sustainable basis given the demand conditions in the domestic and foreign markets for agricultural goods. The need to revitalise agriculture and agro-processing value chains was echoed by State President, Jacob Zuma in his 2015 State of the Nation Address. This was coupled with his reaffirmation of the Government's commitment to provide agricultural support services (State of the Nation Address, 2015).

The call from the State President not only demonstrates the importance of the agricultural sector in the South African economy, but it is also an indication of a broad South African commitment to renewal and non-racialism. At a continental level, the African Heads of State adopted the Comprehensive Africa Agricultural Development Programme (CAADP) in 2003, aimed at strengthening the agricultural sector. The slow endorsement of the CAADP by African countries appears to have adverse impact on its effectiveness regarding elimination of extreme hunger and poverty. In South Africa, hunger and extreme poverty are more pronounced in rural and peri-urban areas (Mmbengwa, 2011).

Agriculture plays an important role in the economy of South Africa, however, a noticeable decline has been observed at different rates, for example, from 1930 it declined by 20% and in the 1960 by 12% and 1990 by 7 % (South Africa Year book 2010/11:39). The initiative of 'Zero hunger' by the Department of Agriculture Forestry and Fisheries (DAFF) attest to the fact that the problem of food security is a matter of concern that requires urgent attention. Therefore, agricultural extension and advisory service if properly applied may play a significant role in fighting poverty.

The agricultural sector in South Africa is associated with a two tiered economy (Vink & Kirsten, 2003). It consists of a solid network, highly capitalised commercial sector with approximately 35 000 white farmers, producing around 95% of agricultural output on 87% of total agricultural land (Aliber & Hart, 2009). In contrast, the other side of the sector consists of approximately 4 million black farmers conducting farming operations on 13% of agricultural land of South Africa (Aliber & Hart, 2009).

This two tiered structure that exists between the established farming sector and the struggling smallholder sector is a direct result of historical patterns of the past which systematically eroded successful land-based production systems and livelihoods in South Africa (Neves et al., 2009). Even after 20 years of democracy, this sector continues to be characterized by inequality in terms of the distribution of economic assets, support services, market access, infrastructure and income (Oettle et al., 1998).

In addition, various policies were introduced from 1910 onwards that favoured the white commercial farming sector and this increased the gap between smallholder and commercial farming in South Africa. After democracy was achieved in 1994, reforms were introduced to support smallholder agriculture in South Africa in the form of infrastructure grants, production input support, access to finance and capacity building. The goal of the new administration was to narrow the aforementioned gaps where both large and small farm enterprises could compete in locally and globally (Van Averbeke & Mohamed, 2006).

However, evidence suggests that these programmes have been ineffective in stimulating rural growth and poverty alleviation. These gaps in the agricultural sector continue to exist with smallholder farmers in South Africa having limited access to markets, inputs and credit as well as constrained property rights and relatively high transaction costs (Perret et al., 2005; Ortmann & King, 2006; Hall & Aliber, 2010). According to Departments of Agriculture Forestry and Fisheries (DAFF) and Rural Development and Land Reform (DRDLR) many households are made up of disadvantaged farmers who are vulnerable to food insecurity and practice subsistence agriculture in overcrowded semi-arid areas (Mmbengwa, 2011). Most of these farmers are located in the rural areas of South Africa and are non-commercial, thus their contribution to Gross National Product (GNP) is still limited (Makhura, 2001). Public sector extension and advisory services are viewed as one of the drivers for advancing the objectives of NDP.

Many authors have identified the key challenges of extension services in South Africa and how the smallholder farmers are being affected ranging from access to land, access to capital, access to markets and lack of technical skills (Duvel 2002, Zwane, 2009, Shange, 2014) and in many places around the world have seen it to be ineffective (Rivera, 1991; Swanson, 2011). Results have been documented and the most affected targets are smallholder farmers (Shange, 2014) and this includes land reform farmers.

Swanson & Rajalahti (2009) argued that public sector extension service providers are criticized for being ill-equipped to take the lead in market-oriented extension which is key to viability of smallholder farmers. Kirsten et al. (2005) reported that the absence of financial support, after-care, conflict management amongst the land reform beneficiaries, lack of farming skills and knowledge are common symptoms of lack of capacity. The high failure rate of land reform enterprises has generated a lot of concern on the role played by public sector extension and advisory services. Recent reports indicate that weak extension services are the reason for such a lack of progress for most of the land reform farms.

In a review of land reform farms in the North-West Province, by Kirsten et al. (2005) it was found that land reform farms received limited technical advice and support from the Provincial Department of Agriculture (PDOA). Another study carried by Community Agency for Social Enquiry (CASE, 2005) revealed that technical assistance rendered to restitution farms was totally inadequate and that often extension officials did not have appropriate skills to provide the necessary technical assistance.

The purpose of this study is to formulate an extension framework for smallholder farming in the Western Cape, case study of the Western Cape Department of Agriculture.

1.2 BACKGROUND TO THE STUDY

According to Duvel (2002) the extension services have been blamed for failing to deliver according to its mandate. Their credibility has been questioned and lacking competence has led to a waning confidence and commitment on the part of the extension workers. Where successes have been achieved, there has usually been an absence of tangible evidence due to a lack of accountability and systematic and regular evaluation (Duvel, 2002).

This has been exacerbated by changes within the country as well as changes in the international extension environment, which have led to additional constraints and challenges demanding a reconsideration and adaptation of the extension approach. The political transformation in 1994 led to a democratization and restructuring of the extension service and also gave birth to the Western Cape Province which consist of five district Municipalities and a Metro engaged in both commercial and subsistence farming.

National agricultural extension and advisory systems worldwide have undergone major changes during the past two or more decades (FAO, 2008). These changes are due to several factors, including success of the Green Revolution in increasing food security; the growth of the commercial farm sector, particularly in developed countries and trade liberalisation which is contributing to a rapidly developing food system. In South Africa, the delivery of agricultural extension and advisory services is still largely the responsibility of the government through the Provincial Departments of Agriculture. The services started experiencing some challenges in the last two decades due to socio-economic changes and agriculture sector reforms taking place. Given the increase in food prices in 2008, high demand for agricultural products, climate change and constrained resources becomes critical to food security and poverty reduction in Africa. According to the FAO (2008) nearly one billion people globally suffer from chronic food insecurity. Public sector extension systems all over the world are being challenged to improve their relevance and effectiveness in contributing to agricultural and rural livelihood sustainability in an environment of increasing economic, social and ecological risk (Machethe & Mollel, 2000).

The term extension was first used to describe adult education programmes in England in the second half of the 19th century; these programmes helped extend the work of universities beyond campus and into the neighbouring communities. The term was later adopted in the United States with the establishment of land grant universities that included research activities and extension activities as part of their official university mandate in addition to their teaching function (FAO, 2008). Agricultural extension and advisory services provide farmers with important information, such as patterns in crop prices, new seeds varieties, management practices with respect to crop cultivation and marketing, and training in new technologies.

A general consensus exists that agricultural extension services, if properly designed and implemented can contribute to improved agricultural productivity (Romani, 2003). Given the socio-economic profile of the South African population and the acknowledgment of the importance of agrarian development in other developing countries, South Africa started its land reform after the attainment of democratic rule in 1994. Agrarian reform in South Africa was based on the fact that very few black producers were actively involved in commercial farming.

Bienabe & Vermeulen (2006) revealed that only 60 000 commercial farmers owned 87% of the total agricultural land and the remaining 13% of agricultural land was utilised or owned by subsistence farmers. Attempts to correct this disparity through agrarian reform programmes have led to several challenges. Amongst other factors, the emphasis on redistribution of land without balancing it with adequate post-settlement support (financial) and skills development has proven to be unsustainable and costly. About 50% of the land provided delivered through the reform programmes has not been producing significant marketable products (CDS, 2007; Kirsten et al., 2005).

The agricultural sector remains critical to rural development and contributes significantly to any initiative for poverty alleviation. For this reason there is a great need for a strong agricultural extension and advisory services led by government's operations in partnership with relevant role-players. The agricultural sector has the potential to create economic growth in rural areas. It generates job opportunities in adding value through agro-processing, in bringing agricultural products to the consumers (market linkages), and providing support (infrastructure, information, quality control and training).

Agricultural extension service has been identified as an important part of the intended transformation of the agricultural sector (Worth, 2008). On the other hand, public sector extension and advisory services have been severely attacked for not being relevant, ineffective and sometimes, not pursuing programmes that foster equity (Ngomane, 2002). Globally, a trend is developing for governments to cut spending in extension services (Mmbengwa, 2011). This places a burden on public sector extension and its ability to meet the needs of those already dependent of the services, particularly the smallholder farmers who cannot afford private extension support offered in the private sector, through commodity structures and commercial farmer associations.

In addressing these challenges, norms and standards for extension and advisory services were developed in 2005 by the DAFF. Confusion was also created with regards to the roles and responsibilities of different stakeholders on service delivery due to a lack of national framework for extension and advisory services (DOA, 2005). In this 21st century, extension and advisory services needs to reinvents itself and clearly articulates its roles in the rapidly changing rural and agricultural context in order to improve their relevancy. Extension services needs staff with good understanding of technical knowledge and skills to manage social processes.

1.3 JUSTIFICATION FOR THE STUDY

This study's critical importance is based on the current status of land reform and its subsidiary programmes that were aimed at supporting vulnerable communities in South Africa (Ministry for Agricultural and Land Affairs RSA, 2005). In South Africa, like any other developing country, agriculture represents the main source of income, status and security for millions of people (Prosterman & Hanstad, 2003; Ravallion & Chen, 2003).

The imbalances in the apportioning of land, through distinct program reform were recognized as hindrances to South African agricultural productivity (Groenewald, 2004). In this regard the redress process through Land Reform programmes commenced after 1994. Overall, the programme was intended to ensure broader participation of the South African population in agricultural production (in particular by historically disadvantaged individuals (HDI)), poverty alleviation, reduced social unrest and instability, reduced migration and better environmental stewardship and creation of wealth (Prosterman & Hanstad, 2003).

The need for capacity building in the public sector extension has been raised by many researchers (CDS, 2007; Bienable & Vermeulen, 2006; Murray, 1997). The World Bank (2007) has made similar calls for the African States to invest in human capital in their developmental programmes. The subsequent response by African Heads of States in 2003 was a pledge to contribute ten percent (10%) of their national budgets to agriculture within five years. This emphasises the commitment of the political leaders to bring about agricultural growth and development.

The challenges experienced by many smallholder farmers in South Africa have also been cited in other African countries (CDS, 2007). These are lack of technical know-how, capacity, effective organisation, whilst Pender (2000) highlighted the problem of low agricultural productivity due to limited access to appropriate technology. Neshamba (2006) highlighted the positive correlation between access to markets and growth. This is despite the fact that smallholder farmers are regarded as the generators of employment (NDP, 2013).

1.4 PROBLEM STATEMENT

The high failure rate of land reform enterprises in South Africa has generated a lot of concern on the role played by the public sector agricultural extension services. In a review of land reform farms in the North-West Province, by Kirsten et al. (2005) it was found that land reform enterprises received limited technical advice and support from the public sector extension providers. Public sector extension service providers are criticized for being ill-equipped to take the lead in market-oriented extension which is key to viability of smallholder farmers. Masiteng & Westhuizen (2001) agreed that public sector extension service is ineffective and inadequate and is considered key among the main causes of the poor agricultural performance of the land reform enterprises in South Africa. Kirsten et al. (2005) reported that the absence of financial support, after-care, conflict management amongst the land reform beneficiaries, lack of farming skills and knowledge are common symptoms of lack of capacity.

Furthermore, agricultural growths in Sub-Saharan countries have been dwindling. Research has shown that agricultural production statistics consistently showed a steady decline in real growth in agricultural output. Little is known about the capacity, quality of service, and performance of extension systems in Sub Saharan Africa (Davis, 2008). This situation presents a big challenge to any researcher interested in evidence based research work. Several attempts have been made to improve the agricultural extension sector of the South African economy. Among others, the paper on agriculture published in 1995 facilitated the new vision for agriculture in line with the country's constitution.

Globalisation, the removal of impediments to free trade and the entrance of smallholder farmers were some of the changes that promoted another look at agricultural policy in South Africa. Also outlined are the importance of comprehensive information on agricultural

conditions such as physical and marketing conditions, and production constraints as a prerequisite for planning and the formulation of policy. It also reiterated the need for effective linkage between research, farmers and other stakeholders. As a result of the history of South Africa, major service institutions were geared to white commercial agriculture. Thus, while the interests of white commercial farmers were catered for smallholder farmers (mostly blacks) had limited or no access to support services. Where the smallholder farmers had some access to farmer support services, the quality of the services has been inferior, (Machethe and Mollel, 2000).

It has been argued that transfer of technology reinforces social inequalities because it benefits producers who are better endowed than others in material, intellectual and social resources. However, despite the fact that formerly white institutions are re-orienting their activities to address the needs of smallholder farmers (for example the Agricultural Research Council and the Land Bank), and former homeland agricultural service institutions (for example, agriculture development corporations and provincial departments of agriculture) are being restructured, many smallholder farmers still do not have access to privatised extension services and therefore relies entirely on public extension services (Machethe & Mollel, 2000).

There is growing concern for provision of effective and sustainable agricultural extension services to majority of the resource poor farmers in whose hands the bulk of agricultural production is left. Resource poor farmers belong to a complex, diverse and risk prone agriculture, which supports several millions of people in Africa (Rivera et al., 2001). The importance of agricultural extension system therefore, remains that of a service to enhance the ability of farm families to respond to old problems and meet new opportunities.

1.5 AIM AND OBJECTIVES OF THE STUDY

1.5.1 AIM OF THE STUDY

The aim of this study was to formulate an extension framework for smallholder farming in the Western Cape Province.

1.5.2 THE OBJECTIVES OF THE STUDY ARE

- To determine the effectiveness of government extension services;
- To determine the factors that could influence the linkages between smallholder farmers and extension services;
- To examine factors that could be perceived by public extension officers as challenges in smallholder farming;
- To evaluate the usefulness of new innovations introduced through the extension service department; and
- To develop a framework for Extension Service delivery in the Western Cape.

1.6 RESEARCH QUESTIONS

The study will seek to answer the following question:

- To what extent is the effectiveness of government extension services?
- Which factors could influence the linkages between smallholder farmers and extension services?
- Which of the identified factors could be perceived by public extension officers as challenges in smallholder farming?
- Which new innovations introduced through the extension service department are useful?
- What is the framework for smallholder farming in the Western Cape?

1.7 CHAPTER OUTLINE

Chapter 1: Overview of the Study

This chapter presents the background to the research problem, significance of the study, aim of the study, objectives of the study, research questions, problem statement and the format of the rest of the study.

Chapter 2: Literature Review

In this chapter, a thorough review of relevant literature on the government extension services has been critically examined in relation to the smallholder farmer development. Special focus has been on the existing innovations that seek to address the weaknesses of the service. Legislation and background were presented.

Chapter 3: Concepts and purpose of Extension

This chapter presents the definition of extension and its purpose in the development of smallholder farmers. An international trends of extension is also presented.

Chapter 4: Smallholder farming in South Africa

In this Chapter a thorough definition of smallholder farmers is presented, but also the detailed analysis of the challenges that hinder their meaningful participation in the mainstream economy.

Chapter 5: Market Constraints faced by smallholder farmers.

This Chapter presents a thorough analysis of the market constraints that smallholder farmers have to contend with. This is by far the most limiting factor for the development of smallholder farming in South Africa.

Chapter 6: Research Methodology

This chapter has critically explained the research methodological aspects which were employed in the study.

Chapter 7: Research results

This chapter has presented the results as per the research objectives and questions.

Chapter 8: Discussion of the results

This chapter has presented the discussion of the study results as per the research objectives.

Chapter 9: Conclusions, Implications and Recommendations

In this chapter, the general conclusion, implication, extension framework and recommendations has been discussed.

Chapter 10: Conclusion of the study

This chapter will present the overall conclusion of the study.

1.8 SUMMARY

The study aims to formulate an extension framework for smallholder farming in the Western Cape Province. This chapter provided an introduction to the research conducted and its value to the agricultural community. In addition, the problem statement, aim of the study, objectives, research questions, and format of the study were outlined. Chapter two discusses the theoretical and conceptual framework of extension services for smallholder farming.

CHAPTER 2

THEORETICAL AND CONCEPTUAL FRAMEWORK OF EXTENSION SERVICES FOR SMALLHOLDER FARMING

2.1 INTRODUCTION

This chapter reviews the literature based on the objectives of the study. In general, smallholder farmers in Sub-Saharan Africa experience scarce and diminishing resources, insufficient and inadequate physical infrastructure, lack of basic education and marketing knowledge, lack of organizational support and institutional barriers. Smallholder farmers have a number of challenges in physically accessing markets which then compromise their meaningful contribution into the formal economy. The agricultural sector is considered as one of the important vehicle through which economic growth and development can be realised, particularly for developing economies.

This orientation is incorporated in Chapter 6 (six) of South Africa's National Development Plan (NDP) – which indicated that this sector will be the main driver in developing the country's rural economies. However, the South African agricultural sector remains dualistic in its structure; consisting of a large-scale commercial and a smallholder sector which is largely resource poor, who are by and large the beneficiaries of government's land reform programmes (DAFF, 2014). Smallholder farmers are the drivers of many economies in Africa even though their potential is often not brought forward. Often the term 'smallholder' is interchangeably used with 'small-scale', 'resource poor' and sometimes 'peasant farmer'.

In general terms smallholder only refers to their limited resource endowment relative to other farmers in the sector. Smallholder farmers can play an important role in livelihoods creation amongst the rural poor. Even though smallholder production is important for household food security, the productivity of this sub-sector is quite low. Poor yields may be one of the reasons why urban and rural households either abandon or are uninterested in agricultural production. There is therefore a need to significantly increase the productivity of smallholder farmers to ensure long term food security. This can be achieved by among others encouraging smallholder farmers to pursue sustainable intensification of production through an effective extension and advisory services.

2.2 THEORETICAL AND CONCEPTUAL FRAMEWORK

In order to analyse the backwardness and lack of resources of smallholder farmers in Western Cape Province, the impact of extension workers and their innovation were analyzed based on equity theory which was also premised within the concept of transformation of agrarian sector.

2.2.1 EQUITY THEORY

This theory was developed by J. Stacey Adam in 1963 and it compares the social environment (Buhler, 2001). The underlying premises of this theory is to ensure that inequalities are corrected. It is well known that South African agricultural system is operating within a dualistic system (Mmbengwa, 2009).

In this dualism, commercial agricultural sector is perceived to be affluent whereas the smallholder is perceived to be resource poor with no specialized service institutions, such as marketing, credit, research and government support (van Zyl & van Rooyen, 1990; Groenewald, 1998). Based on these disparities which informed the agrarian transformation, equity and transformation were formulated in order to redress the imbalances of the past by resourcing small-scale farmers through various initiatives and programs.

2.2.2 DIFFERENTIAL ADVANTAGE THEORY IN THE CONTEXT OF SMALLHOLDER FARMERS IN SOUTH AFRICA

The smallholder farming in South Africa have limited buyers for their products, this is primarily because these entrepreneurs do not invest their time to build relationship within the buyers. According to Clark (1940) buyers and sellers do not associate randomly, they seek a permanent relationship in order to sustain their commercial traders. Secondly, the smallholder farmers are known to sell their product with low price making it easier for the buyer to select their products in the markets. However, because these farmers do not always seek to improve their products to make them attractive, buyers tend to buy from the competitors. In addition, smallholder farmers relying much on traditional farming practices that makes their products take long to arrive at market place, the competitors who in most cases using modern farming which makes it easier to produce end up taking all their business.

As a result of low competitive advantage, smallholder farming's survival ability in a tough economic environment becomes questionable. Their low innovation for new products that can satisfies the needs of the consumers also reduces their competitiveness. The low competitive profile of smallholder farming makes this type of farming less impact in reducing economic growth and creation of jobs for the society. The freedom of these entrepreneurs to start new venture or value chain becomes constrained in many aspects. The growth of these farming system is very low such that their sustainability and survival becomes serious issues. The low profit making also compound their growth and sustainability for these farming sector to growth, the differential advantage theory advocate that they should start new innovations.

2.2.3 CONCEPTUAL FRAMEWORK FOR EFFECTIVE EXTENSION

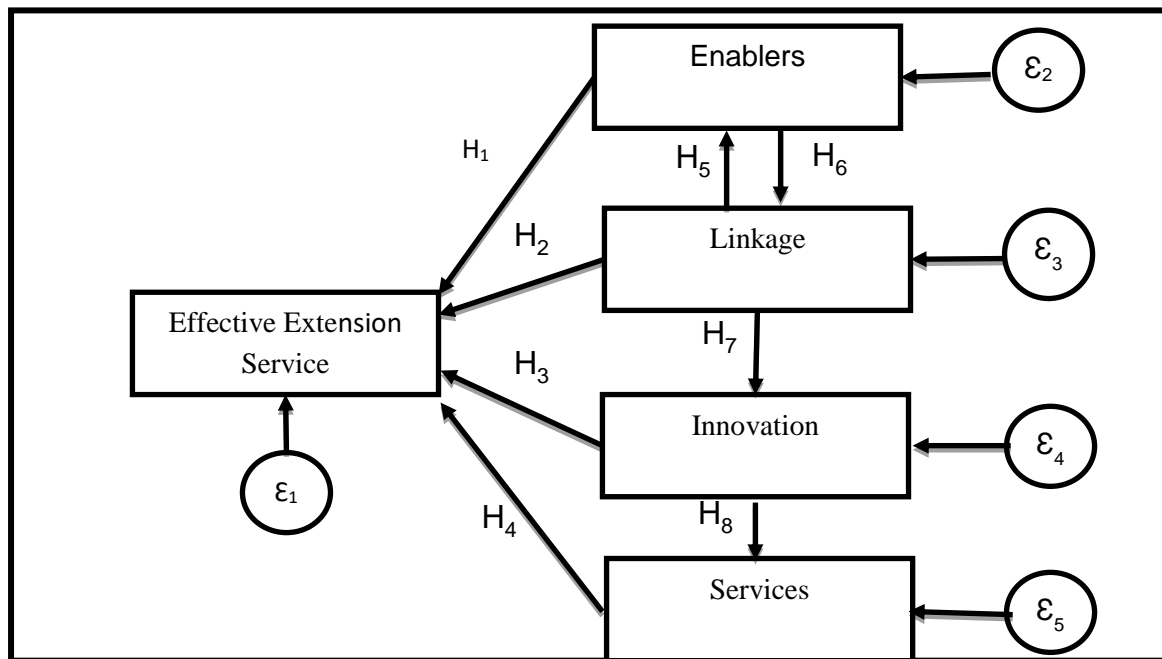


Figure 2.1: Conceptual effective extension service framework

Source: Adapted from Mmbengwa et al. (2009).

2.2.3.1 ENABLERS OF EFFECTIVE EXTENSION SERVICES

For extension services to be effective, it is important to identify enablers that could ensure smooth transfer of technology and a clear dissemination of information to the farmers. These enablers should be exploited within the guidance of the resource-based theory which states that valuable (i.e., enabling a firm to more efficiently or effectively exploit an opportunity) and rare (i.e., possessed by only a few firms) resources can serve as the basis for a firm's source of competitive advantage (Barney, 1991).

An important assertion within resource-based theory is that the value of resources is contingent upon the firm's environment (Webb et al., 2013).

In this study, five indicators which determine the effectiveness of government extension services were identified with the view that all do have capacity to influence extension services. Thus, the following hypotheses were investigated;

Null hypothesis (H₁): None of the enablers were significant to influence effectiveness of government extension services.

Alternative hypothesis (H_{1a}): At least one enabler was significant to influence effectiveness of government extension services.

2.2.3.2 LINKAGES OF GOVERNMENT EXTENSION SERVICE

According to Castellacci et al. (2014) Schumpeterian models promote linkages in a dynamics of industrial sectors and emphasize the importance of inter-sectoral linkages in order to sustain the aggregate dynamics of the economic system. According to these authors, the main idea of these models is that, when inter-sectoral linkages among domestic industries are sufficiently strong, the growth of leading sectors propagates rapidly to the whole economy, whereas if such technological complementarities are not intense enough, the aggregate economy follows a less dynamic growth path. The extension service is no exception. Therefore, linkages in extension serves to provide efficient capacity, dissemination of information and effective contacts.

The concept of linkages implies that a communication and a working relationship is established between two or more organisations pursuing commonly shared objectives in order

to have regular contact and improved productivity (FAO, 2011). Nyamupangedengu (2016) contends that linkage is a term used to indicate that two systems are connected by messages so as to form a greater system. He argues that if the barriers between two systems are permeable enough for messages and responses to flow out of each to the other, then a link has been created between the two. From this viewpoint, agricultural research and extension services are two systems which are linked by information flow and feedback.

Establishment of strong linkages among public agricultural research and extension services providers and the farmers as well as the promotion of participatory extension approaches is key to sustainable agricultural development.

In this study, various form of linkages necessary for linking farmers and extensions officers were explored within the following hypotheses;

Null hypothesis (H₂): None of the factors that affect the linkage of extension services were significant to influence effectiveness of government extension services.

Alternative hypothesis (H_{2a}): At least one of the factors that affect the linkage of extension services was significant to influence effectiveness of government extension services.

2.2.3.3 INNOVATION FOR EFFECTIVE EXTENSION SERVICE

The Nairobi declaration (2011) has noted that extension services within the dynamic innovation systems, could play an indispensable role as facilitator, knowledge broker and matchmaker between service providers and support agencies on the one hand and smallholder farmers and other entrepreneurs especially women and youth on the other. The Schumpeterian theory of innovation also asserted that firms incessantly pursuing new combinations and creative destruction are more likely to outperform those that do not, particularly in competitive industries (Arrow, 1962; Schumpeter, 1934).

New combinations of technology and knowledge open up new opportunities and stronger market positions for the firm; they enable the firm to challenge the “circular flow” of equilibrium (Schumpeter, 1934). Schumpeter (1942) emphasized technological change as a dynamic process of “creative accumulation” (i.e., as the result of an in-house accumulation of technological competencies across heterogeneous firms).

The traditional approach to fostering innovation in agriculture is often described as linear: Researchers develop an innovation such as a disease-resistant wheat variety, extension services advise farmers through demonstrations and other methods that a more disease-resistant variety is available, and farmers plant it, (FAO, 2011). The problems with this approach have been widely acknowledged. It can encourage research and extension to act independently of one another and of farmers, to the extent that each group becomes relatively isolated.

A linear approach can exclude other stakeholders in the agricultural sector such as universities, agribusiness, traders, and non-governmental and civil society organizations. It does not reflect the many well-documented ways that agricultural innovation actually occurs, such as experimentation by individual farmers, informal networking among farm communities, private sector participation, collaboration among extension workers interested in a particular idea, collaboration between researchers and farmers, and the adaptation by all of these actors of knowledge and practices from domains outside agriculture.

Information Communication Technology (ICT) appear ideally suited to the task of enhanced interaction because they can expand communication, cooperation, and ultimately innovation among the growing array of actors in agriculture. ICTs, especially mobile phones, can and do drive participatory communication, including communication from those on the margins of traditional research-extension processes, and they are often the key instruments that organizations use to deliver services to larger numbers of rural people than they could reach before. Balasubramanian et al., (2010) asserts that ICTs are fundamental to the business models of the “infomediaries” and “brokers,” public and private extension agents, consultants, companies contracting farmers, and others emerging to broker advice, knowledge, collaboration, and interaction among groups and communities throughout the agricultural sector.

In this study, various innovations necessary for effective extension services were explored within the following hypotheses:

Null hypothesis (H₂): None of the innovation factors were significant to influence effectiveness of government extension services.

Alternative hypothesis (H_{2a}): At least one of the innovation factors was significant to influence effectiveness of government extension services.

2.2.3.4 SERVICES FOR EFFECTIVE GOVERNMENT EXTENSION

It is important for smallholders to have easy access to extension services in order to optimize on-farm technical efficiency and productivity, given the limited resources available (Abate et al., 2014). Van Rooyen & Van Rooyen (1991) argued that one of the functions of co-operatives in South African commercial farming is to enable members to gain access to improve technologies and communication system through technical and economic extension services. In this study, various services for effective extension were explored within the following hypotheses;

Null hypothesis (H₂): None of the extension services factors were significant to influence effectiveness of government extension services to smallholder farmers.

Alternative hypothesis (H_{2a}): At least one of the extension services factor was significant to influence effectiveness of government extension services to smallholder farmers.

Versi (2011) asserted that African countries were investing in the development of their agricultural sector in order to enhance its sectoral contribution to the national economies and thereby increasing its real terms and percentages of its contribution to Gross Domestic Product (GDP). In the article entitled “Agriculture: Foundation of civilization” Versi, (2011) argued that various World Bank studies have indicated that the acceleration of agricultural growth has a potential to reduce poverty four times relatively to other sectors.

According to the UN Millennium Development Goals report for 2011, African children remain the most undernourished in the world (Sithole, 2011). The failure of Africa continent to fight poverty and malnutrition happens despite the commitment by African states to enhance agricultural investment through a programme initiated by New Partnership for Africa’s Development (NEPAD) called Comprehensive Africa Agricultural Development Programme (CAADP) in 2003. The slow endorsement of CAADP by African countries appears to have adverse impact on its effectiveness regarding elimination of extreme hunger and poverty. In South Africa, hunger and extreme poverty are more pronounced in rural and peri-urban areas (Mmbengwa, 2011). Therefore, a well-supported agricultural enterprises may contribute significantly to job creation and consequently alleviate food insecurity. Unfortunately, agricultural activities in poor rural and peri-urban areas of South Africa are dominated by subsistence land reform farmers, whose background in farming require massive

mentorship through government extension workers. Government extension officers have been used as pillars for capacity building support to all South African farmers. In spite of their services being free and available to all South African farmers, commercial agricultural (highly productive and competitive type of farming in South Africa) do not prefer their services and instead use private extension services for their farming support.

It appears that the perceived lack of quality of government extension services may act as a deterrent for the commercial farming sector to utilise it. The extension service in South Africa is organised under the Ministry of Agriculture. There is a tendency to reduce government extension to the Transfer of Technology (ToT), ignoring its social and economic role (Sebopetsa and Bayat, 2012)

2.3 AGRICULTURE POLICY FRAMEWORK FOR SOUTH AFRICA

According to the National Development Plan for South Africa and its Vision for 2030, South African's rural communities should have greater opportunities to participate fully in the economic, social and political life of the country. Rural economies will be supported by agriculture and possibly by mining, tourism, agri.-processing and fisheries. The following aspects were identified as essential, with special reference to extension and advisory services in South Africa:

- Improve and extend skills development and training in the agricultural sector, including entrepreneurship training and the training of a new cadre of extension officers that will respond effectively to the needs of small-holding farmers and contribute to their successful integration into the food value chain; and
- For these extension officers to be successful, it is necessary to investigate whether extension and other agricultural services are appropriately located at provincial level. Innovative means for agricultural extension and training by the state in partnership with industries should be sought” (National Planning Commission, 2012).

This is a clear indication that an effective and efficient extension and advisory service is essential for successful rural development in South Africa. This document examines ingredients for effective, efficient advisory services, based on an international and local literature review. The purpose of the study is to identify challenges facing the agricultural extension landscape from a global perspective namely a best-fit approach and a framework for designing and analysing agricultural and rural advisory services that include:

- Policy environment;
- Governance;
- Capacity, management and organisation; and
- Approaches

The vision for agriculture, forestry and fisheries as identified in the Integrated Growth and Development Plan (IGDP, 2012) is to achieve equitable, productive, competitive, profitable and sustainable agriculture, forestry and fisheries sectors that are growing to the benefit of all South Africans. The primary aim of the IGDP regarding agriculture is to: ‘position agriculture for the purpose of improving national food safety and security, and agricultural economic output in a profitable and sustainable manner, through a qualitative and quantitative improvement of South Africa’s agricultural productivity, and its trade and regulatory environment’.

It is anticipated that, by achieving the aforementioned, agriculture can contribute vitally to rural economic growth and development, and thus increase rural employment, both on- and off-farm. The key strategies identified are: support to new and existing producers, access to markets, and access to resources. In terms of support to the three categories of farmers identified the IGDP notes that farmers of all categories currently receive less support from the State than their counterparts in every industrialized country in the world. Agriculture, forestry and fisheries have been identified among the sectors with the highest potential to make an immediate and sustainable contribution towards job creation in rural areas (DAFF, 2014).

Since 1994 efforts have been made in all three sectors to address the disparities and inequities, to create broader access to services and markets. Land reform, targeted economic empowerment programmes, credit schemes and several other initiatives were instituted to attempt to bring equity and more broadly based prosperity. Various Acts addressing agriculture, forestry and fisheries were passed and implemented. While progress has been made, the agrarian system still reflects the disparities of the past with many rural people remaining on the economic margins, (CDS, 2007).

Efficient and effective extension and advisory services can broker and facilitate information sharing and skills development in support of agricultural, forestry and fisheries’ development

especially for smallholder entrepreneurs. In its current form, public extension service cannot facilitate the accelerated capacity development of a range of producers that is desired to address, challenges of rural and economic growth, food and nutrition insecurity, inequality and unemployment. National extension services in the country is plagued with a number of structural and counterproductive challenges that limit the efficiency and effectiveness of efforts and investments in the development of smallholder producers in particular.

Changes in South African agriculture in the past two decade have been shaped by substantial macroeconomic and social reforms implemented from the mid 1900s, but reforms of agricultural policies were also initiated. These included deregulation of the marketing of agricultural products; abolishing certain tax concessions favouring the sector; reductions in budgetary expenditure on the sector; land reform and trade policy reform. The agricultural sector in South Africa is dualistic (Vink & Kirsten, 2003).

It consists of a well-integrated, highly capitalised commercial sector with approximately 35 000 white farmers, producing around 95% of agricultural output on 87% of total agricultural land (Aliber & Hart, 2009). In contrast, the smallholder sector consists of around 4 million black farmers farming in the former homeland areas on 13% of agricultural land of South Africa (Aliber & Hart, 2009).

This dualistic nature and division between the commercial, large-scale farming sector and the comparatively low productive, struggling smallholder sector is a direct result of historical patterns of dispossession and impoverishment, which systematically eroded historically successful land-based production systems and livelihoods in South Africa (Neves et al., 2009). Even after 20 years of democracy, this sector continues to be characterized by inequality in terms of the distribution of economic assets, support services, market access, infrastructure and income (Oettle et al., 1998).

2.4 HISTORICAL REVIEW OF LAND REFORM

In the least developed nations, agricultural development is considered a tool that unlocks the economic potential of these nations. Various researchers complement these perceptions by providing theories that indicate the role of agriculture as a precondition for broader development (Lewis, 1954; Vink & D'Haese, 2002; Verschoor, 2003).

It is articulated in the growth stage theories and structural change models that agricultural development forms the basis for any development (Verschoor, 2003).

This and other arguments have caused the 1994 South African Government to introduce a whole range of packages and products aimed at bringing the emerging farmers into the main stream economy to complement and consolidate the commercial agricultural sector, although evidence indicates that various policies have destroyed small-scale farming in South Africa (Verschoor, 2002; Van Onselen, 1996; Van Zyl & Kirsten, 1998). It is important to examine agricultural development approaches and developments that precede 1955.

The 1913 Native Land Act and subsequent laws have severely inhibited the development of a viable small-scale farming sector (Verschoor, 2003). The summary of the Tomlinson Commission report was published in 1955. The report's recommendations represented the first development strategy for small-scale farming in South Africa (Verschoor, 2003). It suggested a comprehensive integrated farmer support system to be implemented to allow small-scale farmers access to increased farm land, markets, financial support and quality extension support (Verschoor, 2003). Between 1911 and 1955, viable small-scale farming was dramatically inhibited with the segregation legislation of 1910, 1911, 1913 and 1932; which effectively eliminated small-scale competition from the market (Verschoor, 2003; Bembridge, 1987). During these four years (1910, 1911, 1913 and 1932) period, extensive government support for white farmers was facilitated and implemented for more than 60 years. This had the effect of increasing their national output but at the cost of a decreased food security of the black population in South Africa (Verschoor, 2003).

Prior to 1994 government policies gave rise to the current challenges that are faced by current government, which necessitate the land redistribution and promotion of small-scale farming in previously disadvantaged communities. Today, small scale farming enterprises are constrained by the quality, quantity and accessibility of key inputs (Lipton et al., 1996). The farmers still lack support and opportunities to compete in agricultural markets (Perret et al., 2001).

The period 1960 to 1970 marked South African agricultural development that mimicked international experience, which focused on technical innovation to improve agricultural practices (Verschoor, 2003). The homeland-based development agencies, cooperatives or

agricultural parastatal companies were established during this period (Verschoor, 2003). The policy in the early 1970's was based on the principle of community development extension which recognized local organisations (Bembridge, 1987). In this period, the centrally managed capital-intensive project approach, also called disciplined farmer settlement or betterment planning, became the mainstay of agricultural development in South Africa, continuing until the late 1980's (Verschoor, 2003).

During the mid 80's and early 1990's the international focus was on macro policy, structural adjustment, food security and employment generation (Verschoor, 2003). The failure of development approaches implemented in the 1960's and 1970's has encouraged support for more participatory approaches (Roling, 1988; Chambers, 1993), which were adopted and encouraged by the Development Bank of Southern Africa (DBSA) in 1987 (Verschoor, 2003). The participatory approach gave rise to the Farmer Support Programme (FSP). This programme contributed to the confidence amongst the participating farmers (Singini & Van Rooyen, 1995; Singini et al., 1992). From 1990, Participatory Rural Development (PRD) became the focus in South Africa (Carruthers & Kydd, 1997). Integrated Rural Development (IRD) re-appeared in order to address situations where capital, skills and employment opportunities created outside agriculture were inadequate (Verschoor, 2003). This (IRD) approach aimed at improving coordination, linkages and vertical integration (Carruthers & Kydd, 1997).

The approach's recognition of inter-dependence of rural activity and the need for a holistic approach and associated complexity often rendered it impractical on the ground (D'Haese, 1995). However, elements of the approach were deemed useful in a rural development strategy (Verschoor, 2003). During the early 1990's, a project-type approach and investments were made through ministries, parastatals and development agencies (Verschoor, 2003). Agricultural growth was evident during this stage.

It is this success story that caused the South African Agricultural Department to adopt this project approach as its framework for resuscitating small-scale farmers. Although the historical evidence of the early 1990's pointed to success with this approach, subsequent insights and current evidence gathered indicate a dramatic failure of the approach in South Africa (Verschoor, 2003; CSD, 2007). The Strauss Commission of 1996 investigated issues pertaining to rural finances and proposed the continuation of an Agricultural Credit Board

(ACB), which had for long provided substantial support to white farmers (CSD, 2007). The ACB represented a major direct intervention by the state in the provision of subsidized agricultural finance to commercial farmers, especially those in financial crisis.

It could provide a long-term safety net to the emerging farmers. Its termination in 1996 meant that emerging farmers did not have access to the same credit facilities that many of their commercial counterparts had had. This exposed this small-scale farming sector to a number of risks (CSD, 2007). Given this observation, the current government has come up with another financial product called the Micro Agricultural Financial Institute of South Africa, (MAFISA), which plays a similar role to ACB. MAFISA's aim is to improve access to credit for smallholder farmers (CSD, 2007). Apart from MAFISA, the government initiated the product called Agricultural Black Economic Empowerment (AGRIBEE), this product aims at empowering black middle class and elite who would like to venture into commercial farming enterprises. Until 1998, the marketing of most agricultural products in South Africa was regulated by statutory law, largely under 22 marketing schemes introduced by the 1937 Marketing Act (CSD, 2007). This act was rescinded and replaced by the Agricultural Products Marketing Act 47 of 1996, which deregulated agricultural marketing and opened it to global market influences (CSD, 2007).

The National Agricultural Marketing Council (NAMC) was tasked to dismantle existing structures, as well as to manage and monitor state intervention. Thus, both commercial and small-scale agriculture in South Africa had to manage their markets themselves. The small-scale farmers were severely affected by this intervention; this development impacted negatively on their survival rate (DBSA, 2005). In 2001, the government introduced Land Redistribution for Agricultural Development, (LRAD). During 2002 the Department of Land Affairs (DLA) undertook a review of the LRAD programme.

The review, highlighting the delivery of the land to previously disadvantaged communities, was released in 2003. It reported the delivery of land reform as characterised by different approaches both within the DLA and in relation to the roles of other departments and institutions in land reform (CSD, 2007).

In 2005, the Land Summit proposed the establishment of a Ministry of Rural Development that should have all elements needed to unlock economically viable activities in rural areas. In 2008, the National Department of Agriculture (NDA) and Land Affairs (DLA) launched a Settlement Implementation Support Strategy (SIS Strategy) that advocates the re-organisation of support delivery systems for emerging farmers into area- based models (CSD, 2007; Xingwana, 2007). After 2009 general election, the National Department of Agriculture was changed to National Department of Agriculture and Fisheries.

These changes maintain the historical role of the department and only add fisheries which were the role of Water and Environmental Affairs Departments to the function of Ministry of Agriculture.

2.5 LAND AND AGRARIAN REFORM PROGRAMMES IN SOUTH AFRICA

Land and agrarian reform in South Africa has come as result of an attempt to resolve political, social and economic transformation (Mbeki, 2006). The objective of the Land Redistribution programme is to avail land to black people for agricultural programmes which must develop into viable and sustainable farming operations. The overall objective of Land Reform programme in South Africa is to ensure the transfer of 30% of all agricultural land in the possession of the previously advantaged to previously disadvantaged by 2030 (DAFF, 2014).

The dualism in the agricultural sector has led to the large scale commercial sector taking a pivotal economic role (Vink & Kirsten, 2003) whilst the subsistence small scale agricultural sector has been relegated to household food security with less or no economic contribution (Bienabe & Vermeulen, 2006). Hence, land reform in South Africa is perceived as fundamental to equitable economic growth, poverty eradication and food security (Karaan, 2006). Prior to the 1994 elections, the African National Congress (ANC) stated that the Reconstruction and Development Program (RDP) were to redress the injustice in the historical denial of access to land for black people (Sibanda, 2001).

This was demonstrated by the enactment of Land Right Act No 22 of 1994 (Kirsten & Van Zyl, 1999). Upon gaining independence in 1994, South Africa embarked on a process of reformation to bring about equity following many years of institutionalized apartheid regime.

The Land Reform Programme consists of three main components: restitution of land unjustly taken from people and communities; land redistribution; and land tenure reform. Under Land Redistribution for Agricultural Development (LRAD) programme, grants are given to the black disadvantaged population to acquire land or for other forms of on-farm participation.

According to Dladla & Associates (2005), the majority of the approved land reform farms have failed to meet the objectives of the LRAD programme of being commercially and economically sustainable. According to Düvel (2002) there has, however, been limited support to these beneficiaries in terms of agricultural development once the land had been delivered.

A part of the problem is that the land reform programme through focusing on land transfer almost as an end in and of itself, has failed to become embedded in a broader strategy or programme of integrated rural development. This has served to impede poverty reduction through land reform, and has diminished the potential contribution that land reform and agricultural development could make to national economic growth.

The progress towards redistributing the land is slow (Karaan, 2006). In addition, many entities that have benefited from the reform programme since 1994 have collapsed or are collapsing (CSD, 2007). This view confirms and complements the assertion that expansion of agrarian reform and rural development are highly complex (CSD, 2007). Given that land reform is highly complex and necessary, it can give rise to either positive or negative economic scenarios such as in Zimbabwe (Moyo, 2004). Therefore, it is necessary to use more resources in order to achieve optimal results.

There is sufficient evidence supporting the fact that land reform in South Africa has given rise to many small, micro and medium enterprises. However, some of these enterprises are not viable or sustainable (CSD, 2007). Most such enterprises are located in rural and peri-urban areas and are operated by individuals, families and groups.

The failure rate of such enterprises has been abnormally high; more than 50% has led to the bankruptcy of the beneficiaries, who are now living below the poverty line (CSD, 2007). South Africa, like any other country in Sub-Saharan Africa, faces serious challenges to ensure that agrarian reform is successful and peaceful. The experience of neighbouring countries such as Zimbabwe, has taught a lot of painful lessons (Groenewald, 2004).

2.5.1 SOUTH AFRICA'S LAND REFORM PROGRAMMES

The White Paper on South African Land Policy, which was published in 1997, was a key milestone in bringing this constitutional obligation into operation. The White Paper states, 'racially-based land policies were a cause of insecurity, landlessness, and poverty among black people, and a cause of inefficient land administration and land use' (Department of Land Affairs, 1997). The South African version of land reform had three broad programmes, land redistribution, land restitution, and land tenure reform.

a) Land Redistribution

The Land Reform for Agricultural Development (LRAD) programme was designed to expand the range of support measures that will be available to previously disadvantaged South African citizens to access land specifically for agricultural purposes (Sector Plan, 2001). It strengthened the philosophy of market-assisted land redistribution of the earlier land reform programme. International experience has shown that market-based programmes of state directed land redistribution tend to perform better than programmes that are operated exclusively by the public sector. The redesigned programme has the potential to speed up delivery of land, because it is a unified and simple programme and is driven by beneficiaries who can use it in flexible ways according to their objectives and resources. The Government is committed to ensuring the success of this programme and ensuring that individuals from disadvantaged groups obtain access to land in a speedy and orderly fashion. It is, however, important that land should be used productively.

The land redistribution programme provides an opportunity for poor and disadvantaged people to access land, making use of state assistance, the Settlement/Land Acquisition Grant. Its design is premised on the willing-buyer, willing-seller basis (UNDP South Africa, 2003).

The performance of the redistribution programme influenced the government's decision to place a moratorium on redistribution grants and to review the programme in 1999.

In 2000, the redistribution programme was widened to include the Land Reform and Distribution Grant (LRAD), which entails a sliding scale grant of between R20 000 and R100 000, to land reform beneficiaries matched to their contribution. In July 2005, at the national land summit, the government highlighted the willing-buyer willing-seller approach as one issue needing urgent change (Lahiff, 2005).

b) Land Restitution

The restitution programme is in reality a constitutionally based programme that deals with historical losses as a result of colonial apartheid policies after 1913. The Restitution of Land Rights Act (22 of 1994) as amended provides the main legal mechanism for driving the programme. The government's mandate to the Restitution Commission was originally to conclude the restitution process by end of 2005, but has since been extended to 2007 (Programme for Land and Agrarian Studies/PLAAS, 2005). Based on the poor track record of the restitution programme, PLAAS (2004) is skeptical that the programme can be brought to a conclusion by the end of 2005.

c) Land Tenure Reform

The land tenure reform programme was acknowledged as the most complex in the White Paper (1997). The tenure reform programme had a challenge of rectifying the form that apartheid government land rights took. The land rights were permit based, with the land generally registered in the name of the State. According to the White Paper, the programme seeks to devise secure forms of tenure, help resolve tenure disputes, and provide alternatives for people who are displaced in the process.

The programme is premised on the constitutional provisions that states: A person or community whose tenure of land is legally insecure as a result of past racially discriminatory laws or practices is entitled, to the extent provided by an Act of Parliament, either to tenure which is legally secure or to comparable redress. (Department of Land Affairs; 1997). The tenure reform programme differs from the other two programmes in that it addresses

questions of tenure security on land to which people or communities have access or rights to use. The right to security of tenure is written into section 25(6) of the South African constitution. Three key pieces of legislation have been passed with the aim of securing tenure for Black people in the former Whites only commercial farming areas (UNDP South Africa, 2003).

The first of these is the Land Reform (Labour Tenants) Act of 1996, which aims at providing a legal definition of a Labour tenant, and at converting existing or historical use rights into land ownership for legitimate Labour tenants. The second is the Extension of Security of Tenure Act (ESTA), which is aimed at protecting tenure rights of farm workers and farm dwellers living on commercial farms by establishing a legal framework for evictions.

The third piece of legislation that provides security of tenure is the Communal Land Rights Act (CLARA) of 2004, which has had a long and tedious history. The process of drafting legislation that was intended to bring about solutions to land ownership and land management problems in respect of communal areas began in earnest in 1998, resulting in the 1999 Draft Land Rights Bill (Cousins, 2004). This process went through stops and starts, culminating in the Communal Land Rights Act (CLARA) (Act 11 of 2004). In 2004, the Department of Land Affairs was understood to be commissioning work on systems and procedures for implementing the Act. Despite the enactment of the CLARA, confusion over roles regarding land management continues; the law is still on hold and a subject of constitutional challenge. The land reform programme in its broader sense has shown a less than satisfactory achievement in the first decade of democracy.

According to PLAAS (2004) a total of 2,493,567 hectares had been transferred through the various land reform programmes (as of 29 February 2004), amounting to 2.9 percent of total agricultural land (excluding homelands), and one tenth of the official target of 30 percent by 2015. According to PLAAS (2004) by March 2004 approximately 80 percent of claims had been settled, and those largely being located in urban areas. The question though is that most of these were settled with cash compensation.

Some of the notable achievements of the land reform programme include the creation of a land reform programme that is constitutionally protected, introduction of new law to give effect to the rights and obligations contained in the constitution, creation of a new institution

such as the Commission on the Restitution of Land Rights and the Land Claims Court (Lahiff & Cousins, 2004). While the achievements should be appreciated, the slow rate at which the land reform programme is changing the land ownership landscape is a matter of concern, from the point of view of land-based livelihoods.

2.6 WESTERN CAPE CONTEXT

The Western Cape is the most South-west province of South Africa, with an extension of more than 120,000 km²; due to its diversity, location, climate and rainy season, the Western Cape is of great agricultural importance to South Africa. The combination of temperatures from 26°C to 16°C during the summer and 18°C to 7°C during winter, with the types of soil Chormic Luvisols & Albic Arenosols (FAO/UNESCO, 2017), make the region more fertile for high value commodities than the rest of the country. This Province is responsible for most of the agricultural exports of the country, 24% of the South African GDP comes from the Western Cape and agriculture is responsible for 4% of these. Furthermore, this sector is responsible for 18% of the jobs in the province (Maree, 2017).

The Western Cape is divided in 27 administrative regions, with the major agricultural production being on the coast. Robertson, Worcester, Paarl and Stellenbosch produce most of the grapes; pome fruits are grown mainly in Caledon and Ceres; grains and pastures are planted all along the coast from George to Caledon and in Malmesbury and Piketberg; citrus are produced in Clanwilliam and stone fruits grown in Swellendam and Montagu (DAFF, 2017). There are also nuts, flowers and teas planted along the province.

The last two years have been extremely difficult for the Western Cape since they have been having the worst drought in the last 113 years (BBC, 2017). The government has already declared a level 4B in water restrictions, limiting water consumption to only 87l per person per day, prohibiting watering public fields and parks, car washing and ornamental features, and limiting garden irrigation to only two hours a week with non-potable water (Western Cape Government, 2017). This has also affected agriculture in that irrigation farms have suffer water restrictions from 30% to 100%, causing a decline on wine grapes volume, one of the most prolific industries in the province, estimated to have a loss of R500 millions for the sector (Winde, 2017). Farmers are not being able to make post-harvest irrigation, which will

affect production in 2018 and grain producers have been forced to plant in completely dry soils (Opperman, 2017).

2.6.1 WESTERN CAPE AGRICULTURAL SECTOR

The agricultural sector in the Western Cape is made up of around 6 653 large-scale commercial producers and 9 480 smallholder farmers, whilst another 50 000 poorer families are dependent on irrigated backyard gardening for their subsistence (StatsSA, 2007; StatsSA, 2016). The latter are often dependant on municipal water and it is expected that the majority of these households will not be able to produce any food during the drought, which will impact negatively on their food security.

This is of major importance as most of these poor families will now have to buy food at markets to feed themselves, much of it at relatively higher prices. The Western Cape has a population of around 6.4 million people, who live in 1.8 million households (Quantec, 2018a). Of these individuals, only 2.4 million are employed, setting the current narrow unemployment rate for the Province at 22%. The agricultural sector employs around 180 000 workers, whilst the agri-processing sector adds another 126 000 jobs to the economy (QLFS, 2018).

These two sectors therefore employ 15% of the entire participating labour force in the Province, and make up an even more significant proportion of unskilled and semi-skilled employment, the demographic with the highest unemployment rate. The jobs created by these sectors are also geographically concentrated in rural areas where limited other employment opportunities exist. This clearly demonstrate the importance of the agricultural sector as the main employer (22%) in the Western Cape's more rural regions, while these jobs are essentially unskilled (71%) and semi-skilled (25%) occupations (Quantec, 2018b).

The Western Cape Department of Agriculture (WCDOA) derives its Constitutional mandate largely from Section 104 (1) (b) of the South African Constitution (Act 108 of 1996) which conveys the power to provinces to pass legislation on any functionality listed in schedules 4A (concurrent) and 5A (exclusive provincial). Concurrent functions include agriculture, animal and disease control, disaster management, environment, regional planning, soil conservation,

trade, tourism as well as urban and rural development. Exclusive provincial mandates include provincial planning, abattoirs and veterinary services.

The WCDOA comprise of eight Programmes, namely: Administration, Sustainable Resource Management, Farmer Support and Development, Vet Services, Technology Research and Development, Agricultural Economic Services, Structured Agriculture, Education and Training and Rural Development. The mandate for extension and advisory services is located within Farmer Support and Development programme, while other programmes provide support to the extension officers to deliver a complete service to land reform farms.

2.7 INTERNATIONAL TYPOLOGY OF AGRARIAN REFORM

South Africa, like any other country in Sub-Saharan Africa, faces serious challenges to ensure that agrarian reform is successful and peaceful. The experience of neighbouring countries such as Zimbabwe, has taught a lot of painful lessons (Groenewald, 2004).

Although South Africa has had more than 20 years since commencing land reform, the programme is facing numerous challenges. These challenges need serious attention in order to find the right and appropriate solutions. It is important to learn from other countries that have had successful land reforms. Different models of land reform will be discussed briefly with the objective of finding the most appropriate ones:

2.7.1 COLLECTIVE FARMING

This farming system has been influenced by the study of Marx & Lenin's theories on agriculture (Diouf, 1989). This type of farming is usually preceded by individual farming. The transition from individual farm enterprises to large-scale collective enterprises in the Soviet Union demonstrated the application of Lenin's theory (Fenyas & Groenewald, 1976). Although collective farming has been practiced with a certain degree of success in the Soviet Union, Lenin warned that this type of model was not an easy process and that it could not succeed without State help (Fenyas & Groenewald, 1976).

Newly formed collective enterprises could not function profitably in the early stages (Fenyés & Groenewald, 1976). This model has been applied in many countries, such as the former Socialist countries of Europe, Asia, Cuba and independent African states, (CSD, 2007; Verschoor, 2003). Bulgaria had the most notable tradition of collective farming (Fenyés & Groenewald, 1976). The success of this model was dependent on inputs such as adequate machinery and transport cooperatives. Czechoslovakia is another example where adequate machinery and support were supplied by cooperatives (Fenyés & Groenewald, 1976).

It was observed that collective farming has been an integral part of the general development policy in Socialist Governments and became more prominent after World War II. Its prominence in countries like Hungary, Poland and Czechoslovakia, was due to the fact that it was forced down on the people as was in the case of post 1917 in Russia (Groenewald, 2008). In the period 1945 to 1948, there was a substantial increase in collective agricultural enterprises (Fenyés & Groenewald, 1976).

The agricultural cooperatives in the collective farming model were established on the pattern of the Israeli Kibbutz and Moshav cooperatives, and the Soviet style, namely, Kolkhozy & Sovkhoz models (Fenyés & Groenewald, 1976). Categories of these cooperatives are discussed below.

Kibbutz

Kibbutz is a collective farm or settlement owned by its members in modern Israel, (<http://www.thefreedictionary.com/Israel>: accessed in April 2017). The first kibbutz to be established in Israel was Degania in 1909. These communal farming settlements were established to avoid the mistakes of earlier immigration. They were established under the motto of “work and believe”. This means that a kibbutz settlement is formed by people that have the same belief and who have decided to work together, that is, Labour Zionism. Committees govern kibbutz life.

The various parts of community life are dealt with by committees dedicated to that aspect. There are committees on finance, education and care (just to mention a few). They have a special meeting once a year where they confer and elect officers who take care of policies and other aspects of Kibbutzim life.

The Kibbutz movement was founded by the generation of Israel from Second Aliya (Aliya is the Hebrew word for immigration to the land) who started Degania (the first Kibbutz).

These pioneers were not religious and did not wish to import any type of religious practices. The movement was started through the inspiration of a unique Jewish work ethic, articulated by labour Zionists like Berl Katz Nelson. Most Kibbutzim were founded in small, flat, low-lying regions of the country.

Their objectives were the following:

- Kibbutzim wanted to create a new type of society where all would be equal and free from exploitation; and
- They wanted to be free from working for others and from guilt of exploiting hired labour work.

This was born out of the idea that Jews would bond together, holding their property in common ‘from each according to his ability, to each according to his needs’. Kibbutzniks were not classical as Marxists and Leninists. However, they remain a stronghold of left-wing ideology among the Israeli Jewish population. Although Kibbutzniks practiced a form of communism themselves, they did not believe that it could work for everyone.

Moshav

Moshav is a cooperative Israeli village or settlement comprised of small farms (Moshav, 2007). Each family owns their own farmland and their homes, but purchasing and selling are done cooperatively. There are a number of villages grouped around a central town in a Moshav. Within this central town, there is a secondary school, a concert hall, a theatre, etc. While the Kibbutz and Moshav are both cooperatives, there is a marked difference, especially concerning independence of the people involved.

According to Moshav activity review report of 1996, Moshav is committed to its universal goal of poverty reduction. It seeks to attain this goal through placing its focus on enrichment of human resources and institutional building. The above-mentioned focus enables individuals in Moshav establishment, to participate in the development of their own society through market-oriented agriculture, women in development process, environmental conservation, health care, micro enterprises and community development (Fedler, 1996).

Factors for success in Moshav settings

The success of Moshav is influenced by various factors. Such factors are mentioned and discussed below:

a) Human capacity and training

Human capacity building remains the main priority of Moshav (Moshav Annual Report, 2001). Highly extensive training programs targeting a variety of the population including field workers, senior decision makers, educators, principals, local and national education system supervisors, heads of municipality and regional departments, planners of study programs, senior educational administrators, lecturers and university staff (Moshav Annual Report, 2001).

It specializes in adapting educational systems to meet the demand of developing economies. Moshav recognises the pivotal role of capacity building in the process of nation-building and state development by aiding the educational systems of developing countries to meet the challenges of technology in the 21st century (Moshav Annual Report, 2001).

b) International co-operation

A key component in recent times is the concept of international development cooperation. This concept finds expression in the Paris Declaration on Aid Effectiveness and the Millennium Declaration 2000 (Moshav, 2007). The cooperation demand for greater coordination and it is for that reason that the Centre for International Cooperation (Moshav), a department in Israel's Ministry of Foreign Affairs responsible for the design and

implementation of Israel's international development program adheres to the goals international partnership. According to Moshav, (2007) the advantages of this partnership are:

- Better integrating Israel into the global effort to realize the Sustainable Development Goals (SDG's);
- Establishing Israel's standing as a qualitative partner in the efforts toward international development and humanitarian assistance; and
- Improving the professional dialogue with the United Nations and its institutions.

c) Moshav seeks cooperative projects with other development

Moshav's project programming seeks to advance the primary goal of capacity building in areas in which Israel has comparative advantages (Moshav, 2007). The main focus is on agricultural demonstration project. According to Moshav, (2007) the aim of Moshav projects are sustainability and replicability with the following objectives:

- Every Moshav project is accompanied by extensive capacity-building and training both in Israel and on the project site;
- Moshav is committed to long-term follow up activities in all its projects, including the posting of long-term expert consultants at project sites; and
- Projects technologies are carefully selected to suit the needs and capacities of the local populations. Similarly, methodologies taught are designed to be easily replicable by individuals or collectives.

d) Community development, poverty reduction and gender equality

Moshav sees the three goals of community development, poverty reduction and gender equality as being necessarily linked (Moshav, 2007). Thus, since Moshav's early years, a strong emphasis has been placed on working with women at a grassroots level, promoting their participation in small-scale economic activities through capacity-building, community development and establishment of support structures for small and medium entrepreneurial activities.

Moshav has collaborated with numerous international organisations in developing grassroots-oriented, community-driven programming, including capacity building programs in Israel and abroad and establishment of new business incubators and small business development centers (Moshav, 2007). Moshav's action in this field focuses on:

- Improving the economic situation of communities through training for effective community development and the encouragement of collaborative action, networking and cooperative building;
- Building and strengthening civil society through encouraging the participation of women in social action in all areas of society, developing women leaders and providing support for their entrepreneurship;
- Strengthening local NGOs by helping them develop, implement and sustain programming;
- Developing curricula for community leadership training; and
- Establishing basic social service centres to provide assistance to local communities.

Kolkhoz

A Kolkhoz was a form of collective farming in the Soviet Union that existed alongside state farms. In a Kolkhoz, a member, called a Kolkhoznik, was paid a share of the farm's products and profit according to the number of workdays (Moshav, 2007). The Kolkhoz was required to sell their crops to the state at fixed prices, especially the price of grain. The Kolkhoznik were allowed to have a small area of private land and some animals. These members were required to do a minimum number of days of work per year on both the Kolkhoz and on other government projects such as road building. Farmers were tied to their Kolkhoz in what is often described as a system of 'neo-serfdom' (Moshav, 2007).

2.8 SUMMARY OF THE CHAPTER

In this chapter it has been demonstrated that land reform in South Africa is a consequence of separate development policies that took precedence prior 1994. It was also well established that success of agricultural development and settlement largely depends on conditions. These conditions prescribe the capacity for smallholder farming to be profitable and sustainable. For these conditions to be realised, the models for agrarian reforms must be carefully selected and implemented. In the process of choosing these models, international experiences must be taken into account. Furthermore, the nature of smallholder and their commodities plays an important role in determining the type of capacity needed. To this end, the concept and purpose of extension will be discussed in the following chapter.

CHAPTER 3

THE CONCEPT AND PURPOSE OF EXTENSION

3.1. INTRODUCTION

The beginning of Agricultural Education could be traced to the period when a movement of ancient scholars started to relate education to the needs of human life and the application of science to practical affairs. This manifested in the establishment of schools which featured teaching/application of science to agriculture, publication of agricultural literature (in the 17th and 18th century) and founding of agricultural societies.

The actual use of the term extension originated in England in 1866 when a system of university extension was taken up first by Cambridge and Oxford universities and later by other educational institutions in England and other countries. The term extension education was first used in 1873 by Cambridge University to describe this particular educational innovation. The objective of university extension was to take the educational advantages of the University to ordinary people.

Extension has traditionally been seen as the transfer of information, knowledge and skill from and by institutions and individuals possessing those resources and attributes to people who lack them. Nagel (1997) defined extension as ‘the organised exchange of information and the purposive transfer of skills’. A decade later, Davis (2008) defined agricultural extension as ‘the entire set of organisations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills, and technologies to improve their livelihoods and well-being’.

Extension services can be organised and delivered in a variety of forms, but their ultimate aim is to increase farmers’ productivity and income. In South Africa, the agricultural sector is crucial to rural development and contributes significantly to any initiative to alleviate poverty, given the numbers of people living in rural areas. However, agricultural extension services delivered by public sector agencies have been criticized for being costly and in many cases not being responsive to the needs of the farmers, particular land reform farmers (Terblanché, 2008).

3.2 EXTENSION WORK IN THE UNITED STATES OF AMERICA

By 1890 the American Society for the Extension and university teaching was established. Later, the Universities of Chicago and Wisconsin began organising university extension programmes, Nagel (1997). The growth of the university extension movement and other extension type activities culminated in the passage of the Smith Lever cooperative Extension Act in 1914 that provided for a combination of federal, state and local funding of agricultural and home economics extension work. The cooperative nature of extension work in U.S. came out of the fact that extension enjoyed cooperative legislative backing and funding of all levels of government.

The spread of agricultural extension activities in Europe, Australia, New Zealand and Canada tended to parallel events in United States, but their organisations developed somehow differently. While some European extension systems were institutionalized as parts of the National Ministry of Agriculture, others included the cooperative dimension that provided support at both the national and local levels (Qamar, 2005). The original concept of extension was that of bridging the gap between the farmers and the sources of information or knowledge.

Such sources include organisations or institutions generating knowledge and technologies such as Research centres, universities and agricultural institutes. This was based on what Terblanche, (2007) called traditional model. According to this approach, agricultural knowledge is assumed to stem from the results of agricultural research and the clients were the farmers, i.e.

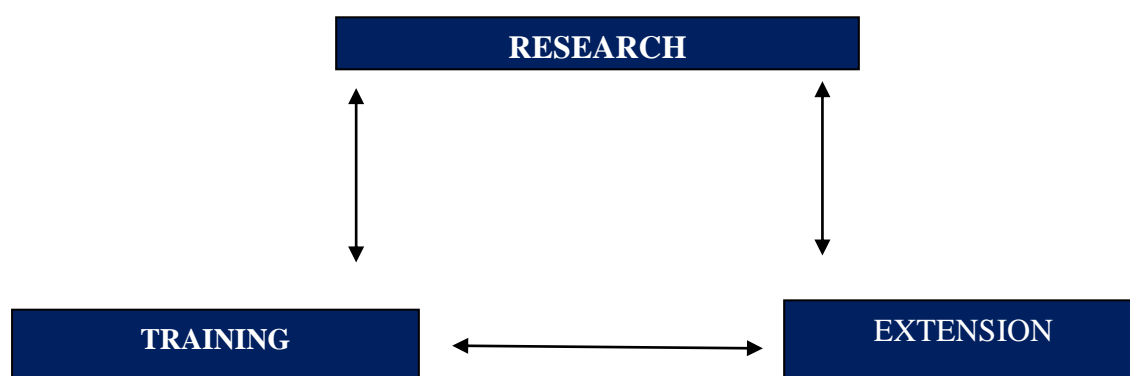


Figure 3.1: Traditional Model of Technology Transfer

Source: Botha (undated)

In this approach the extension agent has the power and as indicated above, the process takes place in a one way direction. This system is dominated by the notion of Transfer of Technology (ToT), and assumes that farmers have limited role in the extension process (Terblanché, 2007). The system is characterised by scattered and smallholder farmers, with limited resources and heterogeneous agricultural produce.

Nagel (1997) explained the understanding of extension concept as based on three premises namely: educational, having a philosophy and scope with responsibilities. The educational element of extension is two folds: being informal and formal. The informal type of education is the one that has no syllabus. Its syllabus is the farmers' condition and needs. It also has no classroom, as its classroom is the farmer's home or farm. The teaching of the extension worker to the farmers is based on the farmers' conditions and setting. Qamar (2005) explained further that the formal type of extension education on the other hand is planned, has written objectives and content, can be examined but in most cases it is not.

3.3 CLIENTS OF EXTENSION AND ADVISORY SERVICES

The client base for extension and advisory services is outlined in the national policy of extension (DAFF, 2014). The priority focus is on smallholder producers and subsistence household food producers. Extension practitioners should provide these clients with support envisaged under the six pillars of Comprehensive Agricultural Support Programme (CASP), namely; Information and Knowledge Management; Technical and Advisory Assistance;

Regulatory Services; Training and Capacity Building; Marketing and Business Development and facilitating access to appropriate On-and Off-farm Infrastructure).

Table 3.1: Categories of clients and the support needed

Category of clients	Description	Support needed
Subsistence and household food producers	<ul style="list-style-type: none"> Subsistence producers (includes all household food producers and communal gardens) due to resource constraints mainly produce for own consumption; may produce small marketable surplus. 	<ul style="list-style-type: none"> Support under the six pillars of CASP
Smallholder producer type 1	<ul style="list-style-type: none"> Smallholders for whom smallholder production is a part-time activity that forms a relatively small part of a multiple-livelihood strategy. 	<ul style="list-style-type: none"> Provision of starter packs and advice during food emergencies and disasters
Smallholder producer type 2	<ul style="list-style-type: none"> Smallholders who are more or less in the middle of the spectrum, meaning that they rely largely on their agricultural enterprises to support themselves and are not living in poverty, but need further assistance both to expand production (or make it more efficient and/or profitable), join in the value addition and find markets. 	<ul style="list-style-type: none"> Support under the six pillars of CASP
Smallholder producer type 3	<ul style="list-style-type: none"> Smallholders who operate according to commercial norms but who have not reached the threshold at which they are obliged to register for VAT or personal income taxes. Some producers who appear to be in this category are, in fact, commercial-scale producers who do not wish to be liable for taxes. This category would also include practicing or retired professionals who have access to resources to produce at a commercial level. 	<ul style="list-style-type: none"> Specialised advisory services, ARC, private sector support, AGIS and available information
Commercial farmers	<ul style="list-style-type: none"> Producers that produce primarily for the market and make considerable living from farming. <p>They have full access to goods and services (land, information, inputs, markets) to farm effectively</p>	<ul style="list-style-type: none"> Specialised advisory services, ARC, private sector support, AGIS and available information

Source: DAFF 2014, policy on extension and advisory services

3.4 HISTORY OF EXTENSION SERVICES IN SOUTH AFRICA

The early history of the agricultural extension services in South Africa dates to the reconstruction years that followed from 1902 when scientists were imported from England to assist in the development of local agriculture (Van Vuren, 1952). As a result of unfamiliarity with local agricultural conditions their advice and guidance were not always regarded of practical value and as early as 1907 the first scientists from South Africa were send to study abroad. The technical support services circa 1910 consisted of a number of specialist services that each focused on the services of its branch with no central coordination.

In 1925 the Department established a separate Division of Extension to act as the link between farmers and the specialist technical services of the Department with only 6 scientists to serve all four provinces. Through personal contact it succeeded in proving the value and importance of a more integrated approach to farmer support. In addition, the concept of cooperative demonstrations was introduced where the reaction of crops, pastures, fertilizers, etc. to the environment was first determined, and then used as demonstration trials to farmers to see for themselves and thus, become more readily convinced (Van Vuren, 1952).

Study tours were also organised to give farmers the opportunity of seeing what others were doing, or of visiting places and institutions of value from an agricultural point of view. During this period the responsibility for the faculties of agriculture was transferred to the Department of Agriculture where, under the 1926 Stellenbosch University and Elsenburg Act, they were managed in close collaboration with the scientific capacity at the regional centres. Scientific research capacity was thus, closely coordinated with the service focus of the Department.

Until 1933 the functions of extension service were mainly advisory, but the assistance schemes introduced to assist farmers during the drought introduced the addition of regulatory duties. Following on the Boer War visits to farms by government officials were not welcomed in some parts of the country (Du Toit, 1954) of 1934, the Weeds Act of 1937 and finally the Soil Conservation Act of 1946.

This considerably increased the duties of the extension officers, but resulted in more widespread contacts being made with farmers that might otherwise have been impossible. Personal contact with farming matters gradually made extension officers realise that the various farming activities were inseparably linked. Whereas specialist extension dealt with farming from the point of view of a single industry or subject, the concept of planned whole-farm demonstrations introduced from 1942 considers the proper relationship between the various branches of farming under local conditions.

This required a thorough study of farming matters under local conditions in addition to an intimate knowledge of the personal factor, namely: the ability and knowledge of the farmer concerned (Van Vuren, 1952). The idea of a whole-farm planning approach within the context of a specific climatic and economic region was born, which in 1948 led to the introduction of a decentralised approach to extension within what was later to become eight regional offices. During the early 1940s the extension services also introduced home economics to concentrate on the training of the rural women as well as the Land Service that focused on skills training among the youth.

In 1952, the agricultural technical services (research and specialist services) of the Department were re-structured to reflect the regional focus of the Division of Extension. Through this seven Regional Development Centres (RDC) was created, later to be renamed Agricultural Development Institutes where a full range of disciplines and services were focused on addressing farming problems and development needs within the context of agro-economic regions.

This structure largely stayed in place until, first the university Faculties of Agriculture were transferred to the responsibility of the National Department of Education in 1971, followed by the systematic creation of national commodity institutes from 1979 through 1988. During this time the extension services changed its activities to focus solely on farmer study groups instead of individual contact visits. By 1988 a Commission of Enquiry into Agricultural Service Provision found that about 40 percent of the extension positions in the department were vacant and that the service needed nearly 300 positions in addition to the existing staff plan (RSA 1984).

In response to the growing dissatisfaction with the expertise level of the extension services of the department the private input supply companies, farmer co-operatives and certain producer/commodity organisations began to create their own advisory services around this time. The system was further fragmented by the creation of the Agricultural Research Council (ARC) in 1992. Soon hereafter, the Agricultural Development Institutes were used to form the administrations of the nine Provincial Departments of Agriculture in 1995 under the new constitutional dispensation where agriculture became a shared competence between national and provincial governments. Several of the provincial Departments were merged with the administrations of the former Homelands and ‘right sizing’ the staff component proved to be a major challenge for the decade to come

3.4.1 EXTENSION AS A FUNCTION FOR AGRICULTURAL DEVELOPMENT

When systematically and effectively provided, extension is known to enhance social and economic development. Technological changes and the knowledge system that underpins it is a critical factor in development according to the (World Bank, 2002). In spite of the difficulty of isolating its impact on agricultural productivity and growth from that of other factors, studies have demonstrated the high economic returns of investment in agricultural research and dissemination, with returns typically above 40% (Anderson and Feder, 2003). Investing in agricultural research and extension is thus acknowledged as a crucial input for agricultural growth.

Many studies and observations have concluded however, that in many instances, agricultural extension services in developing countries are grossly underfunded to undertake the activities required for achieving food security while protecting resource base in order to keep up with population and economic growth. Recognizing the centrality of agricultural extension services in agricultural development and agrarian transformation efforts in South Africa, the DAFF launched the Extension Recovery Plan (ERP) during 2008/2009. The purpose of the ERP was to revitalize the state of agricultural extension and advisory services in South Africa, through initiatives and activities that improved policy framework for extension services provision, developed competencies and capabilities of individual officers, make information and technologies an integral part of service delivery whilst at the same time make the service more visible and accountable to the farmers (DAFF, 2011). The strategic long term goal was to make extension service an effective means of improving national

agricultural productivity, enhancing food security whilst providing support to national efforts towards land and agrarian reform in the country.

The strategic objectives (as termed pillars) of the ERP are to:

- (i) Ensure visibility and accountability of extension;
- (ii) Promote professionalism and improve the image of extension;
- (iii) Recruit extension personnel;
- (iv) Reskill and reorientate extension workers; and
- (v) Provide ICT infrastructure and other resources

Pillar 1: Ensure visibility and accountability of extension

The beneficiaries of government interventions identified extension and advisory services as the weak link militating against the full impact of government agricultural programmes in the past. This pillar seeks to discard this perception by creating an environment whereby farmers know who their extension officers or advisors are, where to find them and how to relate/communicate with them. Provinces should provide the farmers with the Farmer's green book which serves the purpose of recording the daily interaction of the farmer with the advisor, it also serves as a farm management tool which resides in the hands of the farmer.

With this tool, extension officers can account for the advice given to farmers and can be there for farmers when they need advice. The extension officers can also own a management diary which would assist in planning their work accordingly. The public cry is, extension officers cannot be identified in a group of people, hence provinces may provide a uniform for extension officers. Another method used to ensure visibility of extension officers to farmers is to utilise the digital pen system. The system is a management tool used to monitor and record the work done by extension officers in the field. The digital pen resides with the extension officer, and whenever an extension officer visits the farmer, he/she writes with the pen in the digitised form and the data are there and there transmitted to the main server and can be accessed by managers. The system requires a digital pen itself, a digitised form, a cellphone matching with the pen for transmission of data. It is an internet based system and therefore requires a network connection. In this way the managers are able to know about the progress on every project, how many farmers or projects were visited by an extension officer, the location of projects and the information shared between the extension officer and the farmer.

The system allows for the attachment of pictures which helps in capturing the actual condition of the farm.

Pillar 2: Promoting professionalism and improving image of extension

The role of extension and advisory services in the agricultural sector has silently always been the main determinant of improved livelihoods for the farming community (subsistence to smallholder farmers). With the increasing number of government programmes aiming at rural development, food security, land reform (restitution and redistribution) and natural resource management, there is a growing need for dedicated professionals to support these programmes. Extension and advisory services are rising to the standard to meet these demands and for the entire public to recognise and regain confidence in the sector. It depends upon the sector to portray a good image and enhance professionalism to clients and the broader public.

This pillar focuses on the affiliation of extension officers with professional bodies and participation of extension officers in those bodies as active members. The pillar also encourages the hosting of extension conferences by provinces. As conferences would be held, it should be in conjunction with recognising outstanding performance by extension officers and rewarding them accordingly by the MEC's for Agriculture in the Province.

Pillar 3: Recruitment of extension personnel

The norms and standards for extension and advisory service prescribes the extension official to farmer ratio. This is dependent on the nature of dominating commodity (enterprise) within a specific area. For the purpose of implementing norms and standards in this regard the point of departure was to establish a clear baseline, hence a study was conducted in October 2006 with the aim to profile the government-employed extension personnel. The results of the study assisted the department in developing interventions to develop the agricultural sector.

The findings indicated that there were 2 210 extension personnel in the country versus the unknown number of clients (extension personnel did not have a database of their clients). Nevertheless there is an indication of the number of beneficiaries of the programmes that

extension personnel support per Province even though their line of farming is not clear. The demand for advisory and/ extension service varies according to the nature of the farming practices, i.e. crop farming, livestock farming or mixed farming systems involving both crop and livestock and farm size.

Pillar 4: Reskilling and reorientation of extension

It is of utmost importance to enhance the skills and knowledge capacity of the current crop of extension personnel through training, capacity building and qualifications upgrading. In terms of the norms and standards document, the minimum academic qualification for an Agricultural Advisor is a Bachelor's degree in Agriculture. Any person with lower qualifications can only function as an Agricultural Development Officer. Norms and standards again advocate that the extension personnel should be competent in the following areas: client orientation and customer focus, communication, project management, knowledge management, service delivery orientation, problem-solving analysis, people management and empowerment.

In this regard, the extension personnel will undergo targeted accredited generic training programmes in project management, communications and ICT. Many of the extension personnel who do not possess appropriated qualification levels as recommended in the norms and standards will be encouraged to study either on a part-time or on a full- time basis through sabbaticals.

Furthermore, collaboration with institutions of higher learning would be intensified to ensure that the newly registered unit standard qualifications in extension are incorporated into the curricula of these institutions. In some instances these institutions of higher learning will have to review their existing curricula on extension.

Pillar 5: Provision of ICT infrastructure and other resources

The extension personnel have been declared as inefficient and ineffective by the beneficiaries of the government programmes. This was caused by inequalities that existed in the extension services sector of the past, whereby the support was much more intensified towards the white farmers (served by white extension personnel) and which left the black community in the

dark. The democratic government has addressed these issues and therefore calls for the sector to transform and service their clients to their full potential. In the extension sector, personnel need to be equipped/supported with the working tools that will assist them in meeting the demands of their clients.

In order to create an enabling environment, Provinces were required to make provision of required ICT tools to the extension personnel. Resources have been made available for the strengthening of extension information management and dissemination through state-of-the-art information and communication technology. Provinces should in this regard, provide extension officers with ICT packages (laptop, printer, cellphone, memory stick as determined by the Province), provide an enabling environment for the adaptation of the Extension Suite Online (ESO) and procure other useful resources in consultation with the national department. The ESO is an internet-based system designed for extension officers to access information relating to agriculture in broad on the spot, in order to assist the officers in decision making during contact sessions with clients.

When looking at a global perspective the ERP came at a relevant time because agriculture extension continues to be in transition worldwide. Governments and international agencies are advancing structural, financial and managerial reforms to improve extension, (FAO, 2008). Decentralization, pluralism, cost sharing, cost recovery, participation of stakeholders in development initiatives and the decisions and resources that affect them, these are some of the elements in extension's current transition.

However, in spite of this renewed commitment to public funding and support for extension services, a number of challenges still exist. Berhanu et al. (2006) argue that globally, a number of generic problems still confront extension services including problems related to coverage; complexities involved in the service; effect of wider agricultural development policy environment for success; the critical role of other institutions support services such as input supply, credit and agricultural marketing, lack of political support and commitment; inadequate public funding and insufficient appropriate and relevant technologies. The complexity of the extension service arises from the need to deal with the diverse sources of agricultural information for farmers, advising multiple stakeholders and partners in the agricultural development effort and the ranges of extension mandate.

Indeed it is argued that the effectiveness and efficiency of the extension services is contingent upon the overall policy environment for agricultural development. Lack of political commitment, partly arising from urban bias and poor understanding of the role of rural development in the overall economic development effort of the country, has been another common problem confronting extension service in many developing countries. In this regard, Purcell and Anderson (1997) posit that implementation of about half of the World Bank assisted projects in seriously affected by the lack of commitment by senior government officials.

3.4.2 NORMS AND STANDARDS FOR AGRICULTURAL EXTENSION AND ADVISORY SERVICES

In response to this prevailing complex institutional, capacity and delivery challenges facing extension services the then National Department of Agriculture (NDA), now DAFF developed and published Norms and Standards for agricultural extension and advisory services in 2005. The norms and standards document argued that there is no single extension model or approach suited to all situations in South Africa, noting that depending on the prevailing conditions technology transfer, participatory approaches and needs based development can all be relevant.

The Department of Agriculture then pressed with efforts to reform and revolutionized extension services especially in the light of land and agrarian reform that were being rolled out by the Government of South Africa. Thus, in 2008 the Department of Agriculture went further and produced a detailed report entitled '*the state of Extension and Advisory Service within the Agricultural Public Service: A need for Recovery*' following a consultative extension indaba at had hosted in the same year. The report provided a sobering and candid assessment of the state of the nations' extension services.

Noting that the capacity of provinces to deliver quality extension service to farmers varies and to some it is already suffocating, the report provided the following key highlights as captured in the tables below:

Table 3.2: The different extension bands as currently conceptualized

Job title	Minimum requirements	Level of employment
Agricultural Community Officer	Standard 10 + in-service training in agricultural studies	NGO and Local Government
Agricultural Development Officer	Standard 12 + 3 or more years of post-matric agricultural diploma	Social Development/Local Government
Agricultural Advisors	B.Tech/Bachelors/Hons in Agriculture	Provincial
Subject Matter Specialist	BSc. (Hons) degree in Agriculture	Provincial and National

Source: **Liebenberg (2015)**

Table 3.3: Number of extension staff employed by Provinces

Province	Number employed	Suggested number based on the ratio of 1:250
Eastern Cape	623	2 688
Free State	40	103
Gauteng	29	38
Kwazulu Natal	360	1 419
Limpopo	666	2 361
Mpumalanga	189	675
Northern Cape	23	52
North Western	137	257
Western Cape	25	123
Total	2 210	7 706

Source: Liebenberg (2015)

The report also noted that only 427 (19%) of the 2210 had degree or higher qualification. The implication is that 1 728 (79%) of the extension personnel had a diploma qualification.

Only the Western Cape, Gauteng and Free State had a good percentage of officials with a degree qualification and higher.

3.5 TYPES OF EXTENSION APPROACHES/SYSTEMS

In order to identify or develop an appropriate extension framework, the logical point of departure is to take cognizance of already existing extension systems. Numerous systems are quoted in the literature (Ray, 1985; Weidemann, 1987; Röling 1985; and Axinn, 1988). However, there is no straight forward statement which clearly outlines the universal acceptable typologies of “how many extension approaches” are present. The typology developed by Rivera (1989) summarised in Table 3.2 – below, gives a more or less representative picture, although one of the shortcomings is that it has left out other models. For example: the Advisory model, Agricultural Knowledge and Information System (AKIS) (Röling, 1995), the Problem Approach, Basic Needs and Integrated Rural Development and the Farmer Field School (FFS). The following approaches are discussed: Top down delivery approaches, participatory systems and contract farming.

3.5.1. TOP DOWN DELIVERY SYSTEM

Table 3.4: Extension system approaches

System Approach	Type of System	Relationship to farmers
Top down delivery services	<ul style="list-style-type: none">- Conventional- T&V system- University organised- Technical innovation	Take it or leave it.
Participatory Acquisition system	<ul style="list-style-type: none">- Farm information dissemination (Taiwan)- Farming System Research and Development (FSR&D)	Take it or demand different package or programmes.
Contract Farming Systems	<ul style="list-style-type: none">- Commodity development and production	Take it or else.
Rural Development Extension Approaches	<ul style="list-style-type: none">- Cum-extension- Rural Animation- Integrated rural development programmes	Take it or turn away

Source: Rivera 1989 (originally developed by Dr. Joao Barbosa of the World Bank)

a) Conventional approaches

Conventional approaches offer a broad categorization that covers many general extension systems. Conventional agricultural extension systems are characterised by the fact they tend to be strongly hierarchical. The professional extensionists look upward for directives rather than downward for approval. Lastly there are few effective means for managing and supervising the middle and upper level staff members (Boone, 1987).

b) University-based extension

The most comprehensive example of university linked example is the cooperative extension service. The linkages are historically legislated and organisationally ingrained. The primary goal of this approach is to conduct educational programmes in selected subject matter areas to help clientele solve problems in a way that is socially desirable and personally satisfying. However, there are challenges faced by developing countries which make it difficult to implement the University-based extension system (Swanson & Claar, 1984).

University-based extension system is tailor-made for middle to high income countries, mostly observed in countries like India, Kenya, Philippines and Nigeria (Norman et al, 1994). It is argued that the implementation of this approach in South Africa would be difficult to accomplish without legislation (Bembridge, 1993).

c) National commodity panels system

Arnon (1989) identified the National Commodity Panels System. This system consists of a research sub-system, a dissemination sub-system and a user sub-system. Although the model shows a joint decision making framework, the researcher is seen as having the sole role of producing technology while extension is seen as the delivery of research result to farmers. This model is not generally accepted by the sub-systems concerned (Arnon, 1989).

d) Technology innovation process

Another system which is seen as an improvement of the original Transfer of Technology (TOT) is defined as the Technology Innovation Process (McDermott, 1987). This model

distinguishes the required sequences of functions in terms of steps or stages, which must be performed. For example, the steps are: research, technology generation, technology adaptation, technology integration, technology dissemination and technology diffusion and adoption.

A close look at the steps shows that it assumes a linear paradigm in which research priorities are decided by scientists in research stations where technology is developed as well as adapted and integrated before it is handed over to extension to be transferred to farmers for adoption purposes. Although the model advocates that research-extension-farmer co-operation should begin at the planning stage, it is not always clear as to who does what within the stages. This model also advocates the use of a committee to link up the role-players but the nature of the model remains top down in nature, and thus, ignores the existence of indigenous knowledge.

e) Training and Visit system (T&V)

The concept of Training and Visit (T&V) extension was developed in the early 1970s, and implemented as a component in two regional irrigation projects, in India, both funded by the World Bank in 1974 (World Bank, 1990). The primary objectives of the system was to strengthen the extension management system, improve the extension agent–farmer ratio by increasing the number of field staff, and provide basic support services to field extension staff members. The principles of the system were spelled in great detail in Benor & Harrison (1977) and Benor & Baxter (1984) as follows:

- A professional service with a full-time trained staff, supported by resources required to perform their professional functions;
- Establishment of a single line of command for all extension staff;
- Staff efforts to be concentrated on extension activities, with performance on clearly defined and measurable tasks;
- Time bound work and training programmes including regular farm visits;
- Field and farmer orientation with special reference to meeting farmers on their own fields;
- Regular and continuous training of personnel at all levels; and
- Ensure farmer-extension-research linkages.

In many cases, the T&V progress is hindered by misunderstanding of its fundamental principles on which it is based and confusion between those principles and implementation details. A close analysis shows that the T&V system takes a classic top-down approach to extension. It is based on the institution and largely teaching centred. This concept stresses two aspects namely research must produce innovations out of which messages are formulated and extension has to deliver these messages to farm families so that they can be adopted. The T& V system was found to be a costly failure in most of the African countries in which it was promoted and tried and not sustainable financially (Hagmann & Shultz, 2000).

f) Problem-solving approach

The steps involved in systematic problem-solving are not fundamentally different to the stages of systematically planned extension work and belong to the basic functions of management. The procedure always begins with an analysis of the given situation and ends with the evaluation of results (Albrecht, 1989). The problem solving approach also seems to be prescriptive in the sense that once the problems have been identified the agricultural technician would develop alternative solutions and draw programmes to implement it without the involvement of the affected people.

A close link exists between the problem-solving cycle and the cycles of Participatory Action Research. Based on this understanding, certain other philosophies and approaches to extension, such as teaching no longer fit, since this implies a partner with predetermined solutions. Albrecht (1989) calls this the ‘banking approach’ since it is assumed that solutions can be stored and retrieved like money that can be deposited in a bank and withdrawn at any time when needed.

Modern mass communication (e.g. books, brochures, newspapers, radio) does not address acute individual problems of extension clients. Advertising (or persuasion) is not primarily client-oriented. While it is aimed mainly at the well-being of extension partners, it also benefits the advertisers. Compulsion has no place in the above understanding of extension since there is no freedom to take decisions and personal responsibility is lacking (Albrecht, 1989).

The researcher argues that there are two sides of the top down delivery systems. It is hailed superior on the one side and criticized on the other. The conventional transfer of technology (TOT) is often criticized (Röling, 1995) without considering the breakthrough it has brought about during the mid – 1960s when research was successful in the generating of high yielding wheat and rice varieties.

This was the era known as the ‘green revolution’. It was generally accepted for the first time following the success of the TOT system that research was the principal source of new technology and that extension heavily depended on national research to generate the technology which it would extend to farmers (Kaimowitz, 1990). One of the mistakes observed (Oram, 1985) was the assumption that research could be short circuited by importing technology and transferring it directly to extension services.

The characteristic of the TOT systems that make them to be criticized is because they suggests a linear, one way process, all starting with the research and ending on the farm as an adopted technology. When the technology is not adopted by farmers, blame is apportioned to extension that is thought to be lazy in diffusing the technology. Studies show that one of the problems with the conceptualization of diffusion research has been the assumption that social systems are homogeneous (Röling, 1988), whereas in practice they differ in terms of access to resources, opportunities, and production objectives. A number of factors, which determine such a rate, were documented in the past (Murton, 1965) and they include relative advantage, compatibility, complexity, divisibility and communicability (Rogers, 1983).

The top down systems are generally inadequate to resolve the problems of resource poor farmers. They focus on a ‘prescriptive package’ approach to often predetermined farmer needs aimed mainly at increasing farm production without taking the risk of environment and social problems encountered by resource-poor, subsistence farmers into account. It is not surprising that South African researchers found that the most preferred model for extension was the Technology Centred Approach (Bembridge, 1993, Botha et al., 1999; Düvel, 2001). It was concluded that the production capability for feeding the nation rests within the commercial sector which can afford to implement TOT approaches.

The adoption of a food security policy such as a sustainable livelihood for the country as a whole will mean that the most appropriate extension system for smallholder farmers would

be the one that seeks to empower them, based on people and not only focusing on the technology. Furthermore it should focus on unlocking the powers that are present in the farming and community systems namely, human assets, social assets, natural assets and the honouring of livelihood strategies (Moyo & Hagmann, 2000). A critical analysis of the top down systems have been documented elsewhere (Kline & Rosenberg, 1986; Röling, 1988; Long & Van der Ploeg, 1989).

It is useful to indicate that there are five dimensions that are useful in understanding the systems namely the nature of innovation taking into account the whole farm, the assumed nature of learning about innovation by farmers, the assumed nature of extension and the conducive policy framework (Röling, 1985). People tend to be entrenched in stereotype thinking of one approach such as the transfer of technology model (TOT) because of its nature of coherence as a whole and never think of any other alternatives to it (Röling, 1985). There are situations where elements of the top down systems apply but it is by no means a system that can inform all extension practice.

3.5.2 CONTRACT EXTENSION SYSTEM

The contract extension system can be explained by using two terms namely “contracting-in” and “contracting-out”. The first term refers to public sector extensionists providing services in contractual arrangements with private sector entities who provide at least partial funding, whereas contracting-out refers to the public sector contracting out the extension advisory services to the private sector (Crowder, 2001).

Mozambique and Uganda are some of the countries where this system is functioning although its sustainability is questioned. Extension workers are contract employees who are supported by projects funded by donors. Contract approaches could be categorized as part of private sector extension. Umali (1996) suggested that the private sector system can further be divided into two systems namely the profit sector systems and the non-profit sector. The private for profit systems include cooperatives, trade organisations, distributors, input manufacturers such as machineries, hybrid seeds, livestock, veterinary supplies, pharmaceuticals and agricultural information, agro-marketing, processing firms and farmer group operated enterprises.

The private for profit systems charge for the services they render to their clients. Private consultants for example are used by commercial farmers. Since they are highly trained subject matter specialist, they provide specialised technical and managerial services such as in commodity development and production. It is observed that they provide significant service by helping farmers to move from a subsistence level to more commercialized farming through the use of purchased technologies. In counties such as Chile and Columbia an innovative system has been adopted which has implemented the use of a voucher system by farmers (Umali, 1996).

The challenge of these systems is that resource poor farmers cannot afford some of the services provided by the private sector. On the other hand there are advantages from farmer controlled extension systems. They hire extension technicians thereby reducing the budgetary load of the government (Norman et al., 1994). The other category of the private non – profit system include institutions such as NGOs, Universities, commodity boards and non – commercial associations. In recent years NGOs have become active in agricultural extension, in most countries, but usually within projects with limited scope and scale in the context of overall national delivery needs (Duvel, 2001).

3.5.3 COMMODITY DEVELOPMENT

The commodity-based approach in agricultural extension is generally organised through parastatal organisations or private firms and is very important for cash crops or export crops. In South Africa, the major cash crops are potatoes, sugar cane and a diversity of other horticultural commodities. The smallholder farmer participation in sugar cane production has risen as a result of the commodity-based approach in which private companies offer extension and processing facilities (Phuhlisani, 2008). In horticulture, the approach has been widely used to establish out-grower schemes and provide research, extension and input credit services to interested farmers.

Furthermore, it retains characteristics of the conventional top-down extension approach, which does not give freedom to farmers and stifles their initiatives. The main advantage of the commodity approach lies in the high returns on crops while the disadvantage of this approach is that extension content is limited to technical and administrative or commercial

aspects of the particular commodity. Farmers tend to depend on commodity organisations for advice, inputs and the sale of their crops.

3.5.4 PARTICIPATORY EXTENSION SYSTEMS

a) Farming Systems Research and Extension

Farming System Research is designed to test ‘appropriate’ agricultural technology with client populations and has been widely adopted whereas the results of intended outcomes have only made marginal headway (Chambers & Jiggins, 1986).

The FSR&E approach methodology was developed as a direct response to the failure of various prescriptive agricultural development models and the realization that many recommended technologies, although technically sound, were not relevant to the objectives and socio-economic circumstances of smallholder farmers or were inappropriate to the agro-ecological conditions (Bembridge, 1993:32).

Most of the above-mentioned were developed to correct the challenges generated by the top down systems. One observes that the deeper meaning of participation was not fully explored and the basic questions addressing the reasons for failure were never asked. Donor supported systems tend to view these systems as the solution for smallholder farmers (Ananda et al., 2008). Due to the associated limitation however, it cannot be accepted as the panacea for all farming settings.

Some of the identified limitations are that every farm is a unique system with its own family situation and particular likes and dislikes, changes of climate and marketing conditions are unpredictable, short term benefits and yield sustaining measures are often conflicting, it is difficult to set up interdisciplinary teams and that farmers are tired of answering more and more questions they want to see results and specialists have a limited understanding of the whole complex of problems (Ananda et al., 2008).

b) Farmer Fields Schools (FFS).

The concept of farmer field school was first applied in South and South East Asia and has shown potential to succeed among smallholder farmers (Owen and Simpson, 2002). FFS is

described as a future approach that agencies could be using to mainstream extension practice and can be used to build participatory practices into extension programmes (Simpson, 2001; Rola et al., 2001).

A close analysis of FFS reveals the following:

- FFS is capable of being responsive to local needs over a wide range of conditions with a wide range of crops;
- It is able to combine an effective blend of participatory and experiential learning activities;
- Graduates from FFS have gained confidence and are willing to communicate viable technology to others in their immediate vicinity and beyond and contributing towards social development; and
- Some of the challenges of FFS relate to the focus and relevancy not necessarily being any greater than a more traditional delivery oriented programme.

The low levels of farmers self-awareness and actualisation in terms of their real and possible roles in knowledge generation may be closely linked to the educational levels and training of field agents (Mnadi, 2011). There is also a fear that FFS may develop an ‘elite’ bias favouring those who are literate and the perception that the content is based on ‘Western’ science.

c) Agricultural Knowledge and Information System (AKIS)

An agricultural knowledge system is seen as an alternative system to TOT. The system was discussed by a number of authors who gave different interpretations (Röling, 1988; Kaimowitz, 1990). It is a system in which agricultural information is generated, transferred, consolidated, received and fed back in such a manner that these processes function synergically to underpin knowledge utilization by agricultural producers (Röling, 1988).

The difference between information and knowledge systems is that information is an attribute of the mind. It cannot be transferred. It is the outcome of lifelong information processing, storage and retrieval going on in the neurophysiological system. Knowledge on the other hand can be shared and accumulated in social groups (Röling, 1988). The author does not see it as an alternative because of its character. It would be a system within another system. It demonstrates the relationship between the main role players and stakeholders in the extension

mix and highlights the need for institutionally strengthening the relationship among the contributors to the extension process. Whether it is a desirable thing or not to improve rather than to question the premise of the triad of the subsystems, AKIS is believed to provide a firm foundation on which to create a new understanding of extension (Worth, 2002).

3.6 STAKEHOLDERS IN THE DELIVERY OF EXTENSION SERVICES

Stakeholders are found in any given community. An identification of stakeholders could be of assistance to promote participation of role players in agricultural development. A stakeholder, as described by Swanepoel & De Beer (2006) refers to an individual or organisation having a stake or interest in an activity or project. Agricultural extension innovation provides for participation of all stakeholders in technology generation, technology experimentation, technology diffusion and technology learning (Gera et al., 2010). In rural agricultural development a stakeholder is viewed as having a stake in rural agricultural extension delivery.

New approaches to extension emphasize three elements: i) strategies to develop Agricultural Innovation Systems, ii) pluralism of service providers and iii) extension services should be demand-driven. Advancing agricultural innovation means building institutionally sustainable innovation systems, which can be gauged by growing interrelations between the participants in the innovation system, an intensive communication between all stakeholders and a strong ‘social embedding’ (Anandajayasekeram et al., 2008). Much literature suggested the need for a pluralistic extension system, which includes potential provision of extension services from the public sector, the private non-profit sector and the private for-profit sector. The key issue of creating a pluralistic service is a need to find an appropriate ‘mix’ of public and private funding and delivery mechanisms for extension, which will achieve differing agricultural goals and serve diverse target populations (Anandajayasekeram et al., 2008).

3.6.1 PUBLIC SECTOR

Part of the functions of the public sector in agricultural development, especially, in the developing world includes provision of extension and advisory services to farming communities and capacity building of extension service providers and researchers. These are achieved through the development of policy guidelines, market information and community

outreach for collective action. Parastatals are included in this sector as they also provide specialized extension and advisory services to selected projects prioritized by government. Pant & Odame (2006) explain that in most low-income countries, the public sector works in partnership with non-governmental organisations for both conventional and non-conventional agriculture. The same authors further assert that through these partnerships smallholder farmers are better recognized as emerging or potential entrepreneurs.

3.6.2 PRIVATE SECTOR

This sector is composed of active groups in commerce and industry, including factories manufacturing consumer goods (Swanepoel & De Beer, 2006). According to Biggs (1990), the primary objective of the private sector is to maximize profit. In the pursuit of such profits, private sector firms develop and promote the use of effective information systems and products that respond to farmers' needs (Swanson & Samy, 2002). The private sector has an important influence on technological change in developing countries and can influence the government to meet corporate interests (Pant & Odame, 2006). Some private firms provide extension services targeting small and large scale farmers in partnership with the public sector (Swanson & Samy, 2002).

3.6.3 NON-GOVERNMENTAL CIVIL SOCIETY STRUCTURES

The concept of Civil Society Organisations (CSOs) is broad and inclusive of non-governmental organisations (NGOs), charities, trusts, foundations, advocacy groups, and national and international non-state associations (Swanson & Samy, 2002). According to Farrington & Biggs (1990), NGOs work with the local communities to identify problems and to organise local efforts to solve them, while building capacity and providing developmental services. Swanepoel & De Beer (2006) noted that NGOs came into existence to address specific problems such as farming methods to rural farmers at grass-roots. NGOs and government institutions have worked together innovatively and created new management of extension system through mobilisation of resources, communities and introducing and up-scaling of technologies (Christoplos, 2010).

3.7 CHALLENGES FACING EXTENSION SERVICES

A literature review on international extension and advisory research between 2001 and 2015 revealed a number of challenges facing the agricultural extension advisory landscape. The challenges are organised according to the ‘best-fit’ framework (Birner, Davis, Pender, Nkonya, Anandajayasekeram, Ekboir, Mbabu, Spellman, Horna, & Benin, 2009). This thinking is echoed by Rivera & Qamar (2003), who stated that ‘no two people are exactly alike’; it is important to realise that no single extension methodology is suitable for all situations and for all purposes.

A ‘one-size-fits-all’ approach to sustainable extension and rural development programmes will not work. The need to develop location-specific extension approaches is essential and in line with developing situation specific food security strategies. The best-fit approach embraces both the pluralism of approaches used today and the diversity found within agricultural innovation systems (GFRAS, 2012). The framework for designing and analysing agricultural advisory services looks at the impact pathways and influencing factors for successful performance and impact of extension services.

It starts with the contextual factors or ‘frame conditions’, including the policy environment, the general capacity of service providers, and the production/farming systems and community aspects.

The framework then looks at the characteristics of the advisory service system that must respond to the frame conditions. These characteristics include governance structures, capacity, management, and extension techniques or methods used. The conditions and characteristics then affect the performance of the service, the response through capacity building and decision making of farm households and leads to impact.

3.7.1 POLICY ENVIRONMENT

Revitalising extension and advisory services was the focus of a landmark conference held in Nairobi in November 2011 (Pye-Smith, 2012), resulting in the Nairobi Declaration. One of the root causes of low productivity in Africa is the poor performance of the extension and advisory services, and the lack of financial support they receive (Pye-Smith, 2012). It is

therefore important to formulate national policies and strategies on extension and to ensure political and functional commitment (Qamar, 2005).

Extension reform requires a policy vision and determination, as well as a nationwide strategy that can be effectively implemented (Rivera & Qamar, 2003). Policies and strategies must depend on government priorities and the needs of clientele. However, in formulating extension policy, and thus the roles of extension services and extension agents, it is important to note that today, for better or for worse, extension agents do more than just ‘traditional’ extension and technical agricultural outreach.

They play a much bigger role, brokering and facilitating links and relationships within the agricultural innovation system, and thus require new strategies and capacities to perform these roles (Sulaiman & Davis, 2012). For policy-makers, extension is a much needed investment in human and social capital of the rural population of a nation. Specific attention must be given to:

- Prospects for regional and global platforms such as the African Forum for Agricultural Advisory Services (and their country forums) and the Global Forum for Rural Advisory Services;
- Poverty alleviation, food security and risk reduction;
- Gender equality in extension;
- Rethinking priorities for pro-poor extension;
- Market-orientation and demand drive; and
- Extension in research for development (Christoplos, 2010).

In an updated review of African extension policy, Idowu (2015) shows that from a list of 27 countries under review in, 13 countries have a legislated extension policy. The analysis showed that there is need to create awareness about the linkage that should exist between extension policy and Comprehensive Africa Agriculture Development Program (CAADP) pillars. In the Republic of South Africa (RSA) the National Extension and Advisory Service Policy (DAFF, 2014) has been developed, but is still in draft format and awaiting final approval. The policy aims to set a regulatory framework to guide the agriculture, forestry and fisheries sectors in the provision of extension and advisory services.

The new policy will require a multidisciplinary approach for the capacity development of extension professionals with the relevant and diverse knowledge and tools. Thus policy-makers, extension managers, and training institutions must:

- Review and develop multidisciplinary training curricula for extension practitioners; and
- Ensure continuous professional development through systematic maintenance, improvement and broadening of knowledge and skills.

Review academic curricula to develop well-trained extension professionals and contribute to the knowledge support system of government, offering accredited in-service training to extension practitioners. One danger in developing extension policies is that they remain only on paper and are not implemented due to political change, lack of political will or lack of resources and capacity to do so. Part of the process of policy development is the development of an implementation framework and a monitoring and evaluation system to track and judge the policy's performance and impact.

3.7.2 GOVERNANCE

Rivera, Qamar, & Van Crowder (FAO, 2001) looked at options for institutional reform of extension in developing countries. The focus was on reform measures that promote food security and poverty alleviation among smallholder farmers. The reform initiatives were:

a) Pluralism in advisory service provision

Pluralism of extension providers, involving coordinated partnerships with non-profit non-governmental organisations. Pluralism is much touted amongst development practitioners. Pye-Smith (2012) stated that 'there is a very strong argument in favour of creating a pluralistic system of delivery, which is participatory and demand-led'. Pluralism can be promoted in extension by involving public, private, and civil society institutions (Qamar, 2005). Pluralism in extension and advisory services provide the opportunity to capitalise on the comparative advantages of different types of providers.

However, coordination of such providers is challenging, particularly in ensuring that smallholder and subsistence farmers have access to services and avoiding duplication of efforts (Christoplos, 2010). The effective role of the private sector must be considered. In the future, more agricultural technology will be developed and sold by private-sector companies, thus the process of technology transfer will be increasingly privatised and handled by private firms.

In developing countries the forming of public-private partnerships will reduce the need for so many government front-line public extension agents (Swanson, 2008). A pluralistic extension pattern demands that programmes/projects be jointly planned, implemented and evaluated by all service providers, in active collaboration with farmers (Rivera & Qamar, 2003). For pluralism to work, extension implementers, especially national extension services, must ensure effective operational linkages between extension and research and other key relevant institutions (Qamar, 2005).

b) Participation and ensuring accountability to local clients

There are increasing calls for ‘demand-driven’ and ‘farmer-led’ rural advisory services using participatory approaches (GFRAS, 2012). When promoting participation and accountability, it is important to think critically about who participates and who is accountable to whom. Policy-makers, planners and field-level programme staff can encourage bottom-up, grassroots extension programme planning by farmers to make extension demand-driven, but also exercise supply-driven, top-down modalities for promoting common public goods such as natural resource management or vaccination services (Qamar, 2005).

Decentralisation is taking place in more and more countries. Four types of administrative decentralisation include de-concentration, delegation, devolution and transfer to non-government institutions. Decentralisation, if well planned, can also increase accountability to rural people through subsidiarity – placing responsibility for activities at the frontline where extension services are closer to farmers (GFRAS, 2012). Accountability to rural people also means knowing whether a programme or organisational innovation actually worked or not and taking action to respond to challenges (GFRAS, 2012).

Stakeholder participation in decision-making processes is crucial and requires collaboration, partnerships and coordination (Rivera & Qamar, 2003). At the Nairobi conference, participants found that ‘with greater coordination of extension, it will be easier to build synergies with research and education to provide the relevant knowledge base for transforming agriculture’ (Pye-Smith, 2012). Capacity, management and advisory service organisation are critical components of an effective extension system. But this very much depends upon the role extension is expected to play.

According to Christoplos (2010), these roles include:

- Dissemination of information about technologies, new research, markets, input and financial services, and climate and weather;
- Training and advice to individual farmers, groups of farmers, farmer organisations, cooperatives and other agribusiness along the market chain;
- Testing and practical adaptation of new technologies and practices on-farm;
- Development of business management skills among smallholder farmers and other local entrepreneurs;
- Facilitation of linkages among market actors;
- Linking smallholder farmers, rural entrepreneurs and other members of the agricultural community with institutions offering training and education in fields relevant to the agricultural sector;
- Facilitation of linkages between farmers, their organisations and the public sector;
- Increasing awareness of new opportunities for certification of ‘green’, fair trade and other production methods; and
- Facilitating access to non-extension government support.

In the past, when people talked about capacity development, they were largely referring to providing technical knowledge and information to farmers. Nowadays, the focus has begun to change, and at the conference we looked more broadly at capacity building using an ‘innovation systems perspective’ (Pye-Smith, 2012).

This assumes that the extension agents of the future – or the ‘new extension professionals’ will have a responsibility that goes beyond providing farmers with technical information. They will also require ‘soft’ or functional skills that enable them to generate and promote innovations; improve the management of farmer organisations and agribusinesses, and build alliances and networks of different groups and individuals along the value chain (Pye-Smith, 2012). Human resources are a fundamental bottleneck to effective extension services, given the challenges facing rural development. Human resource development does not include just basic or pre-service education, but also continuing education, in-service and on-the-job training.

While capacity should focus at individual, organisational and system level (Sulaiman & Davis, 2012), human capital development is an essential ingredient of extension services as extension agents are the ‘front line’ of extension services (Rivera & Qamar, 2003). Both Romero (2012) and Sulaiman & Davis (2012) see rural extension as part of an innovation system.

In their model of extension services embedded in an agricultural innovation system, Sulaiman & Davis (2012) lay out three levels at which capacity is needed in extension (individual, organisational and system). The capacities needed at individual level, from a global perspective, are listed in the table below.

Table 3.5: Capacities required at the individual level globally

Technical	Functional
Good understanding about appropriate/relevant/new technologies/practices/standards/regulations/policies in agriculture and natural resource management including: Technical options to support climate change Adaptation Agribusiness Value chain development Improving resource use Efficiency; application of biotechnology Intellectual property and farmer rights Use of new information & ICTs	Community mobilisation Farmer organisational development Facilitation Coaching Reflective learning Mediating conflict Negotiating Brokering Networking and partnership development Leadership capacity Managing resources Critical thinking Problem-solving Self-reflection – learning from mistakes Service mindedness Accountability Responsibility Dedication/commitment Working in teams Working with women and gender sensitivity

Source: Sulaiman and Davis (2012)

To undertake these new duties and responsibilities outlined in Table 1, most extension staff members, especially those with diploma-level training, will need intensive in-service training and education (Swanson, 2008).

The GFRAS Consortium on Extension Education and Training has taken up the New Extensionist concept outlined in Sulaiman & Davis (2012) to promote reform of extension education services. They call for the competencies indicated in Table 1 to be integrated into training curricula for extension agents (Davis, 2015).

The New Extensionist document calls for countries and regions to:

- Establish and strengthen training centres; contract in specific competencies required for supporting capacity development; and
- Develop curricula for vocational and continuing education and skill up-gradation of individuals in extension and advisory services and undertake curriculum revisions at least once every five years (Sulaiman & Davis, 2012).

The GFRAS Consortium has further put together a set of ‘core competencies’ (Table 2.4) that are required for extension agents around the globe to function effectively (Davis, 2015).

Table 3.6: Core Competencies for Extension and Advisory Services

Area	Competencies Required: Extension Professional Should be Able to...
Introduction to the new extensionist	Define the framework of agricultural innovation systems and position himself or herself within the innovation system Define his or her new roles and new capacities that are required for the new extensionist
Changing role of extension in innovation and development	Explain the role of extension in innovation and development Give an overview of approaches and tools Select appropriate approaches and tools for a given context
Extension programme management	Conduct extension programme planning, implementation, monitoring, and evaluation Use different types of problem solving techniques Build strategic partnerships, network, and manage stakeholders Pluralism in extension and the need for and methods of coordination and linkages
Professional ethics	Apply values and good principles such as honesty, respect, accountability inclusion, transparency, integrity

	Recognise extension as a science and extension as a profession
Adult learning and behaviour change	Practice adult learning design and implement adult learning programmes Initiate and support social networks for agricultural innovation
Communication for innovation	Communicate with all stakeholders in the agricultural innovation system Manage knowledge effectively Identify and use appropriate ICTs Identify cultural and gender implications in communication and innovation
Facilitation for development	Vision and organise demands Build local organisational capacities Broker and build linkages with actors in the innovation system
Community mobilisation	Conduct livelihoods assets assessment Use problem solving and decision making approaches Explain leadership principles and leadership development Explain implications of culture and diversity, including gender and youth Mobilise resources
Farmer institutional development	Explain or define theory, models, and types of groups and organisations Manage group dynamics Explain how the policy environment and "rules of the game" influence organisations
Value chain extension	Explain basic concepts and tools for value chain approaches Link farmers to market (input and output markets) Analyse consumer preferences

	Respond to standards certification and regulatory systems
Agricultural entrepreneurship	Analyse business opportunities and conduct market analysis Promote farm entrepreneurship
Gender and youth issues in agricultural extension and rural development	Appreciate gender differences through the following questions: who does what, with what, how and why? Use gender-sensitive approaches Engage and retain rural youth
Adaptation to change	Enhance adaptive capacities of communities to different types of risks and uncertainties related to climate change, markets and disasters Analyse tools for adaptation options Deal with risks, change, and uncertainties
Value chain extension	Explain basic concepts and tools for value chain approaches Link farmers to market (input and output markets) Analyse consumer preferences Respond to standards certification and regulatory systems

Source: Davis (2015)

3.8 SUMMARY OF THE CHAPTER

This chapter provided a critical review of the relevant literature with a view to developing a thorough understanding of previous research conducted that is related to the research questions and objectives. The chapter commenced with a definition of agricultural extension and its relevance to the success of land reform of South Africa.

The chapter further discussed international trends in extension to inform the development of an extension framework for the Western Cape. The literature reviewed further revealed that no single framework suitable for all farming conditions. Chapter 4 discusses the nature of smallholder farming in South Africa.

CHAPTER 4

SMALLHOLDER FARMING IN SOUTH AFRICA

4.1. INTRODUCTION

There are an estimated 500 million smallholder farms in the world; in Asia and sub-Saharan Africa smallholder farmers produce up to 80% of the food consumed and support up to two billion people (IFAD 2010). Of the two-thirds of sub-Saharan Africa's population that resides in the rural areas, the majority can be considered as smallholder farmers (Qamar, 2005). As a group, smallholder farmers are among the most disadvantaged and vulnerable in the developing world: half of the world's undernourished people, three-quarters of Africa's malnourished children, and the majority of people living in absolute poverty can be found on small farms (IFPRI 2008).

Smallholders have a key role to play not only in ensuring food security, but also in generating poverty-reducing agricultural growth. Although there are many ways to define smallholder farmers, the FAO's criterion of plot size is widely used, with 'smallholder farmers' being farmers who farm plots of 2 hectares or less. In South Africa smallholder farmers are defined as non-productive, backward, non-commercial, subsistence agriculture that is located in parts of the former homeland areas (Kirsten & Van Zyl, 1999).

Aliber et al. (2011) defines smallholder farmers as those that derive benefits from primary agriculture. Included in this category of smallholder farmers are those who produce mainly to generate an income as well as those who produce for own consumption, but excluded are those who earn wages from working on the farm as farm workers. According to Department of Agriculture, Forestry and Fisheries (DAFF) many households of previously disadvantaged farmers are vulnerable to food insecurity and practice subsistence agriculture in overcrowded semi-arid areas (Mpandeli, 2006). Smallholder farmers in rural areas of South Africa are non-commercial, thus, their contribution to the Gross National Product (GNP) is still limited (Makhura, 2001).

The reason behind this is that they have fewer resources endowments when compared to their commercial counterpart. Terblanché (2008) asserted that most land delivered to black farmers

through land reform is dysfunctional and that weak extension services are the main reasons for the situation. Agriculture is an important component in the South African agricultural exports, contributing on average about 4% to Gross Domestic Product (DAFF, 2010; Hall, 2007).

Different efforts to promote small-scale farming have been made in the past decades for smallholder farmers to contribute to the GDP. It remains clear that there is more needed to be done to make a positive difference in terms of political objective of an integrated agricultural sector. Integration in agricultural sector will only be successful when smallholder farmers fully participate in the value chains (Makhura, 2001). Thus, the South African government persists to endeavour for empowerment of smallholder farmers who were denied opportunities under apartheid through providing disadvantaged communities and individual more choice, and in the case of agriculture, removing barriers and fully integrating and democratizing access to markets and be accommodated into these high value chains (Kirsten & Van Zyl, 1999).

The role of Government since 1994 has been to shift households from subsistence production to producing for markets. Based on several investigations conducted by (Delgado et al., 1998) and Ngqangweni (2000) agriculture has a significant role to play in fostering rural development and poverty alleviation among smallholder farmers in South Africa. Smallholder farmers' contributions to GDP/GNP and household food security have been found to be important in the economy and rural development in South Africa.

The importance of focusing agricultural development on smallholder farmers is best emphasised in this quotation from the 2008 World Development Report of the World Bank, 'Smallholder farming also known as family farming, a small-scale farm operated by a household with limited hired labour remains the most common form of organization in agriculture, even in industrial countries. Many countries tried to promote large-scale farming, believing that smallholder farming is inefficient, backward, and resistant to change.

The results were unimpressive and sometimes disastrous. State-led efforts to intensify agricultural production in sub-Saharan Africa, particularly in the colonial period, focused on large-scale farming, but they were not sustainable (WFP, 2008). In contrast, Asian countries that eventually decided to promote small family farms were able to launch the Green

Revolution. They started supporting smallholder farming after collective farms failed to deliver adequate incentives to produce, as in China's farm collectivization, or on the verge of a hunger crisis, as in India and Indonesia.

Countries that promoted smallholder agriculture for various political reasons used agriculture as an engine of growth and the basis of their industrialization" (World Bank, 2008). The number of smallholder farmers in South Africa is estimated at about 2.3 million according to statistical data from Aliber & Hall (2011). According to Aliber et al. (2011) about 92% of these households engage in agriculture for subsistence purposes and can be regarded as 'subsistence smallholders', while the other 8% can be regarded as 'commercial smallholders' as they farm mainly for income generation.

4.2 SMALLHOLDER AGRICULTURE AND POVERTY REDUCTION

By definition, agricultural growth is the primary source of poverty reduction in most agriculture-based economies. The expansion of smallholder farming can lead to a faster rate of poverty alleviation, by raising the incomes of rural cultivators and reducing food expenditure, and thus reduces income inequality (Magingxa & Kamara, 2003) As observed by Ravallion (2001), a rise in average household income by 2 percent leads to a fall in the poverty rates by about 4 percent on average. The 2008 World Development Report also observed that GDP growth originating in agriculture is about four times more effective in reducing poverty than GDP growth of other sectors (World Bank, 2008).

The African Development Bank study that sought to investigate the trends, constraints and opportunities facing smallholder agriculture in East Africa in light of the enormous changes taking place in the world and on the continent, as well as the evolving international financial conditions revealed that there have been positive, though marginal, changes in the poverty profiles, (African Development Bank, 2010).

The study focused on four East African countries, Ethiopia, Kenya, Tanzania and Uganda given their characterization as 'agriculture-based' that is, agriculture is the backbone of these economies. Most of the household surveys conducted in the four countries in the last two decades showed that poverty is more prevalent among rural dwellers.

Also, changes in poverty levels by employment across sectors indicate that change in poverty status among rural dwellers engaged in agriculture was higher than among rural populations engaged in other vocations.

In addition, change in poverty among farmers and fishing folks in the rural sector was higher than change in poverty level among those engaged in other occupations in urban centers, except those engaged in paid employment and self-employment. Specifically, the share of poor people (poverty head count index) in Ethiopia is estimated to have declined from 45.5 percent in 1995/1996 to 38.7 percent in 2007 (Table 2.3). In 2004/05, the proportion of the population below the poverty line stood at about 39.3 percent in rural areas and 35.1 percent in urban areas. In Kenya, the proportion of the poor declined from about 52.3 percent in 1997 to 45.9 percent in 2005/06. While the percentage of the poor declined marginally in rural areas from 46.4 percent in 1997 to 42 percent in 2005/06, urban poverty was reduced by 16.5 percentage points from 43.5 percent in 1997 to 27.4 percent in 2005/06.

The declining trend of poverty is also evident in Uganda, where about 56 percent of the population lived below the poverty line in 1992/93, but 31 percent in 2005/2006. However, poverty in Uganda is not evenly distributed, but rather concentrated in rural areas. For example in 1995/96, about 50 percent of the population lived below the poverty line in rural areas, compared to 20 percent in urban areas.

In Tanzania, recent estimates show that there has not been any significant change in poverty distribution by sector and region over the past two decades, with the majority of the poor being concentrated in the rural areas.

Table 4.1: Trends in poverty indices (% below poverty line)

National	Year	National	Urban	Rural
Ethiopia	1995/96	45.5	32.2	47.5
	2004/2006	38.7	35.1	39.3
	2007	38.0	NA	NA
Kenya	1997	52.3	49.0	53.0
	2005/06	45.9	NA	NA
Tanzania	1991	35.6	28.1	40.8
	2007	33.6	NA	33.3
Uganda	1992/93	56	NA	NA
	2005/06	38	NA	31.3
SSA	1993	45	NA	NA
	2004	40	NA	NA

Source: AfDB, 2010, NA = not available

4.3 THE ROLE OF EXTENSION AND ADVISORY SERVICES IN SMALLHOLDER DEVELOPMENT

A strong extension and advisory system is essential for moving research from the lab to the field, not only in order to help farmers improve their productivity, but also to ensure that more research takes place with farmers in the field. But in Africa, prolonged under-investment has resulted in very low average extension coverage; and extension services provided during the last two decades are largely perceived as unsuccessful in supporting smallholder farmers in adapting to increasingly challenging conditions (World Bank, 2008). According to the FAO, investment in agricultural extension services needs to increase to 3.5% of the agriculture GDP in order to achieve the necessary coverage, though at present no African government is spending even a tenth of that amount (Waruru, 2011).

The renewed focus on agriculture has also seen fresh interest in extension and advisory services, although the emphasis has shifted to pluralistic and demand-led approaches. The monopoly public sector services model for extension is obsolete in the competitive, market-oriented climate of today's agriculture. The new approach recognises that there are now many other actors in the extension system beyond the traditional public extension agencies.

Programmes are moving from a delivery model, of a top-down, prescriptive technological practice model to an empowerment model focusing on capacity building. One requirement of these new approaches is the need to be more cost effective than the traditional Training & Visit (T&V) model and Farmer Field Schools (FFS), which have proved unaffordable and hence could not be sustained. Different approaches are now often found alongside each other, in a shift from a 'best practice' or 'one-size-fits-all' to a 'best fit' approach to particular social and market conditions (IFPRI, 2008). Agricultural extension will continue to be an important element of any future rural development strategy (Waruru, 2011).

However, agricultural extension and advisory services delivered by public sector agencies are expensive, and in many cases inefficient. Under pressure from shrinking government budgets for agricultural development, for many the conclusion has been that alternative ways for agricultural knowledge transfer have to be sought. There has been a considerable debate about the possibility of privatization of extension delivery (Waruru, 2011). Proponents of privatization argue that farmers should pay at least part of the costs of public extension and advisory services and at the same time that private service providers should play a larger role at the expense of public agencies. Meanwhile, proponents of community-based approaches favor local organisational development and social mobilisation. The distrust for the top-down management culture of large extension organizations suggests to limit the role of national governments and to rely on local resources instead.

The emerging renaissance of rural and agricultural development, as indicated by the recently updated strategies of major donors like the World Bank, the International Fund for Agricultural Development and others, is likely to draw again the attention of public policy makers on public good delivery, such as food security, poverty alleviation, and sustainable management of natural resources.

Government extension services are one important, if not the primary vehicle for reaching out and gaining access to rural communities (Waruru, 2011). Universal privatization of extension may find its limitations where market failures, such as monopolised supply structure and bundled services occur, or where incremental social benefits such as environmental externalities play a large role. In many countries, existing agricultural extension organisations are currently squeezed between the legacy of the T&V scheme and the demands for new, more participatory approaches that respond better to actual needs of clients.

This situation has several dimensions, in terms of organisational structure and culture, partnerships, and finances. Generic problems of the centrally-managed, highly bureaucratic extension agencies are the lacking accountability to clients, poorly maintained linkages to knowledge generation, little resources for training and operations, and a top-down orientation towards technology transfer (World Bank, 2008). Any performance improvement of the existing organisations hinges critically on the mobilisation of additional funds.

New extension approaches which are participatory and more responsive to clients' needs must demonstrate their superiority over the old system. This includes its economic performance including responsiveness to economic indicators. The financial sustainability of extension is especially crucial in times of scarcity of public funds (Waruru, 2011). However, data on cost and benefits of the provision of extension services have been particularly scarce. Moreover, there are methodological difficulties when comparing different extension approaches.

4.4 CONSTRAINTS FACED BY SMALLHOLDER FARMERS IN SOUTH AFRICA

The South African agricultural economy has little room for smallholder farmers. There is no strong support system available to support previously disadvantaged farmers (Chikazunga & Paradza, 2012), causing such farmers to be unable to take advantage of the various opportunities that the South African government has been instituting (Anyike, 2011). According to a study by Chikazunga et al. (2012) South African agricultural economy grew rapidly under the apartheid government owing to strong State subsidies and support programmes aimed at supporting white commercial farmers.

Similar support programmes and State subsidies were seen as encouraging the agricultural economy of the United States of America and Europe (Chikazunga et al., 2012). Currently South African agriculture depends heavily on world markets for marketing agricultural products (Chikazunga & Paradza, 2012). The removal of marketing boards' State subsidies along with the deregulation of the agricultural sector subsequent to the democratic transition in 1994 caused serious problems for commercial farmers. By 1997 interest rate subsidies and export subsidies had ended completely and by late 1998 all marketing control boards were

privatised with only the sugar industry continuing to have price support from the government (Chikazunga & Paradza, 2012).

Many smallholder farmers face difficulties in accessing formal agricultural markets. As a result formal markets do not interest smallholder farmers. Lack of market participation is a common feature of smallholder farmers world-wide and is identified by Bienabe & Vermuelen (2011) as a constraint to emergent farmer development. In South African under-developed rural areas smallholder farmers find it difficult to participate in commercial markets because of a range of constraints (Makhura, 2001). Attempts by farmers to market their commodity are mostly affected by poor infrastructure, inadequate property rights Bienabe & Vermuelen (2011) low education levels amongst the farmers, lack of credit access, absence of innovative production implements needed in order to increase yield of commodity produced and poor entrepreneurial skills needed to make the efforts of the farmers a success (Bienabe and Vermuelen, 2011). Research conducted by the National Emergent Red Meat Producer's Organization, (NERPO), (2006) identified a number of skills shortages among smallholder farmers such as a major constraint of growth. NERPO (2006) suggested that the new South African government must improve its efforts in attracting young people into the sector. Poor financial and social capital and limited access to legal resources make it difficult for smallholder farmers to change negative market factors individually. As a result smallholder farmers continue to be trapped in a cycle of operating within the given market from which their agricultural activities do not receive rewards (Makhura & Mokoena, 2003).

Empirical studies have exclusively focused on the question of smallholder farmers' contribution to supplying high value chains and have failed to measure the welfare and poverty effects (Maertens & Swinnen, 2006). On the one hand, global and (increasingly) developing countries' agricultural and food supply chains have been restructured to adjust to new modes of competition and market leadership by dominant buyers in developed countries.

On the other hand, new and enhanced capacities are needed to meet the demands of increasingly changing customer needs in the developed countries e.g. from markets in the European Union (EU) and the United States of America. While a number of developing countries have tried to penetrate these new markets and higher-value markets, most of the work needs to be done by smallholder farmers who are having difficulties in entering these

markets due to quality and volumes produced and the recent phytosanitary and sanitary standards which are obstacles to having access to these markets (Senyolo et al., 2009).

It is evident that many developing countries lack the capacity needed both to enter and to remain competitive in high value agricultural and food markets (Maertens & Swinnen, 2006; Reardon & Berdegue, 2002). The challenge is how to build this capacity in a resource-constrained environment and in a manner that establishes and enhances a credible competitive position for these smallholder farmers in developing countries such as South Africa on a sustainable basis. The current state of supply chains of developing countries is compared and contrasted, especially according to the economic importance of agriculture. The key challenge that smallholder farmers face in developing countries is exploiting the opportunities in high value markets for agricultural and food products. Smallholder farmers face a number of constraints, which increase risk and uncertainty and act as disincentives for increased production, consequently preventing them from accessing markets (Senyolo et al., 2009). Despite growing market opportunities, there is a danger that smallholder farmers will be squeezed out, even though they possess some competitive advantages over larger producers, especially in their low costs in accessing family labour and intensive local knowledge (Poulton et al., 2005).

The disadvantages they face are high unit transaction costs in almost all non-labour transactions (Poulton et al., 2005). Furthermore, over the last two decades structural adjustment programmes have led to a decline in state-funded agricultural support, with the result that many farmers find it difficult to access inputs, extension, and training. A range of impediments to participation in high value markets are identified by Pingali et al. (2005). These constraints constitute the greatest barrier for smallholder farmers when it comes to accessing high value markets and overcoming these constraints is important if smallholder farmers are to access lucrative markets.

According to Development Bank of South Africa (DBSA, 2009), can be classified into two categories which are endogenous and exogenous constraints. Endogenous constraints are those that affect the farmers' ability to operate efficiently, despite having the potential to allocate resources in an economically efficient way. With regard to these endogenous constraints, the farmer has some control over for example, shortage of labour, lack of skills, knowledge and education and a range of cultural factors.

Exogenous constraints result from a broader agricultural environment which is beyond the control of the farmer such as limited access to agricultural inputs, credit, mechanization, marketing services, poor institutional and infrastructural support, in-appropriate policies and legislation, social structures, and problems associated with land tenure and acquisition of resources.

In South Africa and some other developing countries, smallholder farmers are excluded from these high value markets as a result of the historical colonial legacy and also due to poor performance of their production, which is characterised by high production costs and transaction costs and poor quality, making smallholder farmers less competitive (Dorward & Kydd, 2005). This was also supported by Louw et al. (2007) that smallholder farmer are faced with a range of high transactions costs and difficulty to exploit lucrative markets.

4.4.1 LACK OF INFRASTRUCTURE

Infrastructure is considered as one of the keys to profitable development. Constraints that block smallholder farmers from greater market access to agro-food output markets are associated primarily with underdeveloped infrastructure, ranging from the nonexistence of local market spaces to unreliable sources of market information (Machethe, 2004).

In South Africa, smallholder farmers are mostly found in areas remote to market places where there is a serious lack of the marketing facilities. In most instances, smallholder farmers usually rely on public transport to bring their output to the market. Machethe (2004) emphasized that the importance of developing and maintaining the physical infrastructure after recognizing high transaction costs as one of the major factors constraining the growth of smallholder agriculture in African countries. Kherallah & Minot (2001) explained that the high transaction costs can largely be attributed to poor infrastructure and lack of telecommunication networks that result in high transaction costs. In rural areas transport contractors are reluctant to service smallholders due to the poor quality of feeder roads in rural villages.

Infrastructure development in rural areas has made the smallholder farmers to fail to adopt new technologies that can enhance their potential to produce good quality products. In South Africa, smallholder farmers have been neglected in terms of infrastructural support by past

governments; the post-independence government is trying to close the gap (Makhura, 2001) Even though the government of South Africa is trying to empower these farmers, there are still barriers to market access.

In the past, researchers focused on increasing food staples in irrigated and high potential areas where they conceived productivity returns would be highest. But production increases in high potential areas do not necessarily benefit poor farmers. This is because many of the poor live in rural areas that lack infrastructure to take advantage of improved technologies.

It is also because many of the poor even if resident in high potential areas lack the control of land, water, labour, credit, or other critical assets necessary to take advantage of improved technologies. Meinzen-Dick et al. (2009), state that as for agriculture the government is trying to remove dualism and fully integrate and democratize the sector which is important for both sustainable growth and alleviation of poverty and inequality among black farmers in South Africa.

4.4.2 LACK OF ACCESS TO INPUTS AND TECHNOLOGY

Smallholder farmers are generally poor so they have labour intensive systems in their production, and lack access to expensive inputs like fertilizers, chemicals and machinery (Van Zyl & Vink, 2000). They employ of more labour to try to increase productivity. If farmers are to produce for high value markets, this calls for the production resources that include land, labour and capital which are not readily available for rural households.

Smallholder farmers can benefit from opportunities in agricultural markets and especially in terms of the volumes produced and those traded (Bienabe et al., 2011). In many cases, smallholder farmers are still required by the funders to provide collateral in the form of an estate or enough funds to prove that they will be able to repay the loans that they may need from the creditors. But because they are poor they cannot satisfy the loan requirements.

Agricultural technology in rural areas is another factor affecting agricultural production especially in the former homelands of South Africa. Smallholder farmers in sub-Saharan Africa continue to value pursuing farming activities for home consumption and for sale.

This is even more important in South Africa against the backdrop of food price differentials between urban and rural households.

South African studies have shown that the number of households engaging in subsistence agriculture as a main source of food and income is declining, while there is a rise in the number of households engaging in subsistence production as an extra source of food (Aliber, 2005; 2009). However, there is evidence of agricultural resources (especially communal land in former homeland areas) being under utilised (Aliber, 2005; 2009).

Agricultural productivity has continued to decline partly due to the reduction in support for farmers to continue taking up the improved input packages as a result of economic structural adjustment programmes. It should be noted that smallholder farmers in most parts of sub-Saharan Africa rely heavily on informal channels to access inputs (Smale et al., 2009). These resources are not easily accessible to farmers, thus smallholder farmers in rural areas tend to sell their produce to informal or village markets.

4.4.3 LACK OF FARMER ORGANIZATION

According to Meinzen-Dick et al. (2009) smallholder farmers are not organised in the markets as they usually sell their agricultural produce individually and directly to the consumers without passing through other intermediaries. In other words, smallholder farmers lack collective action in markets. Ortmann & King (2006) state that most smallholder farmers fail to register as cooperatives or groups of farmers so that they can access facilities.

In South Africa, some smallholder farmers tend to engage in institutions such as cooperatives to take their goods for sale, processing and storage (Makhura, 2001). Cooperatives have played an important role in the development of the commercial agricultural sector (Makhura, 2001). The government believes it can help farmers too and are advising them to register as cooperatives.

Most farmers for various reasons have no access to finance and access to relevant information to register as cooperatives and consequently they cannot be financially assisted by government. In most cases, the government has no enough funds to fund individuals as it is considered high risk and expensive to fund individual farmers.

4.4.4 LACK OF ACCESS TO SKILLS DEVELOPMENT OPPORTUNITIES

There are few institutions that are prepared to provide skills development to smallholder farmers because of lack of funds on the part of small scale farmers. Without requisite skills it is difficult to keep records and therefore inputs can be easily used inefficiently (Louw et al., 2004). However, the Agricultural sector in South Africa is not only dualistic with a developed commercial farming sector which co-exists with a large number of subsistence (communally owned) farms, but in terms of actual size of production, education and technological know-how, it is still primarily in the hands of white South Africans.

Consequently, the challenge for the country is therefore to bring the previously excluded black community into the mainstream economy through job creation and entrepreneurship; agriculture is clearly one important avenue to redress past inequalities. Higher economic growth will not be possible without addressing, among others, illiteracy and low education and skills development levels which are most prevalent in rural South Africa, and where agriculture is most likely to play an important role in resolving both economic and human development (OECD, 2006).

4.4.5 POOR ACCESS TO LAND

Upon its assumption of power in 1994, the South African post-apartheid government sought to address the challenge of inequitable access to resources such as land. Access and control of land has been at the centre of struggles between racial groups since the 1860s (Keegan, 1985). The colonial and apartheid governments passed laws that aimed to restrict access and control over land resources by black Africans of which the Natives Land Act of 1913 had the most serious effects on the welfare of the blacks. Most of these farmers in rural areas of South Africa have been affected by the land distribution program. Moreover, the deregulation of the markets and liberalization of the trade policy in agriculture created concentration of land ownership, production and the marginalization of small farmers, further impacting on the welfare of those whose lives depend on land (Hall, 2007).

Despite all these challenges, the post-apartheid government has been implementing a land reform programme that caters for smallholder farmers in order to address the poverty and create large scale employment.

However this has not been achieved because of various policies and inefficiencies in government and this has led to some farmers questioning whether this model can contribute significantly to large-scale employment creation and poverty reduction (Vink and Van Rooyen, 2009). Despite significant progress in addressing the long-standing equity issues in land distribution in South African agriculture, there is evidence from a number of studies that agricultural production and income are not improving among the black smallholder population and that most of these farmers are located in marginal areas (Aliber, 2005).

4.4.6 LACK OF INFORMATION

Access to information among smallholders is generally poor and is compounded by the lack of reliable and efficient means of disseminating information (Bienabe et al., 2004). Recent field evidence in a study among small-scale sheep farmers in Eastern Cape is a case in point to illustrate the need for public support for a reliable market information dissemination mechanism (Jacobs, 2009).

Both wool growers and meat-sheep farmers get their information on market prices from a combination of three main sources: networking with white commercial farmers and speculative bulk buyers-farmers, an early-morning radio show in local languages and cell phones. Lack of product prices and information about the quality at a local level places smallholder farmers in a compromising position with regard to market access and getting good prices and times to sell their produce (Bienabe et al., 2004).

4.4.7 LACK OF ACCESS TO MARKETS

Smallholder farmers often face constraints when they want to access markets or when they want to improve their competitiveness in markets (Kherallah & Minot, 2001). Market access and competitiveness relate to the options farmers have to sell their products and purchase inputs. Smallholder farmers often have low market access as compared to their larger and more capitalised counterparts.

According to Louw et al. (2004) barriers to enter into markets can be related to physical limitations in reaching the market, such as poor roads, restrictions on international trade, or to

minimum product characteristics required. These barriers mean that a certain market does exist, but that smallholder farmers are hindered in selling their products in that market. In most developing countries, institutions (for example, insurance) that can alleviate risks are missing or weakly developed as a result smallholder farmers are exposed to high market risk (Baiphethi & Jacobs, 2009).

In many cases, smallholder farmers are not yet positioned to compete and access better paying markets and many will be left behind if they are not properly organised and supported by both government and private sector to meet the standards and qualities required. Smallholder farmers usually sell their produce at the farm gate to intermediaries, often at a low price (Makhura, 2001). However, innovations in marketing arrangements can transform market relations in favour of smallholder farmers (IFAD, 2001). Producer organizations and cooperatives are well-positioned to take advantage of these new opportunities that may incorporate smallholder farmers into high value chains.

In addition to filling in the gaps created by market imperfections, collective action can open up new marketing opportunities for smallholders by introducing innovations to existing value chains or creating entry ways into new markets (IFAD, 2001). For example, creating new demand for traditional products through processing and value-adding activities has proved to be an innovative route to higher prices, such as through design of a branding strategy and awareness for agricultural products from smallholder farmers.

Farmers can participate in high-value markets by obtaining the required food safety certifications, which otherwise would be inaccessible to them individually but as groups or cooperatives to enhance them to easily access markets (Reardon & Berdegue, 2002). In local informal markets, for instance, smallholders often find their prices undercut by produce that informal traders buy from large-scale commercial farmers. Supermarket chains, on the other hand, provide a lucrative niche market for smallholders but these downstream linkages are limited to smallholders that meet product variety and quality standards (Reardon & Barrett, 2000). Farm workers in the sector are becoming more impoverished as they are squeezed in agricultural labour markets and agro-food output markets. Other sectors of the rural poor, specifically smallholder farming and informal trading, face similar pressures as a result of the market-oriented restructuring of food and agricultural value chains (Jacobs, 2009).

4.4.8 HIGH TRANSACTION COSTS

Transaction costs in different markets determine whether a particular household participates or does not participate in a market. For smallholder farmers in particular, transactions costs come in various modes which include the costs of searching for trading partners with whom to exchange with, the costs of screening partners, bargaining, monitoring, enforcement and, eventually, transferring the product to its destination (Delgado, 1999). Households facing different market opportunities may make different decisions related to production, which affects efficiency. In the absence of credit and insurance markets, liquidity-constrained farmers might limit their investments in purchased inputs and hired labour.

According to Kherallah & Minot (2001) imperfections in output markets could force farmers into subsistence production, leaving no or limited surplus for market sales. In cases where transaction costs are high, markets fail in their role of allocating scarce resources to alternative ends. High transaction costs are the embodiment of access barriers to market participation by resource poor smallholder farmers (Delgado, 1999). According to Louw et al. (2007) supermarkets offer better and more sustainable market access to smallholder farmers. These opportunities opened by supermarkets turns out to be good strategies to reduce transaction costs among smallholder farmers (Reardon & Gulati, 2008).

To lower the transaction costs for both the smallholders and supermarkets, an option is to strengthen forms of collective action among smallholder farmers to promote equity and competitiveness (Makhura, 2001). More specifically this should facilitate coordinated efforts to train farmers in product quality and marketing, enable farmers to comply with deliver of schedules, overcome transport problems, access cheaper inputs as a transitional stage to enter larger fresh produce markets. Because transaction costs vary over households and enterprises, commodities, and regions, there is no single panacea innovation or intervention, public or private that can reduce them. Makhura (2001) further explained that when smallholder farmers are faced with high transaction costs, they will either stop participation or resort to other means such as spot markets. This, however, results in wastage of most smallholder products after harvesting or sales at unsustainably low prices.

4.4.9 LACK OF INVESTMENT AND NEGOTIATIONS SKILLS BY SMALLHOLDER FARMERS

The problem of market access has also been due to lack of follow-up investments by smallholder farmers and government, coordination challenges among farmers and inadequate management of these farms. Farmers face enormous constraints in physically accessing markets (Makhura, 2001). Smallholder farmers lack resources such as business and negotiating experience and the collective organisation to give them the power to interact on equal terms with stronger market chain actors. In addition, farmers need more training in more profitable and sustainable agricultural methods.

Many of these farmers spend up to twelve months producing fruits and vegetables and have to wait almost as long for a return on their investment. Because it is difficult to enter these long value chains this makes it difficult for the farmers to make ends meet. Lack of investment in smallholder farming has been noted to be responsible for failure to guarantee a stable and sufficient supply of agricultural produce to markets (Makhura, 2001).

4.4.10 LACK OF GRADES AND STANDARDS

Most smallholder produce has no clearly defined grades and standards and, therefore, fails to meet the consumers' demands (Reardon & Barrett, 2000). Produce from smallholder farmers does not meet certain market grades and standards because the farmers lack the knowledge and resources to ascertain such requirements (Vermeulen et al., 2006). In addition, institutions for determining market standards and grades tend to be poorly developed in smallholder farm environments.

4.4.11 LACK OF ASSETS BY SMALLHOLDER FARMERS

Production assets such as tractors, machinery and vehicles to transport produce to markets are key requirements. All these factors determine the transaction costs of smallholder farmers. Asset ownership such as a motor vehicle is regarded as one of the factors determining market participation. Barriers to market entry are reduced when farmers possess assets. Frequently, poor smallholder farmers are unable to participate in lucrative agricultural markets due to lack of household specific productive assets (Pote, 2008).

4.4.12 VALUE ADDING

Lack of value adding and agro-processing are parts of missing markets amongst smallholder farmers in marketing. Agricultural produce from smallholder farmers are usually are poorly packaged. With few exceptions, most smallholder farmers cannot add value to their produce because they do not know its importance or lack processing technology (Louw et al., 2007). Inability to add value to agricultural produce by smallholder farmers excludes them from profitable markets.

4.4.13 LACK OF CREDIT AND GOVERNMENTAL SUPPORT

Most studies on smallholder farming have recognised the need to integrate smallholder farmers into high value chains but very little has been done to address the issue of access to credit. The credit problem is also a critical missing link in current effort to develop a cooperative movement in South Africa. The support of farmers has been an issue since 1994, after the apartheid regime, but the efforts which were designed to promote smallholder farmers did not yield the required results (Jacobs, 2009).

According to Jacobs (2009) access to credit is viewed as an important way in which farmers can raise the finance necessary for farming, but the challenge arises when loans cannot be repaid. Across the region, there has been a rapid withdrawal of government from agricultural input supply, subsidy programmes, agricultural produce markets and price controls. The differing roles of different organisations in service provision need to be defined by pragmatic criteria depending on local circumstances. Some remote areas have suffered when government supply and marketing has ended and have not been effectively replaced by the commercial sector. Apart from unfavourable conditions, supportive instruments have been put in place, in order to assist agricultural development. Such instruments include the Agricultural Research Council (ARC), the Land Bank, the National Agricultural Marketing Council (NAMC) and the Provincial Departments of Agriculture. However, these institutions are still learning how to deal with the special circumstances and needs of smallholder farmers (Hall & Aliber, 2010; Vink & Van Rooyen, 2009).

Moreover government assistance has been often erratic and late, so in many areas the situation grew worse than before (Jacobs, 2009). In the former homelands there was very

limited access to agricultural credit. The provision of credit via the state was largely confined to parastatals, which imposed strict conditions in terms of enterprise selection, and discriminated against women and small growers. The inability of smallholders to use their land as collateral prevented them from gaining access to funds from the commercial banks. Currently, private sector financial services are generally unavailable to black smallholders. Thus, although these institutions were set up, they are not in a position to assist smallholder farmers fully.

4.4.14 HUMAN CAPITAL

According to human capital theory (World Bank, 2007), education and, by implication, Agricultural Education and Training (AET) influence agricultural productivity in the following ways:

- Formal education enhances farmers' ability to choose optimum combinations of farm inputs and farm outputs (allocation effect);
- Training enhances farmers' ability to acquire and adapt new technologies, thereby reducing innovation time lags (innovation effect);
- Training fosters the capacity to exploit new market opportunities (Idachaba, 1997), market efficiency effect; and
- Formal education affects performance and success through enhanced worker productivity.

The strengthening of human capital and the production of knowledge are the most important elements in agricultural development strategies (Hang, 1999). It has been noted that agriculture leads growth in many parts of rural Africa, but investment in human capital and infrastructure leads agriculture (World Bank, 2002). Investment in human capital education and vocational training, extension services with the emphasis on low external input technologies and so on may have the greatest social returns (Pender, 2000).

In contrast to the need for capacity building as enunciated in the quoted literature, South African empowerment strategy leading to the formation of SMMEs through land reform has promoted asset acquisition instead of human capital formation and entrepreneurship (Karaan, 2006). This is confirmed by Mampholo & Botha, (2004) who found 24.4% of the land reform beneficiaries to be highly illiterate, whilst 8% had tertiary education and 68% had grade 1 –

12. Tony Blair's Commission for Africa (2005) also argued that weak capacity is a major problem in most African countries, and described weak capacity as issues that relate poor information, technical inefficiencies and lack of money (Blair, 2005).

4.4.15 OTHER INPUTS

Farm inputs are basic and essential to any farm enterprise; without them, no output is possible. Consequently, major efforts aimed at developing efficient and effective technologies to improve farm productivity have focused on high quality inputs (Delgado, 1999). It has been widely recognized that lack of access to capital is a key constraint in smallholder farming systems in Southern Africa (Thirlwall, 2003). There is also a lack of storage facilities. A lack of storage facilities of all types places a severe constraint on marketing of agricultural produce in South Africa and this results in having heavy food produce losses, high food prices, and discouragement of farmers to increase production of these perishables (Machethe, 2004).

Smallholder farmers are constrained by agricultural tools used in the field which include hoes, spades and picks. Furthermore, the limited numbers of hand tools available are unserviceable and need replacement. There is also a lack of basic technical information in smallholder farmers on appropriate means of restoring and maintaining soil fertility as well as limited extension services to alleviate this to enhance South African agricultural prospects. Access to input and marketing services by smallholders is often weak. Thus many smallholder farmers are contracted by existing large scale farmers to produce for them, although the mechanism for encouraging this needs further exploration.

Government and private sector intervention may be needed where the markets fail to reach isolated or poorly organised smallholders and one-off grants to existing businesses for opening depots in smallholder areas might be the most efficient and sustainable approach. In some circumstances out-grower schemes, such as those practiced the sugar industry, can provide a range of services to smallholders, but affirmative action is necessary to ensure smallholders are empowered in the process (Thirlwall, 2003). Input supply to smallholder farmers by the private sector has occurred on a limited scale and primarily limited to rural commercial centres catering for white farmers.

4.5 SUMMARY OF THE CHAPTER

This chapter examined the general constraints confronting smallholder farmers in South Africa. The key highlights of this literature are that smallholder farmers are faced with an array of problems which effectively hampers their development into meaningful players in the economy. There are a number of institutional and technical factors influencing marketing behaviour of smallholder farmers in the rural areas of South Africa and Sub-Saharan Africa. The chapter presented the role played by smallholder farmers and their contribution to the economy. The chapter highlighted most of the challenges these farmers face in accessing lucrative markets that could generate better incomes for them, these constraints included institutional and technical factors, and were discussed in detail.

The literature that was reviewed clearly shows that smallholder farmers have less wealth and/or access to credit markets and as result use much more labour input than capital input, generating far more employment than their large counterparts. Smallholder farms provide employment for rural people and have a direct effect on poverty reduction as agricultural produce can be accessed easily from these farms. Chapter 5 deals with market constraints experienced by smallholder farmers.

CHAPTER 5

MARKET CONSTRAINTS FACED BY SMALLHOLDER FARMERS

5.1. INTRODUCTION

Agricultural marketing in developing countries plays an important role in both agricultural development and rural economy. The main issues reviewed include the role of market access in improving the welfare of smallholder farmers, the challenges faced by these farmers and how these challenges can be addressed for them to be sustainable. To gain insights on constraints faced in production and marketing of smallholder farmers in rural areas. The chapter highlights some of the institutional factors that affect market participation by smallholder farmers. The White Paper on Agriculture (1997) argued that special attention should be given to the needs of smallholder farmers. Their success depends inter alia on infrastructural and marketing support services such as market facilities, information, packing and storage facilities and transport services. Their small output volumes are also often not acceptable to agents or traders.

Equity in access to the market will therefore require reorientation on the part of traders involved in agricultural marketing. The Government accepts that private enterprises must be competitive and profitable to survive. It is furthermore accepted that the necessary marketing services must preferably be rendered by cooperatives or other private enterprises. The Government will assist local communities and private enterprises by creating an environment where smallholder farmers have access to services at an affordable cost. Such development requirements should be dealt with where the need exists, outside marketing price arrangements and preferably by the provincial governments themselves.

5.2. DEFINITION OF MARKET ACCESS

The onslaught of globalisation and liberalization has made the African economy more integrated with the global economy. With gradual disappearance of the protective shield, the domestic market has now been thrown open to international competition (Kees & Van der Meer, 2006). Consequently, African agriculture has profoundly changed its role in global markets and national economies.

Economic reforms have forced the withdrawal of the state from agricultural/commodity markets (Rukuni & Eicher, 1994). Livelihoods have become increasingly commercialised in both urban and rural areas.

Rural households are restructuring the ways they manage their economic activities and are transforming their social relations (Barret, 2008). Access to markets in developing countries is becoming more difficult and therefore, is becoming of central focus to governments and development practitioners in the developing world (Reardon & Gulati, 2008). The concept of market access, access to markets or market linkages has as many definitions as practitioners and is used interchangeably. Some definitions developed by researchers include but not limited to the following; ‘market access is the concept that describes the sum total of all skills acquired through experience or training that enable a farmer to get and maintain regular customers to his/her produce’. In other words it is a long term marketing relationship between a seller and a buyer, (Shepherd, 2007). This is a concept whereby producers of a certain product or commodity can sell to certain markets outlet/niche. The market outlet could be conventional market, specialty market, organic market or a fair trade markets. The linkage could be individually to a company or collectively through associations, (Poulton et al., 2005).

The essence of market access concept is geared towards improving access. This improvement can be achieved through coordination of various actors and market players (sellers and buyers) and where necessary supported/facilitated by an external party. Market access has a lot of questions needing answers before interventions can be done by either internal or external organizations. Market access involves a number of key issues on equity, poverty reduction, power differences between seller and buyer and risk of exclusion of smallholder farmers due to competition (Stockbridge et al., 2003). Market access also involves the focus to local, regional or international markets (Ferrand et al., 2004).

5.3 THE ROLE OF MARKETS IN DEVELOPING COUNTRIES

In most developing countries, smallholder farming is important in terms of poverty reduction, food security, employment creation and wider rural economic development. The importance of smallholder farmers derives from their prevalence, their role in agricultural and economic development and the concentration of poverty in rural areas of most African countries.

Most smallholders are vulnerable to economic and climatic shocks and spread their risk by diversifying their sources of livelihood, often including significant off-farm income generating activities (Barrett et al., 2001).

The perceived risk of these future changes is a strong dis-incentive to investment in agriculture. Investments in alternative crops and entering new markets that may provide them with better prospects can be extremely difficult due to the need for economies of scale and also the health regulations imposed by developed country markets. Many countries have agricultural policies and poverty reduction strategies that explicitly support the inclusion of smallholder farmers in both local and export markets (Humphrey, 2005). In most of these countries, it is not the policy, as such, but the budgetary, technical and administrative implementation of the specific policies that enable smallholder farmers to fit in these markets and generate profits from their crop sales.

Policy instruments and institutional arrangements have to be designed and built in a technically feasible and effective way for the objective of poverty reduction and food security to be reached in developing countries such as South Africa where the majority of the poor population (70%) is located in rural areas (Kirsten & Sartorius, 2002; World Bank, 2008). Understanding the pros and cons of these institutional arrangements or policy instruments is crucial to innovation and the policy design process that can be derived from what other countries implement in their own circumstances.

The interest in making markets work for the smallholder farmers is partly in response to changes in the global agricultural economy that are providing rural producers with both new challenges and opportunities. These changes include trade liberalisation, increasing food safety and quality standards, and shifts in food consumption patterns by consumers in developed countries such as in the European Union (EU) and the United States of America (USA) (Narayanan & Gulati, 2002). One challenge that farmers face is the general long term decline in the real price of commodities, a trend that has been going on for over two decades and has been, in part, linked to the structural adjustments programmes and cuts in fiscal deficits under the umbrella of the Washington Consensus (World Bank, 2008).

During this period, many developing countries such as Zimbabwe, Malawi and Zambia dismantled their State Marketing Boards that had previously exerted monopoly control over domestic trade and prices for agricultural commodities (Rukuni & Eicker, 1994). One consequence was that farmers were no longer compelled to sell at prices set below the value of their produce on world markets. However, farmers had often relied upon the same marketing boards for accessing inputs such as seed, credit and fertilizer as well as extension and training services (Jayne et al., 2010). In many cases, neither government nor the private sector has taken on these roles, and farmers in many of these developing countries have faced increasing prices for inputs and declining access to effective technical services (Umhlaba Rural Services, 2006). As a result of rapid growth in demand from expanding urban populations in developing countries, food production systems can no longer be viewed simply as a way of moving basic food from farm to urban consumers.

Smallholder farmers are now required to supply long and sophisticated market chains and market of processed and branded products to mainly urban consumers. In South Africa this has been very difficult mainly because of the number of constraints that these farmers face in accessing input and output markets (Magingxa & Kamara, 2003). This is further complicated by changes in the retail system due to growth and increasing concentration of supermarkets in both developing and developed countries (Reardon & Berdegúé, 2002). The reason for this sophistication entirely depends on the livelihood assets that these smallholder farmers have access too. The advantages of livelihoods thinking and approaches are widely being used, including for example their stress on the importance of people centred change, a holistic approach, and peoples' access to different assets, poor people's vulnerability, partnerships, sustainability, change and also the multi-faceted nature of livelihoods.

A more imaginative approach is required to allow smallholder farmers to access markets, a stronger understanding of the importance and nature of institutional development in economic growth is also necessary to contribute to market development. A sufficient condition will be to understand the social, political and technical processes that can lead to changes in smallholder farming in these developing countries especially in South Africa where smallholder black farmers have been marginalized from the main stream of commercial farming (Magingxa & Kamara, 2003). In such a scenario it will be interesting to look at how external organisations can contribute to the success of linking smallholder farmer to markets thereby improving the farmers' welfare.

It is important to look at activities that can be undertaken by farmers support organisations within smallholder farming sector to strengthen their capacities through understanding how smallholder farmer can be incorporated in high value chains in developing countries to generate remunerative income from markets by creating an enabling policy and regulatory environment. This involves looking at the effectiveness of economic players such as farmer support organizations and institutions aimed at assisting smallholder farmers.

5.4. INSTITUTIONAL FACTORS IN AGRICULTURAL MARKETING

In this section, the institutional factors which influence smallholder farmers' decisions in marketing their produce will be discussed. Institutional aspects and their role in marketing and economic development revolve around transaction costs, market information flows and the institutional environment. Generally, most smallholder farmers in developing countries are faced with high transaction costs, lack of market information and inadequate institutional support. These factors influence their decisions to participate in formal markets.

5.4.1. INSTITUTION DEFINED

North (1990), define institutions as 'rules of the game' defining the incentives and sanctions affecting people's behaviour. There are two distinct concepts which are the institutional environment and institutional (or contractual) arrangements (Davis & North, 1971). Williamson (1991, 2000) argue that the interaction of these two (institutional environment and institutional arrangements) with property rights, information flows, transaction costs, transaction risks and market access failures for different market participants have failed to explain why smallholder farmers are unable to penetrate formal markets (Poulton et al., 2005).

Use of these concepts to examine institutional and economic development highlights high transaction costs and risks, weak information flows, and a weak institutional environment in rural economies of developing countries such as Ethiopia, Madagascar and South Africa. Smallholder farmers particularly those with little political power or financial and social capital, thus face high costs in accessing information and property rights enforcement and this in turn constrains access to profitable markets and hence economic and technological

development are impaired (Kydd & Dorward, 2004). Micro-credit remains the domain of the Department of Trade and Industry or the Department of Agriculture in the case of smallholder farmers, where the entrepreneurial enterprise vision predominates. Meanwhile, the few South African micro-finance institutions that adopted a genuinely pro-poor approach, working to support smallholder farmers or non-entrepreneurial self-employment providing opportunities for 'graduation' to entrepreneurial small businesses, where appropriate, remain outside the mainstream of promoting success of these farmers despite remarkable impact and even financial success.

The resultant low levels of economic activity among farmers lead to thin markets, high transaction costs and risks, and high unit costs for infrastructural development. The result can easily be a 'low level equilibrium trap' discussed by Jari (2008) in smallholder farming in Kat River Alice basin (Eastern Cape) South Africa. Another problem highlighted by Dorward & Kydd (2005) is how these processes such as institutional, technological and economic development break out of this and what roles different stakeholders have in promoting such development that will remove these smallholder farmers out of the poverty trap through improved access to profitable markets. Like in many developing countries weak institutions have a negative impact on smallholder farmers.

The origins of this is that while institutions play a pivotal role in addressing some of the challenges faced by smallholder farmers in most cases they have negative effects on smallholder farmers when it come to market access. The World Bank (2000, 2002) and IFAD (2001) emphasize the importance of institutions in economic development. Market access is inhibited by economic and technological development among smallholder farmers in developing countries. According to Dorward & Kydd (2005) markets access is affected by weak institutional setup and high information costs that inhibit smallholder farmers. The result is usually low economic activity and thin markets as farmers are forced to sell their produce to less profitable markets.

Attempts to tackle market failures will continue to prevail unless investors (government and private sector) have confidence that all the other failures in other markets are addressed at the same time, in ways that will not hold them hostage to opportunistic behaviour by other economic agents or by state agencies (Dorward & Kydd, 2002).

Dorward & Kydd (2002) argue that weak institutions in rural areas of developing countries such as Zambia, Mozambique, Malawi and Zimbabwe are other factors that contribute to limited access to formal markets.

In this regard, policies should be designed in such a way as to accommodate the institutional environment and clear roles of government and civil society in improving communication, property rights, the macroeconomic environment, and access to information to support neo-classical competitive markets (Kherallah & Kirsten, 2001). It is important that institutions are effective so that resources are allocated efficiently, coordinated and exchanged in an economical way in rural areas.

5.4.2 MARKETS AS INSTITUTIONS

Markets can be grouped into informal and formal. In the agricultural context, Kherallah & Minot (2001) explained that informal markets embrace unofficial transactions between farmers and from farmers directly to consumers. In the case of South Africa, informal markets include selling products at the farm gate or spot markets where transactions costs are high because smallholder farmers lack lobbies in the legal environment. As a result, rural trade thrives where trust has been developed on the basis of repeat transactions or informal relationships (Randela, 2005). Thus, the unfavourable legal environment creates a significant barrier to entry into formal food trade and limits participation by smallholders in the modern marketing system.

On the other hand, formal markets have clearly defined grades, quality standards and safety regulations and prices that are formally set (Henson & Jaffee, 2007). Smallholder farmers find it difficult to penetrate these formal markets and as such, are the focus of this research. According to Mangisoni (2006), smallholder farmers are constrained in marketing by high transaction costs, high risks, missing markets and lack of collective action. The evolution of the role of quality standards in shaping access to global value chains (and thus international trade) should be understood in relation to changing features of consumption in industrialized countries such as US and EU. Consumption in these countries is increasingly characterised by food or user safety awareness, the parallel processes of globalisation and localization of consumer tastes, social and environmental concerns.

This together with market saturation for goods with ‘commodity’ traits has stimulated product proliferation and differentiation among smallholder farmers in developing countries (Dolan & Humphrey, 2000). Changes in the global market are affecting market access for agricultural products especially in remote rural areas.

For instance, there is a reported increase in consumers’ preference for supermarkets over local retail outlets in rural areas such as those found in the former homeland of Transkei in South Africa (D’Haese et al., 2005). It has also been accompanied by an increased importance for issues of quality control, management, traceability and certification (Dries & Swinnen, 2004). In the world of ‘mass consumption’ of relatively homogeneous commodities, quality standards facilitated the emergence of economies of scale and the creation of futures markets (Daviron, 2002).

In the current situation, quality standards are proliferating and becoming more specific. They also tend to focus (sometimes exclusively) on production and processing methods rather than on the product itself. Smallholder farmers in rural areas cannot produce good quality products because of the limited resources they own on their farms (Reardon et al., 2001). Market access can only happen if these farmers are supported by both financial and physical infrastructure on these farms to produce good produce.

5.5 OVERCOMING MARKETING CONSTRAINTS IN DEVELOPING COUNTRIES

It is generally believed that marketing as individuals is expensive when it comes to overcoming the transaction costs associated with production and marketing of agricultural products in rural areas of developing countries (Magingxa & Kamara, 2003).

A number of studies have arrived at the same conclusion that for smallholder farmers to increase their incomes and be food secure there is need for them to form groups and market their produce as producer organisations or cooperatives so that they can overcome costs associated with searching and negotiations (Magingxa & Kamara, 2003). Markets in the developing world are characterized by pervasive imperfections such as lack of information on prices and technologies, high transaction costs and credit constraints. Moreover, the new procurement systems often expect larger supply volumes, favouring larger farmers.

With the increasing number of free trade agreements affecting both national and international commodity markets, smallholder farmers are forced to compete not only with their local peers, but also with farmers from other countries as well as domestic and international agribusinesses. Rapid changes in the organisation of markets are taking place in the developing world, with public marketing boards being dismantled; wholesale markets are losing their space and supermarkets chains are spreading from developed to developing countries. Reardon et al. (2003) states that the number of supermarkets in Latin America, East and Southeast Asia, Central Europe and Eastern and Southern Africa are continuing to increase and smallholder farmers have to compete to be in these supermarkets.

In South Africa, for example there is the Johannesburg Fresh Produce Market (JFPM) which is the largest fresh produce market in Southern Africa and an important outlet for smallholder farmers from the Limpopo Province and elsewhere. The JFPM is involved in training of extension officers in production and marketing activities so that they are able to disseminate market information (such as prices, packaging, product quality, storage, delivery times, and market agents) to farmers in areas as far as 300km away in Limpopo Province (Baiphethi & Jacobs, 2009).

5.6 MARKETING CHANNELS FOR SMALLHOLDER FARMERS

For smallholder farmers to be included in the changing mainstream agro-food markets they are required to be able to maintain their participation by adapting their technology, management and organisation, having the required financial resources, and continually transforming to keep up with changes in the supply chains. Therefore smallholder farmers find it extremely difficult to infiltrate the restructuring market channels and have to develop and explore other markets strategies (Jordaan et al., 2008). According to the study by Bienabe et al. (2004), there are various initiatives that can be taken to connect smallholder farmers to markets. Findings suggest that producer organisations have an important role to play in strengthening farmers' position in traditional and new markets (such as fair trade) as well as in building their capacities (improved access to services and training).

They also played an important advocacy role with authorities to foster the development of policies that are favourable to smallholder farmers. All of these are especially important to meet the quality and quantity barriers that are associated with a lack of infrastructure and resources. Weatherspoon & Reardon (2003) also acknowledge that farmers need to gain a foothold in the supermarkets to secure their future, or risk extinction as supermarkets favour imports and established suppliers. Weatherspoon & Reardon (2003) state that in order to compete, smallholder farmers need to expand their productive capacity, ensure consistent supply and quality, and strive to adhere to supermarket and international grades and standards. The authors further subscribe to the wisdom of collective marketing as a means of accessing the supermarkets and meeting their needs. While this might be promising for smallholder farmers in South Africa, supermarkets are making contractual arrangements with small producers by promising them technical assistance to produce good quality food for the supermarkets.

While there are many marketing channels for smallholder farmers, supermarkets are now the central focus in terms of buying produce from farmers. In Africa supermarket chains are increasingly taking advantage of small/smallholder farmers to market their products and collaborate with development programmes that assist farmers to improve their quality and prospects of becoming commercial farmers in both local and international markets.

5.7 CAN PRODUCER ORGANIZATION BE A PANACEA TO MARKETS ACCESS?

There is increasing evidence from both research and practice that one way for smallholder farmers to overcome market failures and maintain their market position is through organising into farmer groups or producers organisations (Markelova & Meinzen-Dick, 2009). Bienabe et al. (2004) also confirmed that ‘collective farming’ or ‘collective action’ better positions smallholder farmers to reduce transaction costs for their market exchanges, obtain necessary market information, secure access to new technologies, and tap into high-value markets, allowing them to compete more effectively with large farmers and agribusinesses.

The positive impact of marketing cooperatives on smallholder farmers market access involve the implicit cost-saving and risk-sharing devices of collective marketing especially for farmers who belong to these cooperatives, as supported by numerous studies (for example, Bonin et al., 1993; Helmberger & Hoos, 1995). On the other hand, potential reasons

underlying the insignificant impact of all cooperatives on farm output to market access involve the ‘defensive’ attitude, related to prevalent rent-seeking behaviour, typical of non-marketing cooperatives.

Producer groups can simplify long marketing chains by connecting smallholders directly to markets, bypassing various marketing intermediaries. Thus, one of the main questions regarding market access is how to improve the farmers’ competitiveness. Bourdanove (1991) defines competitiveness as the capacity to improve market position, it covers cost reduction strategies which can be achieved through economies of scale, input provision, technical assistance or commercial logistics. The importance of farmer organisations is that they help farmers to negotiate or bargain as a group rather than as individuals.

Stringfellow et al. (1997) & Stockbridge et al. (2003) argue that smallholder farmer organisations are important for developing negotiation skills, power and political representation which are critical for smallholder farmers to participate in the improvement of their institutional environment. Social and local networks can give smallholder farmers flexibility and know-how, which facilitates learning by doing and learning by using and hence, the emergence of innovations.

Sharing the same historical experiences and local identity of a relevant territory and building on local social capital, these local agri-food chains can under score some conditions that generate economies of scale, minimize transactions costs and trigger collective action, resulting in more sustainable market access for smallholder farmers (Stockbridge et al., 2003). An example are Rooibos producers in the Western Cape who have since organised themselves and formed some producer organisations.

One of the better known is the milk industry in India where more than 70 percent of India’s milk is produced by households who own only one or two milk animals, and these producers form part of a nationwide network of dairy cooperatives (FAO, 2004). While the main role of marketing cooperatives is to reduce transaction costs and improve bargaining power of smallholders vis-à-vis the market, the role of cooperatives is to reduce transactions costs and increase bargaining power of smallholders vis-à-vis the state and the various support services these cooperatives receive from various NGOs, private sectors and also from government

incentives provided to farmers. Some of such services provided by farmer organisations according, to Stockbridge et al. (2003):

- Facilitation of collective production activities;
- Financial services (savings, loans and other forms of credit);
- Technology services (education, extension, research);
- Education services (business skills, health, and general);
- Welfare services, (health, safety nets);
- Policy advocacy;
- Managing common property resources (water, pasture, fisheries, forests); and
- Marketing services (input supply, output marketing and processing, market information).

There is often too much excitement about these farmer organisations; however, at times it obscures the fact that the process of establishing viable organisations is not a simple one. The success and effectiveness of these groups depend on certain factors such as group size and composition, types of products marketed and types of markets targeted, external environment, and the institutional structure chosen.

In most cases, facilitation by an outside agent from the private, public, or civil society sector is also necessary to catalyse and support both collective action and market development (Shepherd, 2007). Without these factors in place, collective marketing may not be a realistic goal for a group of smallholders. Literature on markets access for smallholder farmers has come to the conclusion that forming cooperatives or marketing as group is not a ‘silver bullet’ or a ‘fit for all’ which is applicable and can be replicated in all situations in developing countries for rural development.

In majority of situations, successful collective marketing group size range between 20-40 members. However, larger groups are more likely to achieve economies of scale. Federated structures can build up on the small group dynamics, but also take advantage of scale economies. On the other hand, larger groups may be less successful than small groups in furthering their interest but only up to a certain level. This is mainly because the transaction and managerial costs of cooperation increase faster than the gains as group size increases beyond a certain level (Hussi et al., 1993), which means that optimal group size will depend on the type of activity and the features of the group.

These farmer groups are normally associated with people with different ethnic and cultural backgrounds, thus the internal composition plays a significant role in participating in these farmer groups. Studies have shown that shared norms and values, which often arise as a result of prior involvement in groups and networks, is another enabling factor for groups' success (Coulter et al., 1999). Marketing groups that build upon experiences of working together in the past for other purposes have an advantage in terms of trust and cohesiveness.

5.8 CREATING AN ENABLING ENVIRONMENT FOR SMALLHOLDER FARMERS

To enable farmer groups or individual farmers to compete in markets effectively, certain 'basic needs' have to be put in place. These should include improving rural infrastructure, providing extension services, making credit markets accessible to the poor, and making relevant market information available. Since the main challenge for smallholders to engage in markets is high transaction costs, such interventions would lower the costs for farmer groups to participate in markets, creating additional incentives for them to organize around an appropriate marketing activity. In addition, simplifying the registration process would facilitate the smooth formation and operation of a group in situations where formal registration is required to access inputs and services.

Some studies have highlighted that these smallholder farmers require people or experts that can train them on financial and technical issues on the farms to smoothen the process of accessing markets. In the citrus industry in South Africa, citrus smallholder farmers have mentors. A mentor is a kind of person that assists these smallholder farmers in achieving their goals on these farms. Mentorship is described in different ways, among them it is a process of forming a relationship between a more experienced, seasoned and wiser (mentor) and a less experienced person (mentee), where the mentor assists the mentee to achieve specific goals or develop a specified capacity. In the normal rural situation mentoring takes place in an informal way amongst neighbours and friends.

In the majority of situations, this facilitation or mentorship exercise is normally done by the state and its agencies, by members of civil society, donors, or even by private firms. The World Bank through its efforts to assist smallholder farmers has tried to bridge the market

imperfections by allowing the private and public sector to enhance opportunities for the poor in markets and make the market systems more inclusive and integrated (FAO, 2011).

However, success depends on their ability in conveying market information, coordinating marketing functions, defining and enforcing property rights and contracts, facilitating smallholder competitiveness in markets and more critically in mobilizing smallholder farmers to engage in better paying markets (Baloyi, 2010). While it might be very difficult to engage smallholder farmers into high value chains, it has always been observed that exogenous organisation such as non-governmental organizations (NGOs) may be better suited to promote collective action processes around marketing rather than providing services or direct financial assistance (Vink and Van Rooyen, 2009).

5.9 STRUCTURAL CHANGES IN SMALLHOLDER AGRICULTURE IN DEVELOPING COUNTRIES

While most of the changes in agricultural and food markets are taking place in the developed countries, they have far-reaching implications for agricultural development efforts in developing countries (Balisacan et al., 2011). Lack of information on prices and technologies, lack of connections to established market actors, distortions or absence of input and output markets, and credit constraints often make it difficult for smallholder farmers to take advantage of market opportunities. The tightening of quality and food safety standards in high income markets is causing new (non-tariff) barriers such as phytosanitary and sanitary and Global Gap standards (DAFF, 2010).

Some empirical studies find that the re-organisation of the global food supply chains have led to a shift from smallholder production to agro-industrial production, thereby excluding smallholder farmers from profitable trading opportunities and resulting in negative welfare effects (Maertens & Swinnen, 2008). High transaction costs faced by smallholders due to their small scale exacerbate these challenges, especially in quality conscious and niche markets (Poulton et al., 2005). Access to these markets often requires expensive third party certification, which in turn may be a barrier to smallholder participation (Sikwela, 2013).

According to Sikwela (2013) the transformation of the food industry sector, spread of supermarkets, changes in the procurement system, modernizing of processing presents a big opportunity for smallholder farmers that are capitalized and organized. However, the food industry firms do not like to buy directly from individual small farmers (too much transaction cost); hence, options are the brokers/wholesalers, contract farming, and small farmers' organisations or cooperatives.

Baiphethi and Jacobs (2009) findings confirm that the problem of market access has also been due to lack of follow up investments by farmers and government, coordination problems among farmers and poor management of these farms. Smallholder farmers lack resources such as business and negotiating experience and the collective organisation to give them the power to interact on equal terms with stronger market chain actors (Sikwela, 2013). Therefore, the integration of agriculture, and predominantly smallholder farmers, into high-value markets must be seen alongside an on-going and well-established processes of commercialization and the structural transformation of agricultural supply chains; what has been termed 'agro industrialization'. Such processes, according to Sikwela, (2013) are characterized by:

- Increased use of purchased inputs for production;
- Increased post-harvest activities such as agro-processing, and distribution to geographically dispersed markets;
- Institutional and organisational changes in relationships between agribusiness firms and farms;
- Changes in farming practices resulting from shifts in product composition, technology and productivity; and
- Changing market structures and relationships along the supply chain.

The processes of structural transformation generally commences with the intensification of agricultural production through the increased use of new on-farm technologies and investments, along with complimentary improvements in market infrastructure and institutions, including input supply and output marketing and processing (Poulton et al., 2005).

With increasing urbanization, distribution and marketing systems need to be established that assemble, process, sort and transport agricultural and food products to markets that are distant from the location of production, thus integrating smallholder farmers into high value chains. These structural changes that take place in order for smallholder farmers to access markets vary from one farmer to the next.

5.10 DIVERSIFICATION BY SMALLHOLDER FARMERS

Smallholder farmers in developing countries play a crucial role in agricultural and economic development and reducing poverty in rural areas. Most smallholder farmers are vulnerable to economic and climatic shocks and spread their risk by diversifying their sources of livelihood, often including significant off-farm income generating activities (Barrett et al., 2001). People in rural areas do not solely rely on agriculture for their livelihood but on a diverse array of activities and enterprises (Chapman & Tripp, 2004). The extent of dependence on non-farm income sources varies across countries and regions.

The perceived risk of these future changes is a strong disincentive to investment in agriculture. Investments in alternative crops and livestock and entering new markets that may provide them with better prospects can be extremely difficult due to the need for economies of scale and also the health regulations brought by European countries (phytosanitary and sanitary issues) (Reardon et al., 2002). Many countries have agricultural policies and poverty reduction strategies that explicitly support the inclusion of smallholder farmers in profitable markets. In South Africa, most rural households depend on social grants though this has not been documented in detail.

The government of South Africa continues to support these people through seven different grants. While a number of South African people in rural areas rely on social grants, food security is still a challenge at household level (Monde, 2003). In countries such as Tanzania most of the people residing in rural areas on average derive their household income from crops and livestock and the other half from non-farm wage employment, self-employment and remittances (Chapman & Tripp, 2004).

The proportion of non-farm income was higher for upper income groups than for the lowest income groups. The poorest households were therefore more reliant on agriculture; a reliance which decreased as non-farm activities increased.

Table 5.1: Agricultural diversification and resource endowment

Subject matter	Internal and External Resource Endowments		
		High	Low
Diversification	High	Subsistence Agriculture	Market-oriented diversification
	Low	Local low value market Focus	Specialised agriculture

Source: Rao et al., 2004

5.11 THE ROLE OF SUPERMARKETS IN ENHANCING MARKET ACCESS FOR SMALLHOLDER FARMERS

The increased rise in supermarkets has brought about new constraints for smallholder farmers in both developing and developed countries (Dries et al., 2004). The increase in supermarkets has been a result of the ever changing quality demands by consumers in the EU and US markets who are so particular about how their food is produced. In developing countries there has been an increase in supermarkets and a rapid change in the organisation of marketing channels. Until recently, food products characteristics are now determined by consumers and not the producers through traders, supermarkets and agro industries (Reardon & Berdegue, 2002).

Furthermore the rise in supermarkets tends to result in most countries in the establishment of centralised buying and distribution centres with the first being concomitant shifts from the traditional brokers to new specialized or dedicated wholesalers like the JFPM and the second being a decline of traditional wholesale systems (Dries et al., 2004).

The emergence of supermarkets in developing countries has changed the way smallholder farmers supply their products. The growth of supermarkets in the food retailing industry has resulted in supermarkets changing sourcing and procurement practices and policies. South Africa is among the countries that have largest number supermarkets after Latin America, South East Asia and East Central Europe and the Africa (in which South Africa has the largest supermarket). These are dominated by large central procurement systems that are used to procure fresh produce from a limited number of smallholder farmers in distant rural areas.

The procurement decisions and practices of supermarkets are complex in nature and may be influenced by many factors both economic such as reducing transaction costs, determining the appropriate payment period and increasing efficiency in the supply chain and non-economic factors such as forming long term trust based relationships with smallholder farmers, suppliers of inputs and ethical trade requirements (Louw et al., 2007). The development of supermarkets in developing countries has shown that there is need for trust among the different key players in agriculture. Supermarkets procurement practices for both fresh and processed foods are often influenced by price and continuous supply of consistent quality and volume from these smallholder farmers.

Supermarkets and wholesaler' have strict requirements relating to volumes, quality, food safety systems, consistency and year round supply making it difficult for smallholder farmers who do not have the resources to produce the quality required by supermarkets (Meinzen-Dick et al., 2009). There is an increasing likelihood that smallholder farmers (black farmers), that are now entering commercial agriculture after years of social, political and economic exclusion, can once again be excluded and marginalised as supermarket chains tend to favour established and larger producers that can comply with their requirements. Most of these requirements include production methods that do not meet the standards of the both local and export markets (especially supermarkets in the EU and US countries). Many analysts have attributed this problem of poor quality from smallholder farmers as the skewed distribution in infrastructure provision between white and black areas, the fall-outs of recent reform measures instituted since 1994 when South Africa attained its democracy, and the fact that post-settlement support to the land reform beneficiaries has failed to address the urgent capacity constraints of individuals who may be entering farming for the first time in their lives (Lahiff, 2001).

It is now increasingly recognized that the crucial post-settlement support necessary to overcome this disadvantage was either completely absent or so badly structured that it was irrelevant (Louw et al., 2008; Kherralah et al., 2002).

Studies by Louw et al. (2008) and Reardon & Berdegue (2002) have shown how smallholder farmers have been included, in some cases, and excluded, in other cases, from high value chains because of the quality and volume of their produce. D'Haese & Van Huylenbroeck (2005) explored the effect of supermarkets on expenditure patterns in two villages in Transkei area of South Africa and found that the communities support local supermarkets more than farmers' markets. Findings from this study showed that supermarkets provided lower prices to consumers than local shops and local growers and were unable to compete with them.

Reardon & Hopkins (2006) confirmed these findings when they established that the spread of supermarkets led to a decline in the traditional retail sector. While this might be the case in South Africa and the rest of other developing countries, smallholder farmers are still failing to access profitable markets. Supermarkets can offer better opportunities to smallholder farmers since they are now spreading from urban areas to rural areas. The line of argument is that supermarkets are no longer located where the rich people stay but are now spreading to even much smaller towns where the rural people are located.

This has happened in response to a number of forces, many of them interconnected: rising incomes (also associated with higher ownership of assets such as fridges and cars which facilitate supermarket shopping), urbanisation, more female participation in the labour force (increased opportunity cost of time) and the desire to emulate Western culture, spurred on by the globalisation of the media and advertising (linked in turn to the globalization of food manufacturing and the promotion of its products as well as of fast foods and soft drinks).

Smallholder producers can greatly benefit from these upcoming markets and they can form some groups or cooperatives and market their produce together to cut down on transaction costs. The benefit of linking smallholder farmers to supermarkets such as Shoprite, Pick 'n Pay and Spar in the case of South Africa is that these smallholder farmers can secure contracts and have a market for their produce. At present, the only supermarket that is accepting fresh fruits and vegetables from smallholder farmers is SPAR, since it allows black smallholder farmers to supply products even without a contract.

5.12 SUMMARY OF THE CHAPTER

Smallholder farmers are faced with institutional factor that affect market access. The chapter has highlighted the role that is played by smallholder farmers in an economy, including their potential contributions. The chapter addressed issues on structural changes in smallholder farming and how these contribute to an enabling environment for farmers to access better paying markets. The chapter went on to discuss why smallholder farmer diversify to reduce poverty and risk of losing all their crops and livestock. It also discussed how economic growth can be promoted by allowing smallholder farmer to organise themselves to overcome these challenges in rural areas.

The chapter revealed that despite many challenges that smallholder farmers are facing in South Africa and other developing countries, there is growing support from supermarkets for local procurement of their produce. Smallholder farmers can either form co-operatives or find alternative marketing channels that accommodate what they produce on their farms. Despite the significant role of informal markets, government has no policies or programmes to enhance smallholder capacities to supply these markets. The literature highlighted that smallholder farmers are finding it difficult to penetrate the formal markets due to a number of institutional and technical factors. In order to access formal markets, there is need for institutional development and technological growth among these smallholder farmers. The research methodology used in the study is discussed in the next chapter.

CHAPTER 6

RESEARCH METHODOLOGY

6.1 INTRODUCTION

Research methodology has been defined as an operational framework within which the facts or specifics are placed so that their meanings may be seen more clearly (Leedy, 1989). Research methodology is a plan or design for the process of finding a solution to identify the influence of servant leadership on team effectiveness. This chapter outlines the methodology used for collecting and analysing data to achieve the aim and objectives of this research. Kothari (2012) defines research as a scientific and systematic search for pertinent information on a specific topic. It is an art of scientific investigation.

A systematic approach towards resolving an issue is the key aspect of any research as it allows the researcher to identify specific tools and methods that will help him/her reach the desired outcomes of research (Saunders et al. 2015). Bryman & Bell (2003) state that a logical approach needs that the researchers are aware of the final objective and select data tools which are appropriate to achieve the ultimate objective. The research methodology will then be the plan or design for finding solutions to these objectives. A survey will be conducted using a questionnaire as a research instrument. Questionnaires are one of the most widely used survey data collection techniques. The standard questionnaires are designed to reduce the error that can be attributed to the interviewer, by scripting the question format and order and defining in detail how the interviewer is to proceed through the questionnaire. As each person was required to respond to the same set of questions, it provides an efficient way of collecting responses from a sample.

A survey was found to be appropriate for this study because it was the most effective technique for the research. According to Creswell (2003) research is a recurring progression of steps that naturally begin with finding a problem or matter for study. It then includes the reviewing of literature, specifying a purpose for the study, gathering and examining facts, and generating the understanding of the evidence at hand. This chapter outlines the research methodology for this current study, comprising the following sections: research design, data collection description of the instruments, sample and population, validity and reliability, feasibility and appropriateness, and data analysis and ethical considerations. According to Leech & Onwuegbuzie (2009) research is the process of achieving solutions to problems

using a planned and systematic method. This chapter also provides an insight into the need for and how ethical considerations were maintained in this study.

6.2 RESEARCH PARADIGM

Paradigms play a fundamental role in science. The origin of the term paradigm is to be found in Thomas Kuhn's book called: *The structure of scientific revolutions* first published in 1962 (Mouton, 1996). When Kuhn published the second edition of his book in 1970, the idea of a paradigm was already extant; and it drew particular attention to the role of paradigms in the history of the natural sciences. Prominent researchers such as Mouton (1996), Creswell (2013), and Neumann (2011) had a major impact on the philosophy and methodology of the social sciences. In general, a paradigm is best described as a whole system of thinking (Neumann, 2011).

In this sense, a paradigm refers to the established research traditions in a particular discipline (Mouton, 1996). More specifically, a paradigm would include the accepted theories, traditions, approaches, models, frame of reference, body of research and methodologies and it could be seen as a model or framework for observation and understanding, (Creswell, 2009). A paradigm is thus a basic set of beliefs that guide action. Therefore, paradigms play a vital role in the social sciences. Creswell (2009) has chosen to use the term as a worldview. Hence, the use of the concept paradigm is metaphorical when applied to the social sciences, as opposed to the natural sciences.

In the natural sciences paradigms remain largely 'hidden' in research work. But they affect the practice of research; and therefore, they need to be stated (Creswell, 2009). The roots of the qualitative and quantitative approaches extend into different philosophical research paradigms, namely those of positivism and post-positivism (Creswell, 2009). Post-positivism (post-modernism) is characterised by two sub-paradigms, namely interpretivism (constructivism) and critical theory (critical post-modernism), while realism is seen as a bridge between positivism and post-positivism.

6.2.1 POSITIVISM

Human beings are seen objectively, and as a result, social scientists look to different avenues to study human society (De Vos, 2002). Babbie & Mouton (2001) states that the roots of positivism can be traced to Auguste Comte, who saw human beings as a phenomenon to be studied scientifically. Thus, positivism may be seen as an approach to social research that seeks to apply the natural science model of research as the point of departure for investigations of social phenomena and explanations of the social world (Mouton & Marais, 1990).

The natural sciences are suitable for the study of the social world; and hence, many researchers assume that the positivist approach is scientific. Naturally, one would ask the question: What is positivism supposed to comprise?

Positivism firstly entails a belief based on the assumption that patterns (trends), generalisations, methods, procedures, cause-and-effect issues are also applicable to the social sciences Glicken (2003). This view of positivism maintains that the objects of the social sciences, namely people, are suitable for the implementation of scientific methods. The positivist researcher maintains that it is possible to adopt a distant, detached, neutral and non-interactive position (Morris, 2006). A position such as this would enable the researcher to assume the role of an objective analyst, making detached interpretations about those data that have been collected in an apparently value-free manner. For the same reason, positivists prefer an analytical interpretation of quantifiable data (Mouton & Marais, 1990).

The abstract ideas of the social relationship should, consequently, be linked to the precise measurements of the social world. Positivism entails a belief that valid knowledge can only be produced on the basis of direct observation by the senses; and this would include the ability to measure and record what would be seen as knowledge. Observation in this sense means accepting only empirical evidence as valid evidence. Valid evidence is thus, produced through the senses of sight, smell, touch, taste and hearing. It would clearly mean that there is no place for phenomena which cannot be observed either directly, through experience and observation, or indirectly, with the aid of instruments. Moreover, it should be quite obvious that things that cannot be seen (observed), for instance people's thoughts and attitudes, cannot be accepted as valid evidence and knowledge.

These facts feed into the theoretical edifice pertaining to a particular domain of knowledge. Thus, theory expresses and reflects the empirical research. Such findings are often referred to as laws pertaining to a particular field, namely empirically established regularities (Bryman, 2008).

De Vos et al. (2011) asserts that scientific theories are seen by positivists as providing hypotheses, which are then submitted to empirical testing. This implies that science is deductive, as it seeks to extract specific propositions from general accounts of reality. Logically, this would entail the construction of a specific theory to explain the laws in a particular field. A hypothesis is thereby derived to enable the researcher to submit the hypothesis to rigorous empirical examination before rejecting, revising or accepting the hypothesis. The positivist tradition however, has not met with approval and support by all scientists, since it has produced some serious problems as well as some questionable assumptions.

Henning et al. (2004) pointed out that early positivist social scientists assumed that social reality can be explained in rational terms, because people always act rationally. Babbie (2010) in particular states that people do not always act rationally. Nonetheless, even non-rational behaviour could be rationally understood and predicted. Babbie (2010) further alleges that everybody acts, thinks and interprets subjectively to a certain extent. This subjectivity is unique to any individual; and the endeavour for objectivity could best be obtained through the discovery of inter-subjective interests between individuals.

6.2.2 POST-POSITIVISM

Dissatisfaction with positivism became increasingly widespread, thereby increasing the appeal of post-positivism, Henning et al. (2004). Because of the increasing appeal of post-positivism, post-positivistic works gained credibility throughout the social science community. Post-positivism will not be considered a distinct philosophical tradition in its own right. Mouton & Marais (1990) sees post-positivism as an extension of positivism, since it represents the thinking after positivism, challenging the traditional notion of the absolute and objective truth of knowledge in the social sciences.

Post-positivist approaches show a much greater openness to different methodological approaches, and often include qualitative, as well as quantitative methods. This allows for the development of alternative research strategies to find information in unlikely and creative ways (Glicken, 2003).

Additionally, researchers in this paradigm normally believe in multiple perspectives from participants rather than a single reality (Creswell, 2007). Positivism contends that there is an objective reality out there to be studied, captured and understood, whereas post-positivists argue that reality can never be fully apprehended, only approximated (De Vos et al., 2011). According to Henning et al. (2004) post-positivism relies on multiple methods for capturing as much of reality as possible. At the same time, emphasis is placed on the discovery and verification of theories. Traditional evaluation criteria, such as internal validity are stressed, as is the use of qualitative procedures that lend themselves to structured analysis.

The post-positivist researcher focuses on the understanding of the study as it evolves during the investigation. The study begins with an area of study. A question and a hypothesis are conjectured before starting the study (Morris, 2006). Post-positivists believe that positivist research is often difficult and impractical for many forms of social research (Glicken, 2003). Emanating from any research, there are tendencies towards a specific notion which can, by repetition bring valuable data to light. Post-positivists accept that the natural sciences do not provide the only model for social research. However, they do believe in an objective reality.

The proponents of post-positivistic research argue that research, even scientific research, is frequently a product of historically located practices. Post-positivism reflects a distrust of absolutes and foundational truths; following the correct method can no longer guarantee true results. Instead of only one truth, there are many. Truth is fundamentally dependent on language; and it is a socially constructed phenomenon. This distorts the reality on which positivism is built, Glicken (2003).

6.2.3 INTERPRETIVISM

The interpretive paradigm is also called the phenomenological approach. This is an approach that aims to understand people (Babbie & Mouton, 2010). According to De Vos et al., (2011) and Neumann (2011) interpretive social science can be traced to Max Weber (1864-1920) and

Wilhelm Dilthey (1833-1911). Dilthey argues that there are two fundamentally different types of science: the natural sciences and the human sciences. The former is based on *Erklärung*, or abstract explanation. The latter is rooted in an understanding, or *Verstehen*, of the lived experiences of people (De Vos et al., 2011; Neumann, 2011).

Weber maintains that all humans are attempting to make sense of their worlds. In so doing, they continuously interpret, create, give meaning, define, justify and rationalize daily actions (Babbie & Mouton, 2010). Interpretivism thus, focuses on exploring the complexity of social phenomena with a view to gaining understanding. The purpose of research in interpretivism is understanding and interpreting everyday happenings, experiences and social structures, as well as the values people attach to these phenomena (Babbie & Mouton, 2010). Interpretivists believe that social reality is subjective and nuanced, because it is shaped by the perceptions of the participants, as well as the values and aims of the researcher.

Gephart (1999) describes interpretivism as being directed on meaning, and understanding the social interactions between humans. Consequently, the mind interprets experience and events, and constructs meanings from them. Meaning does not exist outside the mind. Willis (2007) concurs with Gephart (1999) when they reject the notion that the social sciences should apply research principles adopted from the natural sciences. Interpretivists believe that the subject matter of the social sciences is fundamentally different from that of the natural sciences. Interpretivists further hold the view that the social world cannot be understood by applying research principles adopted from the natural sciences.

The social sciences require a different research philosophy. Interpretivists argue that simple fundamental laws cannot explain the complexity of social phenomena (Babbie & Mouton, 2010). Interpretivists claim that an objective observation of the social world is impossible, as it has meaning for humans only, and is constructed by intentional behaviour and actions. Something that holds true for the moment might not necessarily hold true tomorrow, or in another society. Knowledge is developed and theory is built through developing ideas from observed and interpreted social constructions. As such, the researcher seeks to make sense of what is happening. This can even generate findings beyond the common scientific knowledge (Rubin & Babbie, 2010).

For many years the interpretive approach existed as the opposition to positivism (Neuman, 2006). Although some positivist social researchers accept the interpretive approach as useful in exploratory research, few positivists consider it to be fully scientific. Positivists place their emphasis on the individual's interpretation of social interaction (Gephart, 1999). The interpretivist research accepts the notion that knowledge and meaning are the results of interpretations. There is no objective knowledge which is independent of human thinking and reasoning. Central to all interpretivists is the concern with subjectivity, which in a sense seeks to show how variations in human meanings and sense-making generate and reflect differences in reified or objective realities, that is when one becomes detached from and lose sight of connections or relationship to something created by researchers (Neuman, 2006).

6.3 RESEARCH METHOD

Silverman (2001) affirms that the main methods of quantitative research are “social survey, experiment, official statistics, structured observation and content analysis”. Silverman (2001) further attests that the features of the social survey are “random samples and measured variables”. As the social survey is representative, the research design employed for this study was correlative quantitative. Gorard (2003) and Gerring (2007) suggest that a research design must have a purpose. The research design that was used to verify the tenability of the proposed model incorporated numerical and statistical data.

Gorard (2003) assert that quantitative research that uses numerical or statistical information is common and its value and contribution to education cannot be denied. The methodology is the philosophical framework within which the research is conducted or the foundation upon which the research is based (Brown, 2006). O'Leary (2004) describes methodology as the framework which is associated with a particular set of paradigmatic assumptions that was used to conduct this research. Allan and Randy (2005) insist that when conducting a research methodology the researcher should meet the following two criterion.

Firstly, the methodology must be the most appropriate way to achieve the overall objectives of the research. Secondly, it must be made possible to replicate the methodology used by other researchers of the same nature. According to Polit & Hungler (1999) research methodology refers to ways of obtaining, organising and analysing data. Methodology decisions depend on the nature of the research question. Methodology in research can be

considered to be the theory of correct scientific decisions. Mouton (1996) describes methodology as the means or methods of doing something. According to Burns (2000) methodology includes the design, setting, sample, methodological limitations, and the data collection and analysis techniques in a study.

Henning et al. (2004) describes methodology as coherent group of methods that complement one another and that have the ability to fit to deliver data and findings that will reflect the research question and suit the researcher purpose. The research method is a strategy of enquiry, which moves from the underlying assumptions to research design, and data collection (Mouton, 1996). Although there are other distinctions in the research modes, the most common classification of research methods is into qualitative and quantitative. At one level, qualitative and quantitative refer to distinctions about the nature of knowledge; how one understands the world and the ultimate purpose of the research. On another level of discourse, the terms refer to research methods, that is, the way in which data are collected and analysed, and the type of generalizations and representations derived from the data.

6.4 RESEARCH DESIGN

Mouton (2011) explains a research design as follows: The construction of an original house starts with a notion, profile, size, number of restrooms. These concepts are given to the draftsman. The notions are converted into a proposal of the potential house by the designer. In principle, the future research is the research design. The research design is a strategy for gathering evidence about the knowledge desired (De Vos et al., 2005). Monette et al. (2008) define research design as a plan outlining how observations will be made and how the researcher will carry out the research project.

Walliman (2006) states that the research design provides a framework for the collection and analysis of data and subsequently indicates which research methods are appropriate. Byrne (2002) emphasizes that exploration is necessary when little is known about the subject being researched. According to Trochim (2005) research designs provides the glue that holds any research project together. The design is used to structure the research, to show how all of the major parts of the research project collaborate to try to address the central research questions. The research design is a recipe.

Similarly a recipe provides a list of ingredients and the instructions for preparing a dish, the research design provides the components and the plans for successfully carrying out the study.

The research design is the ‘backbone’ of the research. Research studies were designed in a particular way to increase the chances of collecting all the information needed to answer a particular question. Information gathered during the research is only useful if the research designs is sound and it follows the research protocols. Carefully following all the procedures and the techniques outlined in the research protocols will increase the chance that the results of the findings of the research will be accurate and meaningful to many. Following the research protocols and thus the design of the study it is equally important because the results or the findings can then be reproduced by other researchers. The more often results are reproduced, the more likely it is that researchers and the public will accept these findings as true and valid.

Additionally, the research design must specify the procedures used to ensure the overall protection of the research subjects or the sample population, whether human or animal and to maintain the integrity of the information collected within the study.

6.5 PRINCIPLES OF RESEARCH DESIGN AND METHODOLOGY

Research methodology has been defined as an operational framework within which the facts are identified so that their meanings may be seen more clearly (Leedy, 1989). Research methodology is a plan or design for the process of finding a solution to effective leadership approach to improve team work. As stated in the previous chapter the aim of this research study is to develop an extension framework for smallholder farming in the Western Cape. The research methodology will then be the plan or design for finding solutions to these objectives.

A survey will be conducted using a questionnaire as a research instrument. Questionnaires are one of the most widely used survey data collection techniques. The standard questionnaires are designed to reduce the error that can be attributed to the interviewer, by scripting the question format and order and defining in detail how the interviewer is to proceed through the questionnaire. As each person is required to respond to the same set of questions, it provides an efficient way of collecting responses from a sample. Mouton (2001) maintains that the

aims of research designs is to plan and to structure a given research project in a format that the validity of research findings are maximised.

The research design adopted for this study was quantitative given that a large target population was involved. McNabb (2002) asserts that research design is a strategic framework for actions that links the planned research questions to the execution or implementation of the research. Wilson (2014) further elaborates on the research design description of McNabb (2002) by stating that the research design is a plan that guides arrangements for the collection and analysis of data, because it specifies how the research should be carried out in such a manner that it answers the research questions.

Wilson (2014) maintains that the aims of such research designs is to provide a structured framework for actions that will enable the researcher to draw coherent and acceptable conclusions or inferences from the findings. Dellinger & Leech (2007) state that the research design ensures that the study fulfills a particular response, as it provides answers to research questions that will stand against criticism and ensures that the designs has an impact on the validity and correctness of the research findings. This includes a description of the procedure for selecting a sample, as well as how the responses related to the collation the data are to be sorted out.

Burns & Grove (2003) define research designs as a blueprint for conducting any study with maximum controls over factors that may interfere or influence with the validity of the findings. Parahoo (1997) describes a research design as a plan on how, when and where the data will be collected and analysed. Polit et al. (2010) define a research design as the researcher's overall for answering the research question.

The differences between objectivist and subjectivist dimensions as presented by Cohen et al. (2007), as taken from Greenleaf (1977) are distinguished in the following manner:

Table 6.1: Differences between objectivist and subjectivist dimensions

Dimensions of comparison	Objectivists	Subjectivists
Philosophical basis	Realism is the world exists and can be studied as it is	Idealism is the world exists but is studied differently by various groups of individuals
Role of the social sciences	Exploring universal laws of society and the behaviours of people within it. Can be internal and external	Exploring how the world can be interpreted by people and various groups
Basic units of social reality	Society or organisations	Individuals or groups of people
Comprehension Methods	Studying the types and nature of various relationships that allow the collection to exist	Studying subjective meanings that individuals impose upon their own actions or behaviours
Theory and Theories	Rational construction that has been proposed by many researchers to explain the human behaviours	Sets of meanings used by individuals to interpret their world and behaviours
Research Design	Validation of theory through experimentation or quasi-experimentation method	Looking for meaningful relationships and establishing the consequences of the actions
Methodology Used	The use of the quantitative analysis and mathematical methods	The analysis and interpretations of any reality
Society	Is managed by a set of general values, with rules and regulations	Is managed by values possessed by people with great power

Source: Greenleaf, 1977

Comprehensive information regarding important aspects of the methodology is provided by Jackson (2011) that can be summarised in the following table:

Table 6.2: Research Methodology

Goal met	Research methods	Advantages/Disadvantages
Description	Observational method Case study method Survey method	Allows description of behaviours Does not support reliable predictions Does not support cause-and-effect explanations
Prediction	Correlation method Quasi-experimental method	Allows description of behaviours Supports reliable predictions from a variable to another. Does not support cause-and-effect explanations.
Explanation	Experimental method	Allows description of behaviours Supports reliable predictions from a variable to another Supports cause-and-effect explanations

Source: Research Methodology, (Jackson, 2011). Adapted

6.6 TYPES OF RESEARCH DESIGN

Zikmund et al. (2013) state that a research design is a master plan specifying the various methods and procedures for collecting and analysing the needed information. To contextualise the research paradigm followed in this study, the different types of research designs are initially discussed briefly below. There are four main quantitative research namely Descriptive, Correlation, Causal-Comparative, Quasi-Experimental, and Experimental Research.

6.6.1 QUANTITATIVE VERSUS QUALITATIVE

The differences between quantitative and qualitative research is based on different research paradigms (Giddings, 2006). Qualitative research focuses on the competence of the researcher to gather information through structured data collection e.g. observations or interviews, whereas with quantitative research the researcher uses instruments e.g. questionnaires to gather information (Flick et al., 2004). According to Dellinger & Leech (2007), qualitative research does not depend on the use of numbers or measurements and focuses on phenomena that cannot be explained adequately with statistics.

Giddings (2006) postulates that qualitative research has a phenomenological perspective and is very flexible since the data and circumstances change. In contrast, Bajpai (2011) asserts that quantitative research depend on the use of numbers and measurements and has a structured data collection process. Brannen (2005) explains that quantitative research tries to establish casual relationships. In the quantitative paradigm, the researcher needs a set plan for the completion of the research and this plays a more prominent role in the data gathering process (De Leeuw, 2005). Owing to the nature of the methodological research component, a quantitative descriptive approach to the study was adopted to allow for the large volumes of data collected to be easily coded, analysed and described. The quantitative approach also allows for the results computed from the analysed questionnaires to be confidently generalised to the broader target population (Brannen, 2005).

6.6.2 QUANTITATIVE METHODOLOGY

Quantitative research methods were originally developed in the natural sciences to study natural phenomena (Bayat & Fox, 2013). Qualitative research methods were developed in the social sciences to enable researchers to study social and cultural phenomena. Both quantitative and qualitative research studies are conducted in education. Neither of these methods is intrinsically better than the other; the suitability of which needs to be decided by the context, purpose and nature of the research study in question; in fact, sometimes one can be alternatives to the other depending on the kind of study. Some researchers prefer to use mixed methods approach by taking advantage of the differences between quantitative and qualitative methods, and combine these two methods for use in a single research project depending on the kind of study and its methodological foundation, (Bayat & Fox, 2013).

Quantitative research makes use of questionnaires, surveys and experiments to gather data that is revised and tabulated in numbers, which allows the data to be characterised by the use of statistical analysis (Bayat & Fox, 2013). Quantitative researchers measure variables on a sample of subjects and express the relationship between variables using effect statistics such as correlations, relative frequencies, or differences between means; their focus is to a large extent on the testing of theory. Quantitative research is the investigation of phenomena that lead themselves to precise measurement and qualification, often involving a rigorous and controlled design (Polit & Hungler, 1999).

6.6.3 QUALITATIVE METHODOLOGY

According to Leedy & Ormrod (2005) qualitative research focuses on phenomena that occur in natural settings, in the 'real world'. Qualitative research also involves studying those phenomena in all their complexity. Therefore, qualitative research is rarely simple because it recognises that the issue being studied has many dimensions and layers, hence it tries to portray the issue in its multifaceted form. Leedy & Ormrod (2005) add that qualitative research serves one or more of the following purposes:

- i) Description: revealing the nature of certain situations, settings, processes, relationships, systems or people;
- ii) Interpretation: gaining insights into a particular phenomenon, developing new concepts or theoretical perspectives about the phenomenon and/or discovering problems that exist within the phenomenon;
- iii) Verification: allowing the researcher to test the validity of certain assumptions, claims, theories, or generalisations in real-world contexts; and
- iv) Evaluation: providing a means through which a researcher can judge the effectiveness of particular policies, practices or innovations.

Yin (1994) argued that qualitative data has the advantage of rich descriptions of the things being studied in their natural environment as opposed to a laboratory setting. This is because qualitative data focuses on issues that are not just complex, but also evolving. As a result, qualitative data is less amenable to precise measurement or numerical interpretation (Mouton & Marais 1990). Qualitative data do not involve just numbers and statistics, but full descriptions of things that occurred, including the real experiences.

In addition, qualitative research emphasizes the human element, uses close first-hand knowledge of the research setting and avoids distancing the researcher from the people or event/situation being studied (Neuman, 2003). According to Leedy & Ormrod (2005) qualitative research methods include case studies, ethnography, phenomenology, grounded theory and content analysis. A decision was made on the research methods that would be appropriate for this study after a careful investigation of the various alternative research methods in the literature, constantly bearing in mind the principal research question and the resources available for this study, as well as the need to collect both qualitative and quantitative data. Although Leedy & Ormrod (2005) classify a survey as a standard quantitative research method, Aldridge & Levine (2001) assert that to characterize surveys as pre-eminently quantitative research is a misconception. On the contrary, surveys have the prime advantage of allowing simultaneous collection of both qualitative and quantitative data (Aldridge & Levine, 2001).

Table 6.3: Summary of major differences between quantitative and qualitative approaches to research

Orientation	Quantitative	Qualitative
Assumption about the world	- A single reality, i.e. can be measured by an instrument	- Multiple realities
Research purpose	- Establish relationship between measured variables	- Understanding a social situation from participants perspectives
Research methods and processes	- Procedures are established before study begins - Hypothesis is formulated before research can begin - Deductive in nature	- Flexible, changing strategies - Design emerges as data is collected - Hypothesis is not needed to begin research - Inductive in nature
Researchers' role	- The researcher is ideally an objective observer who neither participate in nor influence what is being studied	- The researcher participates and becomes immersed in research/social setting
Generalisability	- Universal context-free generalization	- Detailed context-based generalization

Stake, (1995). The art of case study research.

In qualitative studies the researcher is considered the primary instrument of data collection and analysis. The researcher engages the situation, makes sense of the multiple interpretations, as multiple realities exist in any given context as both the researcher and the participants construct their own realities. She/he strives to collect data in a non-interfering manner, thus attempting to study real-world situations as they unfold naturally without predetermined constraints or conditions that control the study or its outcomes (Merriam, 1998). Stainback & Stainback (1988) list three basic purposes of quantitative research as: to describe, to compare and to attribute causality.

Merriam, 1998), enumerates five research purposes for which qualitative studies are particularly useful:

- Understanding the meaning that participants in a study give to the events, situations and actions that they are involved with; and of the accounts they give of their lives and experiences;
- Understanding the particular context within which the participants act and the influence this context has on their actions;
- Identifying unanticipated phenomena and influences and generating new, grounded theories about them;
- Understanding the process by which events and actions take place; and
- Developing causal explanations.

Merriam (1998) states that qualitative case studies in education are often framed with concepts, models and theories. An inductive method is then used to support or challenge theoretical assumptions. Although the research process in qualitative research is inductive, Merriam (1988) notes that most qualitative research inherently moulds or changes existing theory in that:

- Data are analysed and interpreted in light of the concepts of a particular theoretical orientation;
- Findings are usually discussed in relation to existing knowledge (some of which is theory) with the aim of demonstrating how the present study has contributed to expanding the knowledge base.

However, (Guba & Lincoln, 1994) caution that qualitative research, which is an approach that acknowledges the researcher's subjectivity, requires that the 'biases, motivations, interests or perspectives of the inquirer' are identified and made explicit throughout the study. Guba & Lincoln (1994) identified some of the disadvantages⁴ of qualitative research as follows:

- Researcher bias can bias the design of a study;
- Researcher bias can enter into data collection;
- Sources or subjects may not all be equally credible;
- Some subjects may be previously influenced and affect the outcome of the study;
- Background information may be missing;
- Study group may not be representative of the larger population;
- Analysis of observations can be biased;
- Any group that is studied is altered to some degree by the very presence of the researcher; and
- It takes time to build trust with participants that facilitates full and honest self-representation. Short term observational studies are at a particular disadvantage where trust building is concerned.

In defense of qualitative research Merriam (1988) states that most writers suggest judgment should focus on whether the research is 'credible and confirmable' rather than imposing statistical, quantitative ideas of generalizability on qualitative research. To sum up this section, qualitative research is a systematic inquiry into the nature or qualities of complex social group behaviours by employing interpretive and naturalistic approaches.

Qualitative study lends itself to thick narrative description of the group behaviours in the group's natural environment. It attempts to be non-manipulative and takes into account the unperturbed views of the participants as the purpose is generally to aim for objectivity. Qualitative research are most appropriate when the researcher wants to become more familiar with the phenomenon of interest, to achieve a deep understanding of how people think about a topic and to describe in great detail the perspectives of the research participants. The study will employ both qualitative and quantitative methods. Prior to the commencement of the data collection, an intensive desktop study, involving the use of old and recent published materials will be explored. The desktop study will prioritize both national and international

accredited journals information resources. With regard to qualitative methodology, participatory forums will be used to delineate the research context and premise, whilst the quantitative methods will be used to measure the variables under investigation. Sound agricultural and rural development policy decisions need to be backed by evidence based inquiries (Matunhu, 2011).

6.6.4 EXPLORATORY RESEARCH, DESCRIPTIVE RESEARCH AND EXPLANATORY RESEARCH

McNabb (2002) confirms that research conducted in the social sciences can take on three research processes, namely, exploratory research, descriptive research and explanatory research. Exploratory research is the initial research performed to clarify and define the nature of a problem that has not been defined in a specific setting (Zikmund et al., 2013). McNabb (2002) affirms that exploratory research is used when problems are in a preliminary stage and can address research questions of all various types and structures. Lowenthal & Leech (2009) state that exploratory research is often used to generate formal hypotheses and lays the groundwork for future research.

According to McNabb (2002) exploratory research provides a greater understanding of a concept or problem, rather than providing quantification. Fricker (2008) states that descriptive research is specifically aimed at describing people and situations. McNabb (2002) adds that data from descriptive research may be qualitative or quantitative. However, quantitative data presentations are normally limited to frequency distributions and summary statistics (Fricker, 2008). Lowenthal & Leech (2009) highlight that the primary purpose of explanatory research is to explain why the phenomena occur and to predict future occurrences.

Leech & Onwuegbuzie (2009) observe that during explanatory research, the researcher aims to understand the nature of the relationships between the two variables namely the independent and dependent variables. Exploratory research, as the name depicts, intends to explore the research questions and does not intend to offer any final and conclusive solutions to the existing problems. This is conducted to determine the nature and the intensity of the problems and this types of research is not only intended to provide conclusive evidence but helps one to have a better understanding of the problems.

When conducting such exploratory research methods, the researcher ought to be willing to change his/her direction as a result of the revelation of new data and new insights. Exploratory research designs does not aim to provide the final and conclusive answers to the research questions but merely aims to explore the research topic with varying levels of depth and insight. It has been noted that the exploratory research approach is the initial research, which forms the basis for a more conclusive research approach. It may even help in determining the research design, sampling methodology and data collection method appropriate for the study.

Exploratory research methods tends to tackle new problems on which little or no previous research has been done. Unstructured interviews are the most popular primary data collection method with this type of research.

6.7 STUDY AREA – WESTERN CAPE

The study was conducted in the Western Cape Province of the Republic of South Africa. The Western Cape is a province of South Africa, situated in the south-western part of the country. The Western Cape Province is just over 12,9 million hectares in size of which 11,5 million hectares can be used for agricultural purposes, with a population of 6.2 million inhabitants. The balance is urban or conservation areas or is being occupied by infrastructure. Close to 81% of the agricultural area is only suitable for grazing and is being used by animal farmers. The remainder is being used by farmers producing grains or other intensive crops.

About two-thirds of these inhabitants live in the metropolitan area of Cape Town, which is also the provincial capital. The Western Cape was created in 1994 from part of the former Cape Province. The Western Cape is quite different from the rest of South Africa given its Mediterranean nature, i.e. it has winter rainfall.

The Western Cape Province is comprised of the following districts namely: Overberg, Central Karoo, Eden, West Coast, Cape Winelands and one Metro, (Figure 6.1). The Province borders with Eastern and Northern Cape Provinces. Unlike other studies that have focused in a particular district, this study will focus in the whole Province, the researcher is

privileged to work in this province and has observed the challenges that constitute the topic of this study summarized in the objectives already indicated in chapter one.

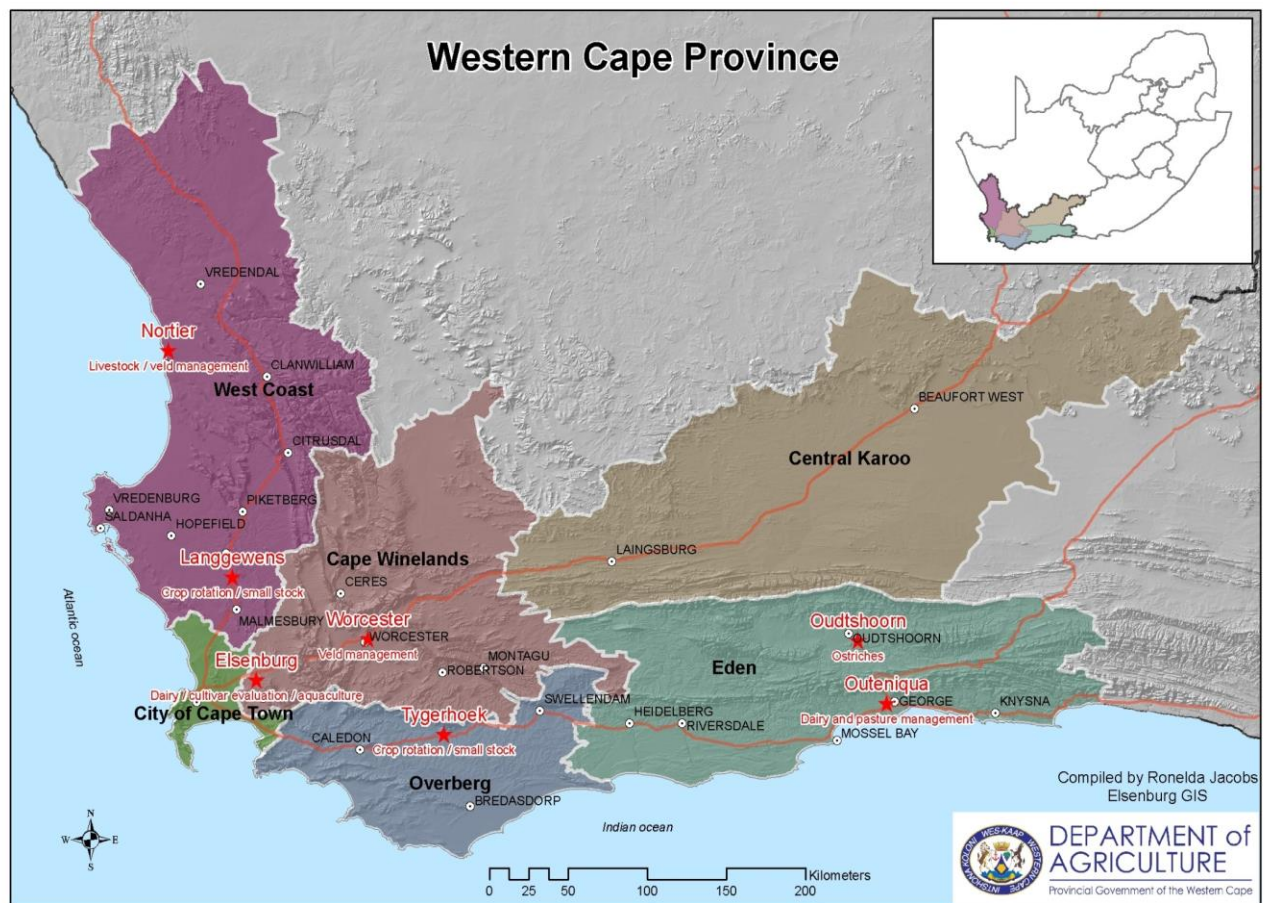


Figure 6.1: Map of Western Cape
Source: Department of Agriculture Western Cape - GIS section

6.8 AGRICULTURAL LAND USE IN THE WESTERN CAPE

Although the production of grains uses the biggest part of this area (66%), grains are responsible for only 17% of the value of crop production in the Province. On the other side of the spectrum is fruit and grapes which only uses 25% of the cropping area, but is responsible for two thirds (66%) of the value of crop production. Wheat is responsible for 66% of grain production, followed by barley (17%) canola (8%). Wine grapes is the biggest contributor to the value of fruit production (41%), followed by apples (24%), pears (9%) and table grapes (5,4%).

Potatoes (45%), onions (29%) and tomatoes (6,1%) dominates the vegetable sub-sector whilst rooibos is responsible for 94% of the value of tea and tobacco production in the Province (WCDOA, 2014).

The important role that irrigation crops such as fruit and vegetables play in the Western Cape Agricultural Sector is an important indicator why it has such an important export focus.

Table 6.4: Land use for agricultural production in the Western Cape.

	Area (Ha)	Volume (Ton)	Percentage (%) of:	
			Area	Value
Grains	511 270	1 298 129	66%	17%
Fruit	193 138	5 085 180	25%	66%
Vegetables	29 749	1 286 221	4%	17%
Teas	36 170	14 513	5%	0,2%
Total	770 327	7 684 043	100%	100%

Source: WCDOA (2014)

The Western Cape's agricultural sector is unique from other provinces in South Africa, mostly in terms of physical resource differences. The winter rainfall region of the Winelands and the year-round rainfall of the Southern Cape enable a variety of crop mix and production potential. The Provinces' agricultural sector is known for its production stability and supported by well-developed infrastructure for input supply and output processing. It is well-known that agriculture plays a significant role in the Western Cape economy with a total value-addition to the economy of R14.7 billion in 2011, and about 23% of the national agricultural value addition (Vink & Tregurtha, 2007).

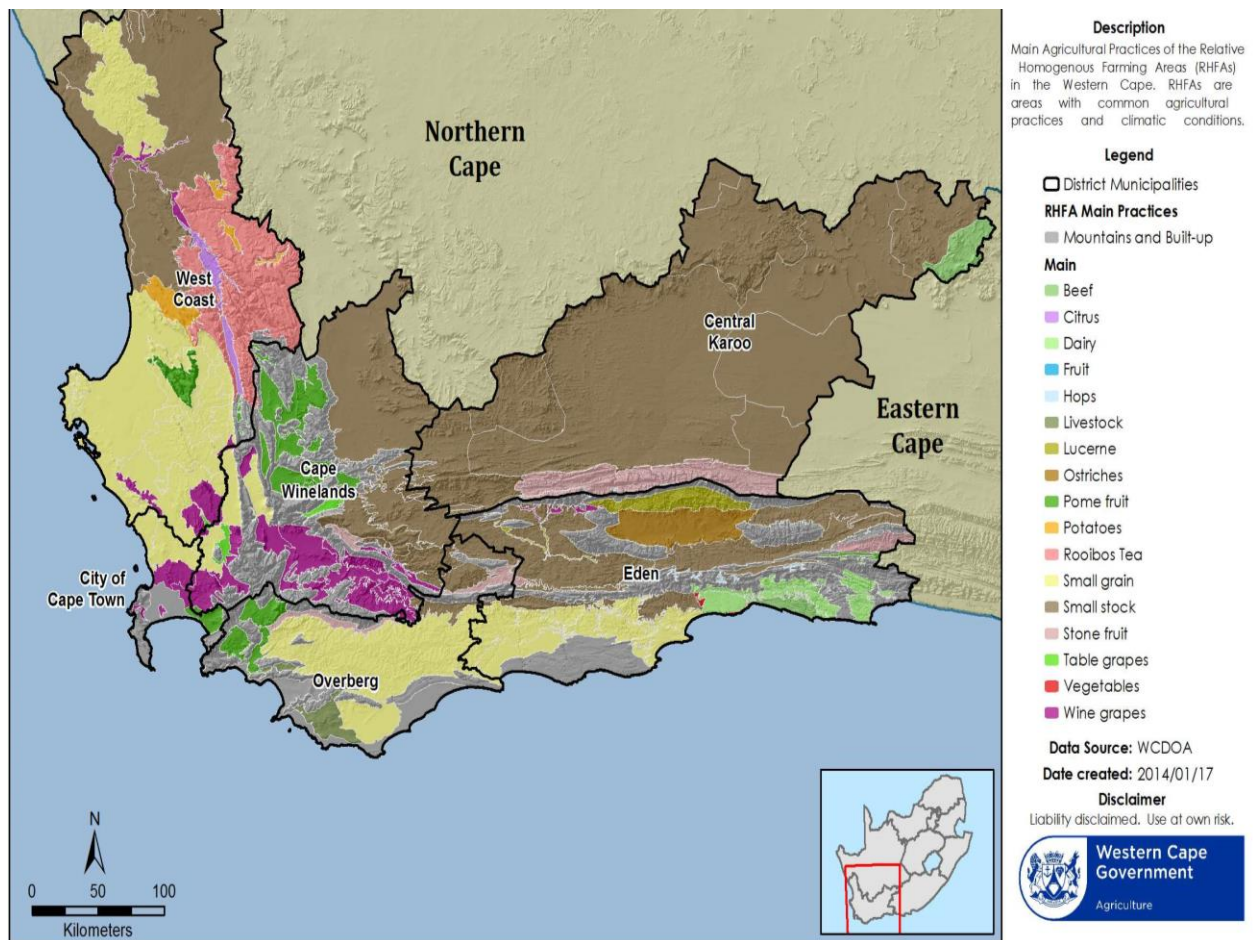


Figure 6.2: Western Cape Farming areas
Source: Department of Agriculture Western Cape - GIS section

6.8.1 THE WESTERN CAPE AGRICULTURAL SECTOR

The Western Cape's agriculture is distinguished in several ways from that in the rest of South Africa, largely because of the physical resource differences. The winter rainfall region of the Boland and the year-round rainfall of the Southern Cape provide agricultural conditions that make the crop mix and productive potential unique. A main feature of the region's agriculture is production stability, based on stable and relatively adequate winter rainfall and supported by well-developed infrastructure for both input supply and output processing. Agriculture is one of the primary pillars of the Western Cape economy (PERO, 2015). As many as 11 commodities contribute significantly to agricultural production, with fruit, poultry/eggs, winter grains, viticulture and vegetables together comprising more than 75% of total output, (Sebopetsa & Bayat, 2012).

Consequently, diversity of agricultural enterprises also contributes to agriculture's general stability. Various topographic features divide the province into a number of sub regions, each with its own distinct climate. High mountain ranges interact with on-shore movements of moisture laden ocean air to serve as water harvesting systems. The resulting runoff provides substantial irrigation potential in the coastal region and parts of the Karoo semi-desert area beyond the mountains. The province can be divided into seven main climate-zones.

While there is agricultural activity in the Cape Metropolitan area, including some high value enterprises, the economic and social character of this sub region is definitely urban or metropolitan. This area is comprised of the Bellville, Goodwood, Cape Town, Simonstown and Wynberg districts and is usually referred to as the Cape Peninsula. However, intensive poultry, pork, vegetable and milk production based on zero grazing technology can be found within a radius of about 75 km from Cape Town.

The South coast sub region, with an area of approximately 960 000 ha, produces mainly wheat and malting barley in rotation with planted pastures under rain fed conditions. The production of wool, milk and meat, which is already significant, should increase and cultivated pastures and fodder grains can be expected to replace some wheat in the future. Intensive production under irrigation of vegetables and hops, mainly in the George area, and irrigated pastures for milk production can be found towards the escarpment. The Little Karoo, stretching from Barrydale to the upper reaches of the Langkloof, is renowned for its ostrich industry around Oudtshoorn, the production of deciduous fruit for canning, drying and increasingly for export, and for lucerne hay. The land under irrigation is less than 4% of the total area of about 2 million ha but produces more than 80% of the total value of production.

6.9 WESTERN CAPE EXTENSION SERVICES

The mandate for extension and advisory services rests with provincial Department of Agriculture, whilst national government is responsible for policy formulation. There are currently just over 2 210 Agricultural Advisors in South Africa (DAFF, 2005). Notwithstanding, the national norms and standards for extension advocates that the minimum qualification for an Agricultural Advisor is Bachelor's degree in Agriculture, over 50% of the current Agricultural Advisors (nationally) don't comply with the minimum requirements. The level of education of the agricultural advisors in the Western Cape is quite high as compared to the rest of the country, 98% of the 70 officials have a four degree in Agriculture.

Furthermore, the WCDOA has implemented the Commodity Approach (Annexure E), since 2009 with the aim to unlock the principles and support structures embedded in successful agricultural enterprises to the benefit of new entrants in agriculture. The Commodity Approach builds upon traditional extension support services by working with commodity groups to better meet the needs of smallholder farmers and respond to the diverse farmer groups, commodities and farming systems in the Province. The approach is aimed at leveraging private sector resources in development of black farmers through the provision of mentorship support and access to markets based on existing commodity networks. In addition, agricultural advisors employed by the WCDoA are the most qualified compared to their counterpart in the rest of the country, i.e. they all possess a minimum four year degree in Agriculture.

6.10 TARGET POPULATION

Welman et al. (2005) state that a population is the full set of elements from which a sample is selected. The target population for this study will comprise all farmers in the Western Cape receiving government extension and advisory services. The target population obtained from the 2010 survey of the Western Cape Department of Agriculture. According to Burns and Groves (2003), the target population is all elements such as individuals or objects that meet certain criteria for inclusion in a given universe. Another main concern in sampling is the size of the sample (Terre Blanch & Durrheim, 1999).

The sample size must be adequate to allow inferences to be made about the population from the research findings. However, Bryman & Bell (2003) contend that the absolute rather than the relative size of a sample is what increases validation and therefore the sample must be as big as possible. This research study aimed at a sample size of 213 individual farmers. According to Patton (2002), the actual specification of a sample must start with the identification of a population to be surveyed.

McNabb (2002) clarifies that the target population refers to the group of people who form the object of the survey and from which conclusions are drawn. A population can also be described as finite or infinite (Patton, 2002). A finite population has a limited or fixed number of individuals or objects while an infinite population has an unlimited or a non-fixed number

of persons or objects McNabb (2002). Caracelli & Greene (1997) added that the researcher must be able to anticipate any decisions that are most likely to arise during the actual sample selection process and that the respondents must possess the information and must possess certain attributes or characteristics to make their responses meaningful.

Greene (2008) adds that a population is a homogeneous mass of individual units. Lowenthal & Leech (2009) conclude that most of the time it is often not possible to study the entire population because of the limitations of time and costs. Polit & Hungler (1999) define a population as the totality of all subjects that conform to a set of specifications, comprising the entire group of persons that is of interest to the researcher and to whom the research results can be generalized. Cooper & Schindler (2003) define a population element as the subject on which the measurement is being taken. In this study the target population comprises Of 9 844 smallholder farmers that benefit from the public sector extension and advisory service.

6.11 SAMPLING

Sampling refers to the selection of a subset of persons or things from a larger population, also known as a sampling with the intention of representing the particular population Kotler & Keller (2009). Sampling as a small portion of the total set of objects, events or persons which together comprise the subject of a study. A good sampling implies a well-defined population, an adequate chosen sample and an estimate of how the representative of the whole population the sample is. A non-probability sampling procedure was used for the selection of smallholder farmers in the study, (Mouton & Marais, 1990).

According to Kotler & Keller (2009) it is not feasible or necessary to survey the entire population relevant to a study. As a result, one selects a sample that is a representative or a subset of the entire population. However, to draw meaningful, reliable and valid conclusions, the sample should closely reflect the study population, that is, it should be a representative sample.

It was vital in this study to collect data from all the districts of Western Cape in order for this study to qualify as a provincial study. It was important to establish the information needs and the information requirements of the smallholder farmers across value chains. For this reason, a purposive sampling method was used. The participants of this research phase were

purposefully selected based on their involvement with the government extension and advisory services.

Purposive sampling strategies are designed to enhance understanding of selected individuals or groups' experience's or for developing theories and concepts (Kotler & Keller, 2009). A criteria was developed to sample participants in the study. A total of 213 individual farmers were sampled for this study. The focus was on those farmers within projects that have contact with government extension service.

Table 6.5: The distribution of individual farmers and group members in Western Cape Province

District	Individual Farmers	Group Members	Sample of the individual farmers (over 30%)
Cape Metro Area	163	128	41
Cape Winelands	142	4 459	50
Central Karoo	13	401	5
Eden	110	744	41
Overberg	80	880	28
West Coast	173	2 551	48
Total	681	9 163	213

(Source: Department of Agriculture, Western Cape Province: 2010)

The study focused on the individual farmers as opposed to groups on farms as these are the ones who deal directly with extension service, i.e. 213 individual farmers, spread across the 6 districts of the Western Cape (Table 3.3). The study has employed this approach given that the individual farmers are the ones that interact with the government extension service and therefore, their input would be critical to the development of the extension framework. The study had also involved other stakeholders involved in extension delivery, namely;

commodity formations that are involved in the Department's commodity approach and NGO's that provide extension support to farmers. There are currently 11 key commodities formations that are involved in the commodity approach with the Western Cape Department of Agriculture.

6.11.1 ADVANTAGES OF THE PURPOSIVE SAMPLING METHOD

Non-probability sampling is a sampling approach which is less likely than probability sampling to produce accurate and representative samples, despite that, it is mostly used in nursing research. The researcher used the purposive sampling method as discussed because:

- i) The researcher was able to judge the subjects that were typical or representative of the phenomenon being studied;
- ii) The researcher was able to choose subjects that were knowledgeable about the research at issue because of their own personal experience;
- iii) The data collected could be very informative for this research;
- iv) It was convenient and economical as the researcher was the only one involved in the selection. (Polit & Hungler 1999).

6.11.2 SAMPLING TECHNIQUES

According to Maree (2003) sampling is a prevalent practice, and all methods of sampling can be classified into two types, namely: probability and non-probability sampling techniques. Sampling means taking a portion or a smaller number of units of a population as representative or having particular characteristics of that total population (Denscombe, 2008). DePoy & Gilson (2008) state that a sample comprises of elements or a subset of the population that was considered for actual inclusion in the study or it can be viewed as a subset of the measurements drawn from a specific population in which the researcher is interested in.

According to Welman et al. (2005) there are two types of sampling methods, namely, probability and non-probability sampling techniques. Kerlinger & Lee (2000) state that systematic sampling involves selecting every *n*th element to make up the sampling. According to Scheaffer et al. (2006) random sampling without replacement tends to be more efficient than sampling with the replacement in producing representative samples, since it does not allow the same population elements to enter the sample more than once.

6.11.3 PROBABILITY VERSUS NON PROBABILITY SAMPLING

According to Welman et al. (2005) there are two categories of sampling methods, namely, probability and non-probability sampling techniques. Probability sampling provides a way of selecting representative samples from large, known populations (Flick et al., 2004). Probability sampling methods make it possible to estimate the amount of sampling error that can be expected in any given sample (Briggs & Collman, 2007) Non-probability sampling, (such as, convenience, judgmental, quota and snowball techniques) in contrast, risks introducing selection bias into the sample (Greene, 2008).

In this study, probability sampling was selected for the following reasons. The researcher identified the need to make statistical inferences from the sample and endeavoured to minimise selection bias (Gorard, 2005). However, it was easy to gain access or to locate the population elements as the population was not highly scattered and was readily available (Briggs & Collman, 2007).

The quantitative research design was used, and a broad cross-section size was targeted (Flick et al., 2004). The sampling frame was available, but there was no need to target specific elements of the population due to the research objectives of the study (Bajpai, 2011). There are four major types of probability sample designs, namely, simple random sampling, stratified sampling, systematic sampling and cluster sampling (Fricker, 2008).

6.11.4 PROBABILITY SAMPLING

Maree (2011) states that in a probability sample “each element in the population has a known positive probability or chance to be included in the sample. According to Cohen et al. (2007) and Maree (2011) simple random sampling, systematic sampling, stratified sampling, cluster sampling, stage sampling and multi-phase sampling are some of the different probability sampling techniques that apply to quantitative studies.

Maree (2011) confirms that a simple random sample originates when elements are drawn one by one from a jar with or without replacement and when each element in the population has an equal chance of being included in the samples.

Alternatively, simple random samples are drawn from a table of random numbers. A table of random numbers can also be computer generated.

In stratified random sampling, the population is firstly divided into homogeneous groups called strata, and from each of the stratum, a simple random sample is drawn. In cluster sampling, the population is divided into subgroups which are known as clusters. Steyn et al. (1994) and Fink (1995) state that systematic sampling involves selecting every element to make up the sampling frame. According to Maree (2011), systematic sampling is convenient in cases where the population size is not known.

6.11.5 NON-PROBABILITY SAMPLING

According to Maree (2011) convenience sampling, judgmental sampling and quota sampling are some of the non-probability procedures. Maree (2011) argues that convenience sampling involves drawing the elements that are most convenient. In judgmental sampling, the choice of the sample depends on experts from the population. In quota sampling, the researcher forms sub-populations or cells. According to Willemse (2009) in snowball sampling, sampling elements are selected based on a referral from other survey respondents.

This method is rarely used and depends on the nature of the topic. In non-probability sampling (also known as nonrandom sampling) not all members of the population have a chance of participating in the study. This can be contrary to the probability sampling method, where each member of the population has a known, non-zero chance of being selected to participate in the study. The need for non-probability sampling can be explained in a way that for certain studies it is not feasible to draw a random probability based sample of the population due to time and cost considerations. In such cases the sample group members have to be selected by accessibility or by the personal judgment of the researcher.

Therefore, the majority of non-probability sampling techniques includes an element of subjective judgment. Non-probability sampling is the most helpful for exploratory stages of the studies such as a pilot survey.

The issues related to the sample size in non-probability sampling technique is rather ambiguous and needs to reflect a broad range of research-specific factors in each case. Nevertheless, there are some considerations about the minimum sample sizes in non-probability sampling as illustrated in the table below:

Table 6.6: Sample sizes in research

Nature of study	Minimum sample size
Semi-structured, in-depth interviews	5 – 25
Ethnographic	35 – 36
Grounded theory	20 – 35
Considering a homogeneous population	4 – 12
Considering a heterogeneous population	12 – 30

Source: Saunders et al., (2012)

6.11.6 TYPES OF NON PROBABILITY SAMPLING

Non-probability sampling means that the subsets of the population have little or no chance of being selected for the sample, in other words, elements of the population do not have an equal chance of being selected. This type of sampling relies on the personal judgement of researchers to select the sample. According to Saunders et al. (2009), non- probability sampling includes:

- Convenience Sampling - as the name suggests involves collecting a sample from somewhere convenient to you such as the mall, your local school, your religious groups. Sometimes also referred to as accidental sampling, opportunity sampling or grab sampling techniques;
- Haphazard Sampling – this is where a researcher chooses items haphazardly by attempting to simulate randomness. However, the results are not been random at all and is often tainted by selection bias;
- Purposive Sampling - where the researcher chooses a sample based on undelying knowledge about the population size and the study;

- Expert Sampling refers in this method to the researcher that draws the samples from a list of experts in the field;
- Heterogeneity Sampling or Diversity Sampling is a type of sampling where the researcher deliberately chooses members so that all views are well represented. However, such views may or may not be represented proportionally or adequately;
- Modal Instance Sampling: The most typical method where all the members or the participants are selected from a set;
- Quota Sampling: where the groups which includes both men and women in the sample that are proportional to the groups in the population sample; and
- Snowball Sampling: where research participants may recruit other members for the study. This method can be particularly useful when participants are hard to find.

6.11.7 COMPARISON OF PROBABILITY AND NON-PROBABILITY

Table 6.7: Comparison of probability and non-probability sampling

Basis for the Comparison	Probability sampling	Non-probability sampling
Meaning	Probability sampling is a sampling technique, where the subjects of the population get an equal opportunity to be selected as a representative sample.	Non-probability sampling is a method of sampling wherein; it is not known that which individual from the population will be selected as a sample
Alternately known as	Random sampling	Nonrandom sampling
Basis of selection	Random	Arbitrarily
Opportunity of selection	Fixed and known	Not specified and unknown
Research	Conclusive	Exploratory
Result	Unbiased	Biased
Method	Objective	Subjective
Inferences	Statistical	Analytical
Hypothesis	Tested	Generated

Source: Saunders et al., (2009).

6.12 QUESTIONNAIRE

To obtain information from participants, researchers use measuring instruments of which a questionnaire and focus group are seen as part of the instruments. These instruments are used to collect data on a variety of variables, depending on the nature of the research and questions to be answered. According to Cant et al. (2003), a questionnaire can be described as a set of questions designed to obtain information from the respondents. Shajan (2005) succinctly stated that there are two types of questionnaires; structured and unstructured questionnaires. A questionnaire has three objectives.

Firstly, it should translate the required information into specific questions that respondents can answer. Secondly, the questions must be designed in a manner that will encourage respondents to participate in the research. Thirdly, the questions should minimize response errors. This study will be conducted by means of a structured questionnaire to be completed by the sampled individual farmers with the support of enumerators who would have been trained prior the commencement. Tembo (2003) argues that data is generated in focus group discussions rather than when is collected, hence this method will be used in this study to supplement the other methods of data collection. In this study, a structured questionnaire was used to collect the data.

6.12.1 CHARACTERISTICS OF A GOOD QUESTIONNAIRE

According to Willemse (2009) a good questionnaire has three parts, namely: an administrative part; a classification section; and subject matter of inquiry. Similarly, the questionnaire was developed to cater for the administrative part, the classification part and the investigation part (Section A, Section B and Section C). According to Maree (2011) the characteristics of any standardised measuring instrument must be reliable, valid, objective, suitable and feasible. Cohen et al. (2007) maintain that the order and layout of the questionnaire set the tone for the empirical research. Bourque & Fielder (1995) state that the questionnaire must be short.

It must include mostly close-ended questions, and the questionnaire must stand alone, that is, all the information about the study should be included in the questionnaire. All these factors were considered in developing structured questionnaire for this study.

6.12.2 BRIEF PERSPECTIVE ON THE USE OF QUESTIONNAIRE

Cooper (2001) state that a questionnaire is a formalised set of questions for obtaining or gathering information from respondents and is regarded as the main means of collecting quantitative data. Cresswell (2003) adds that a questionnaire enables quantitative data to be gathered in a standardised way so that all the data are internally consistent and coherent for the analysis. According (Maree, 2011) questionnaires allow the researcher to collect significant amounts of information from a large number of people in a short period and in a relatively cost effective way. Fraser & Lawley (2000) emphasise that the results of the research can be quantified and analysed more scientifically than other forms of research.

6.13 DATA SOURCES

Evaluation is the process of systematically collecting data that represents the opinion and experience of its participants or other stakeholders. The primary data sources included the smallholder farmers and agricultural advisors employed by the Western Cape Department of Agriculture. The main data collection techniques used in this research study were the literature reviews, interviews, questionnaires and participant observation

6.13.1 INTERVIEWS

Interviews are methods of gathering information through oral quiz using a set of preplanned core questions. According to Shneiderman & Plaisant (2005) interviews can be very productive since the interviewer can pursue specific issues of concern that may lead to focused and constructive suggestions.

The main advantages of interview method of data collection are:

- i) Direct contact with users often leads to specific, constructive suggestions;
- ii) They are good at obtaining detailed information; and
- iii) Few participants are needed to gather rich and detailed data.

Depending on the need and design, interviews can be unstructured, structured, and semi-structured with individuals, or may be focus-group interviews.

a) Unstructured Interviews

The unstructured type of interviews allows the interviewer to pose open-ended questions and the interviewee to express his/her own opinion freely. This requires both the interviewer and the interviewee to be at ease because it is like a discussion or brainstorming on the given topic. The direction of the interview is determined by both the interviewee and interviewer, not predetermined.

According to (Preece et al., 2002) it makes it difficult to standardize the interview across different interviewees, since each interview takes on its own format. However, it is possible to generate rich data, information and ideas in such conversations because the level of questioning can be varied to suit the context and that the interviewer can quiz the interviewee more deeply on specific issues as they arise; but it can be very time consuming and difficult to analyse the data;

b) Structured interviews

In structured interviews, the interviewer uses a set of predetermined questions which are short and clearly worded; in most cases, these questions are closed and therefore, require precise answers in the form of a set of options read out or presented on paper. This type of interviewing is easy to conduct, and can be easily standardised as the same questions are asked to all participants. According to (Preece et al., 2002), structured interviews are most appropriate when the goals of the study are clearly understood and specific questions can be identified;

c) Semi-structured interviews

This method of interview has features of both structured and unstructured interviews and therefore use both closed and open questions. As a result, it has the advantage of both methods of interview. In order to be consistent with all participants, the interviewer has a set of pre-planned core questions for guidance such that the same areas are covered with each interviewee. As the interview progresses, the interviewee is given opportunity to elaborate or provide more relevant information if he/she opts to do so;

d) Focus-group interviews

Focus group interview is less structured compared to the three categories of interview discussed above. This is because of the difficulty in bringing structure in a group; however, rich data can emerge through interaction within the group, for example, sensitive issues that could have been missed in individual interviews, may be revealed. In a group, people develop and express ideas they would not have thought about on their own (Preece et al., 2002). This type of interview is conducted after a series of individual interviews, to further explore the general nature of the comments from different individuals (Shneiderman & Plaisant, 2005).

e) Questionnaires

Shneiderman & Plaisant (2005) maintains that a questionnaire is almost always self-administered, allowing respondents to fill them out themselves. All the researcher has to do is to arrange for their delivery and collection. In affirmation, Pickard (2007) indicates that questionnaires are instruments completed by respondents themselves; they are relatively easy to use, inexpensive and are often the most plausible option for measuring unobservable constructs such as attitudes, values and preferences, intentions and personalities. They have a highly structured format, often used where the aim is to generate quantitative data from a large sample to test research questions and/or hypotheses.

There are disadvantages associated with questionnaires, which have been outlined in the literature. For instance, Bryman (2008) explain that some of the disadvantages of questionnaires are that:

- Questionnaires are associated with low response rates;
- It is impossible to probe respondents, as personal contact is lost because they fill them in on their own; and
- With questionnaires there is no allowance for respondents to ask questions where there is lack of clarity and there is a greater risk of missing data, as some respondents may not fill in all the questions.

Bearing the above arguments from the scholars in mind, the researcher decided to:

- ensure that the questions were as clear and unambiguous as possible and ran a pilot study;

- outline the title and purpose of the study on the front page to provide information about this study as a way of encouraging more farmers to participate in the study.

6.14 DATA COLLECTION

Data gathering is the precise, systematic gathering of information relevant to the research sub-problems, using methods such as interviews, participant observation, focus group discussion, narratives and case histories (Burns & Grove, 2003). The empirical phase, which involves the actual collection of data, is followed by preparation for data analysis (Polit & Hungler 1999). Data collection begins with the researcher deciding from where and from whom data will be collected.

Interpretive researchers attempt to derive their data through direct interaction with the phenomenon being studied. An important aspect of data analysis in qualitative case study is the search for meaning through direct interpretation of what is observed by themselves as well as what is experienced and reported by the subjects. The process of data analysis begins with the categorisation and organisation of data in search of patterns, critical themes and meanings that emerge from the data.

In this study data was collected by conducting a survey, given that the researcher methodically ask a large number of respondents, the same questions by means of a structured questionnaire. A structured questionnaire incorporating a combination of closed and open-ended questions will be used to collect data from participants. These methods complement each other as recommended by (Matunhu, 2011).

The questionnaires was distributed by post. The nature of the study and the large population size compounded by the vastly spread geographical distribution of the respondents serves to justify the rationale for electing this methodology by (Matunhu, 2011). Recruitment of participating farmers will be done through existing farmer formations in the province and leadership of commodity structures. Once recruited, participants would be required to complete consent forms to ensure that they are aware of the risks and benefits of participating in the study.

6.14.1 PRIMARY DATA

Primary data refers to the data collected by the researcher through observation, and personal or questionnaire interviewing of respondents. Weijun (2008) asserts that primary data has many advantages, among these is that it is original and relevant to the topic of the research study, allows the researcher to survey the population and this gives each member an equal opportunity to participate in the research. Data is collected from a large population and a wide geographical coverage. Moreover, primary data is current, and it gives a better realistic view to the researcher of the topic under consideration.

Primary data is very reliable because the data is collected by the concerned party. To gain insight into the research problem, secondary sources of data were used to complement the primary data. According to Welman et al. (2005) primary data is obtained from the direct observations of the phenomenon which is under investigation or is collected personally. Creswell (2003) asserts that primary data is often sourced after the researcher has gained some insight into the problem by reviewing secondary data or by analysing previously collected data.

Weijun (2008) contend that primary data is collected for a specific purpose and the researcher controls the process. However, Creswell (2003) warns that primary data tends to be expensive to collect and takes a long time to process. The methods of collecting primary data are through interviews, personal or telephone calls and self-administered questionnaires (Welman et al., 2005). For this study, a close ended structured quantitative questionnaire as a data-gathering instrument was utilised to collect data.

6.14.2 SECONDARY DATA

Creswell (2003) state that secondary data refers to the information collected by individuals or organisations other than the researcher. Flick et al. (2004) attest that the value of secondary data is that the researcher can use this existing data and conduct an analysis of it. Creswell (2003) states that although secondary data saves time and money, it requires the researcher to be very selective when including this type of data.

Hence, the secondary data for this study was sourced from a comprehensive review of journals articles, related text books, the internet, media articles, government publications, periodicals and relevant dissertations and theses.

Secondary data was sourced from a comprehensive review of internet articles, journal articles, text books, theses, dissertations, publications, government gazettes, magazines, newspaper articles, reports, conference proceedings and policies. It helps to reinforce the research arguments and provides direction to follow to conduct a credible ontological and epistemological study. Secondary data saves time, effort and money and adds value to study. Secondary data enables the researcher to answer his research variables, to meet the objectives of the study. The primary and secondary sources of data are applied.

6.15 DATA ANALYSIS

The data will be captured and entered into a computer programme which will be able to generate frequencies and graphs which will make it easier to make an analysis and interpretation. The known programme is the Statistical Package for Social System (SPSS) which is capable of doing data processing. The analysis and interpretation of data will be presented using descriptive statistics. Garth (2008) recommended that, the first and important step of the data analysis process is to identify the correct technique to use for analysis hence descriptions will include frequencies, percentages, means and standard deviations. Data will be distinguished and be represented in a tabular format using graphical representation; bar graphs and pie charts.

Model specification

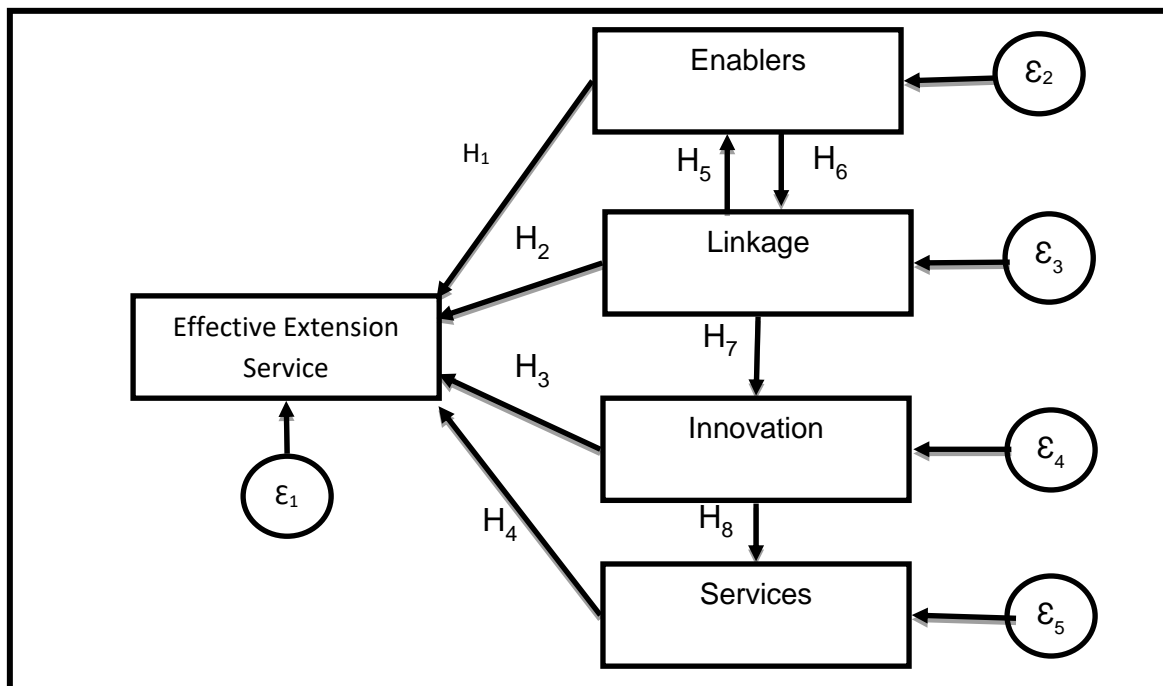


Figure 6.3: Conceptual effective extension service framework

Source: Adapted from Mmbengwa et al. (2009).

A multiple linear regression models were developed to determine the factors that have an impact on the extension services, enablers, linkages and innovation in the South African agricultural extension services. Below are specified equation:

Where: Y_{EES} = Effective extension services, Y_{Enab} = Enablers, α = constant, e = residual (error term), Lin= Linkages, Serv = Services and inn = innovation.

Effective extension services:

The model predict that extension services is caused by the individual contributions of enablers, linkages, innovations and services as illustrated below:

$$Y_{EES} = \alpha_1 + \beta_1 \text{Enablers} + E1 \quad (1)$$

$$Y_{EES} = \alpha_1 + \beta_2 \text{Linkages} + E2 \quad (2)$$

$$Y_{EES} = \alpha_1 + \beta_3 \text{Innovations} + E3 \quad (3)$$

$$Y_{EES} = \alpha_1 + \beta_4 \text{Services} + E4 \quad (4)$$

Linkages of extension services

The model furthermore, predicts that effective linkages could be as results of the enablers and innovation as illustrated by the following equation:

$$Y_{lin} = \alpha_5 + \beta_5 \text{Enablers} + \beta_6 \text{Innovation} + E5 \quad (5)$$

Innovation of extension workers

The model furthermore, predicts that innovation is the function of extension services as illustrated by the following equation:

$$Y_{Inn} = \alpha_6 + \beta_7 \text{Service} + E_6 \quad (6)$$

6.16 PILOT TESTING

The pilot study was done to test the instrument validity by a qualified statistician. Burns & Groves (2001) define pilot study as a smaller version of a proposed study conducted to refine the methodology. Cooper & Schindler (2003) indicate that the data gathering phase of a research process typically begins with pilot testing. A pilot is conducted to detect weaknesses in the design of an instrument and to provide proxy data for the selection of a probability sample.

It should therefore, draw subjects from the target population and simulate the procedures and protocols that have been designated for data collection. It is absolutely crucial to pilot the questionnaire, as the researcher needs to assess how long it takes to expose any items that will not generate usable data. One of the advantages of conducting a pilot study is that it can give advance warning about where the main research project could fail, where research protocols might not be followed, or whether proposed methods or instruments are inappropriate or too complicated.

6.17 DELIMITATIONS

Delimitations define the parameters of the investigation (Robson, 2011). The scope of this research will be limited to the investigation of the quality of public extension service of the Western Cape Province, focusing largely on the existing and new innovations aimed at improving the service. In this study, public extension service is defined as an extension service which is financed by the State and delivered by the staff of a public sector agency such as the Department of Agriculture.

6.18 LIMITATIONS OF THE STUDY

Generally, all research invariably has limitations. A limitation is defined as an uncontrollable threat to the validity of the research. This study will be faced by certain limiting conditions, some of which are related to the common disadvantages of quantitative research methodology in general and some of which are inherent in the study's research design (Berger, 2013). However, the following major limitations is to be noted:

6.19 VALIDITY AND RELIABILITY

Silverman (2005) emphasizes that another word for validity is truth and interpretation take place even when using hard quantitative measures. The identifying factor of good research is the validity of the data and the results. Regardless of the approach, validity serves the purpose of checking the quality of the data and its results (Holton & Burnett, 2005). In quantitative research, this suggests that the researcher can draw meaningful inferences from the results to a population, while reliability indicates that participant scores are consistent and stable (Holton & Burnett, 2005).

Reliability is an examination of the consistency between a set of independent observations that are interchangeable. Reliability can also be defined as the degree to which test scores are free from errors of measurement according to (Gall & Borg, 2007). Measurement error reduces the reliability and therefore, the generalized ability of the scores obtained by a researcher from a single measurement (Gall & Borg, 2007). To ensure reliability in qualitative research, examination of trustworthiness is crucial. One such technique is called the reliability coefficient, a measure which ranges from $r = 0$ to $r = 1$ (perfect reliability).

The higher the correlations coefficients are then the higher the reliability of the measure and the lower the errors of measurements exists. According to Leedy & Ormond (2001) tests of reliability aims to show that the investigation can be relied upon and provide the same consistent results if the questionnaire were to be repeatedly administered under similar conditions.

Validity refers to the appropriateness with the meaningfulness and, usefulness of evidence that is used to support the interpretations. The decisions made and actions are taken by the assessment scores also add to validity (Cooper & Schindler, 2003). Establishing validity for a survey testing focuses on the use to which the instrument is put, not on the survey itself (Tashakkori & Teddlie, 2003). According to Leedy & Ormrod (2001) validity takes the following different forms: Face Validity is often useful in ensuring the cooperation of people who are to participating in the investigation, the research study.

Content Validity is the extent to which a measuring instrument is a representative sample of the content area or situation being measured. Criterion Validity: involves multiple measurements by comparing scores on the instrument with an external criterion known or believed to measure the concept. Construct Validity: is the extent to which any instrument measures a characteristic that cannot directly be observed but must be inferred from patterns of participant behaviour. The researcher ensured the following for reliability and validity for the purpose of this study. Trustworthiness Reliability: The reliability of each of the instrument tool used in the study was ensured through the use of the scale reliability analysis procedure available in SPSS version 24, and be discussed in the results chapter on completion of the study.

Validity: Standard measuring instruments was used to measure servant leadership and team effectiveness. This will assist in maintaining validity. The construct validity of the instruments used was further ensured through the use of confirmatory factor analysis. Ethical considerations regarding ethics, permission for the research has been obtained from the institution's research ethics committee, as well as the Head of Department. Informed consent was achieved from the participants before questionnaire completion, and confidentiality of the data obtained was maintained. Participants were not obliged to take part in the study

6.20 ETHICAL CONSIDERATIONS

In terms of ethics, permission for the research has been obtained from the Head of Department. Informed consent was obtained from the participants before questionnaire completion.

Confidentiality of the data obtained was maintained. Participants were not obliged to take part in the study. The research adhered to the confidentiality regulations of the participants and the organisation. The nature of the study was purely descriptive by means of surveys. No experimentation or intervention took place. Letters clearly stating the purpose of the study was written to the farmers before they took part in the study. The Belmont Report (1979) outlines three basic principles relevant to the ethics of research involving human subjects, namely respect of persons, beneficence and justice.

In conducting this research great care was taken to understand and be familiar with any and all of the regulations associated with the fields of the study. It was extremely important to protect the rights of the participants. Cooper & Schindler (2003) argue that research must be designed so that a respondent does not suffer physical harm, discomfort, pain, embarrassment, or loss of privacy. Informed consent, confidentiality, anonymity and, the participant's right to privacy were some of the measures used to ensure that the participant, respondent or subject were treated with the principles of respect of person, beneficence, and justice.

According to McCauley (2003) social research is a dynamic process that often involve an intrusion into people's lives and this largely depends on the establishment of a successful relationship between the researcher and respondents.

Ethical considerations will be addressed through, voluntary participation, hired enumerators were briefed on the contents of questionnaires to be used to collect data. This is important in any research activity that before the researcher can start the process the participants need to be furnished with full information on the aims and objectives of the research study as well as method of research (Polit & Hungler 1999).

Respondents' right to privacy will be exercised by obtaining direct consent from them. Respondents will be made aware of the positive and negative aspect of participation. Anonymity will also be ensured to avoid biased responses from respondents (Letsoalo, 2014). Participants will not be forced to take part in the research and if not comfortable to partake will be free to be excused.

6.21 SUMMARY OF THE CHAPTER

This chapter focused on the research methodology. The researcher provided a detailed description regarding the sampling techniques, data collection procedures, and data analysis. Importantly, the efforts of the researcher to promote validity, reliability and ethics of the study have also been outlined in this chapter. This chapter formed the background for the next chapter where in data results are interpreted and discussed. Chapter 7 presents the research results of the study.

CHAPTER 7

RESEARCH RESULTS

7.1 INTRODUCTION

In this chapter results are presented in two distinct subdivisions. The first portion of the results is descriptive whilst the second refers to inferential results. The descriptive results provided the demographic profile of the respondents whilst the inferential was guided by the research questions. This was followed by the summary of the results.

7.2 DESCRIPTIVE ANALYSIS

The table 7.1 presents the outcome of the descriptive analysis of the sample for the study. According to the results, females (68.08%) were highly represented as compared to the males (31.92%) counterparts. In relation to the age, the study revealed that youth (34.74%) and economical active adult farmers (35.21%) were in majority relative to the elderly smallholder farmers. It further revealed that out of 213 smallholder farmers in the sample, 107 (50.23%) and 94 (44.13%) were found to have grade 12 and no educational qualification, respectively.

In summary, this implies that 94.37% of these farmers were lowly educated, meaning that they have very limited technical capacity. In view of the educational background as presented in table 7.1, it was clear that 83.57% were farmers who benefited from short learning government agricultural training. A very few of them (2.82%) have commercial training and none had engineering and medicinal training. The average profile of these farmers appeared to represent the business entrepreneurs who are without capacity to run a professional business. However, it could be seen that the type of farming that these farmers are involved in could be associated with subsistence farming enterprises.

Table 7.1: Characteristics of the sample

Description	Frequency (%) OR M (SD)
Gender	
Male	68 (31.92)
Female	145 (68.08)
Age	
18-35	74 (34.74)
36-53	74 (35.21)
54-71	28 (13.15)
>72	36 (16.90)
Education achievement	
No education	94 (44.13)
Grade 12	107 (50.23)
Technical Vocational Education and Training (TVET)	5 (2.35)
College Diploma	1 (0.47)
University degrees	2 (0.94)
University post graduate degrees	4 (1.88)
Educational background	
Agriculture	178 (83.57)
Science	9 (4.23)
Commerce	6 (2.82)
Humanities	3 (1.41)
None	17 (7.98)
Experience (in years)	M (SD)
Business	6.80 (0.54)
Sales	3.99 (0.40)

Notes: M= Means and SD= Standard deviation (Source: survey, 2017)

7.3 INFERENCE ANALYSIS

The inferential analysis seeks to provide the prediction of the variability of the predictor variable in line with research question or objective. In this study, five objectives were defined in order to provide specific answers for research questions.

7.3.1 THE EFFECTIVENESS OF GOVERNMENT EXTENSION SERVICES

The effectiveness of government extension services was determined by investigating whether the government extension services were effective or not. The respondents were expected to choose between yes or no. Table 7.2 presents the outcome of the factors that could influence government extension services in Western Cape Province. The results in Model A revealed that odds ratios for the sufficient agricultural advice (OR: 1.23, $P < 0.01$), expert linkage (OR: 1.25, $P < 0.01$) and usage of video (OR: 1.25, $P < 0.01$) have significant impact on the effectiveness of government extension services to smallholder farmers.

Model B further revealed that the predictor variables remain influential in increasing the odds of influencing ratios for the effectiveness of government extension services to smallholder farmers regardless of the inclusion of the frequent visits by extension advisory officials. However, frequent visit (OR: 0.42, $P > 0.10$) of extension official to the farmers have been found to have non-significant effect towards improving the effectiveness of government extension services.

The full model with the inclusion of frequent visits, usage of smart pens and provision of agricultural knowledge to sufficient agricultural advice, expert linkage and usage of video; showed that only expert linkages and usage of videos are the most influential factors that could influence the odds to increase the effectiveness of government extension services in this types of farmers.

Table 7.2: Factors that influence effectiveness of government extension service

Variables	Model A	Model B	Full Model
	OR (SE)	OR (SE)	OR (SE)
Sufficient agricultural advice	1.23 (0.12)***	1.25 (0.13)***	1.22 (0.15)
Agricultural knowledge			1.06 (0.17)
Expert linkage	1.25 (0.13)***	1.42 (0.22)***	1.41 (0.22)***
Frequent visit		0.42 (0.13)	1.22 (0.15)
Usage of smart pen			0.83 (0.13)
Usage of video	1.25 (0.11)***	1.28 (0.12)***	1.26 (0.12)***
Constant	0.06 (0.03)***	0.05 (0.03)***	0.06 (0.03)***
N	213	213	213
LR chi2 (5)	77.55	78.87	79.01
Prob > chi2	0.00	0.00	0.00
Pseudo R2	0.28	0.28	0.28

Figure 7.1 presents the ranking of the factors that affect the effectiveness of government extension services by gender and educational achievement. It is revealed that at the lowest educational achievement both male and female smallholder farmers view expert linkages as the most effective factor that could improve government extension service followed by the provision of sufficient agricultural advice and usage of video. The rankings amongst both male and female educated smallholder farmers suggest that the usage of video and expert linkage are the most effective instrument that could improve government extension services.

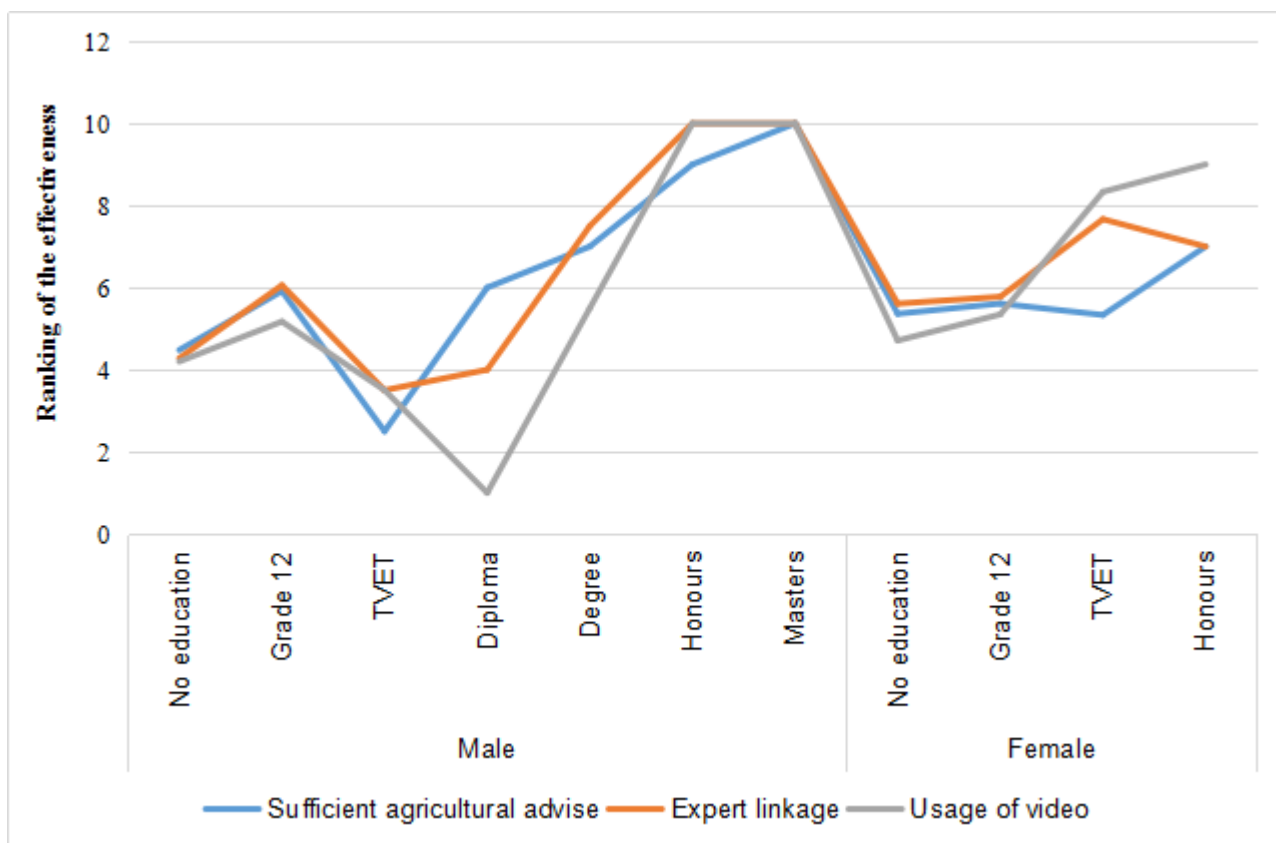


Figure 7.1: ranking of the effectiveness of government extension services by gender difference and educational achievements

7.3.2 THE LINKAGES BETWEEN FARMERS AND EXTENSION SERVICES

The multiple linear regression model used in determining the linkages of smallholder farmers and extension services was opted for after its conditions were fulfilled. The normality of the residuals in the multiple linear regression model was tested graphically (see Figure 7.2) and was found to be normally distributed. In addition, the prevalence of heteroscedacity was determined by Breusch-Pagan/ Cook-Welsberg test (see Table 7.3) and the residuals were found to be homoscedastic. Lastly, multi-collinearity test was determined by variance inflation factor (VIF) and was found to be less than 10 (meaning that the model is free from multi-collinearity). As a result of the above mentioned test, it was feasible to use multiple linear regressions.

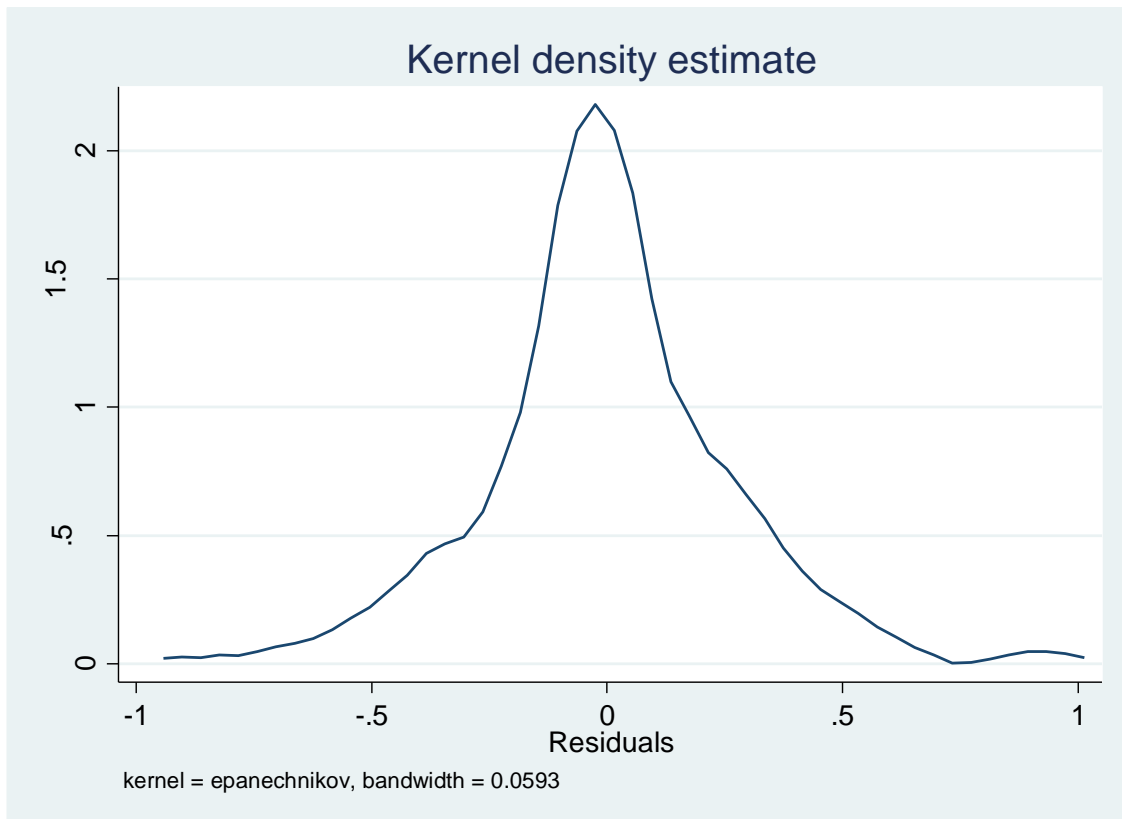


Figure 7.2: Graphical representation of normality of residuals for linkages of the extension services and smallholder farmers

The model fit was tested so that we could determine how good the model is. In Table 7.3, the adjusted R^2 was found to be 93% implying that only 7% of the residuals were accounted for by the model. This shows that the model is good for the purpose and well fitted. The F-statistics for all the models were found to be highly significant, implying that all the variables in the model jointly influence the linkages of smallholder farmers and extension services in the population. This also confirms that the models presented were good.

According to the results from the full model, it is evident that contacts (Beta=0.21, $P < 0.00$), capacity building (Beta=0.19, $P < 0.00$) and demonstration (Beta=0.18, $P < 0.00$) have higher standard deviation that predict the linkages between smallholder farmers and extension officers when network, communication and coordination were held constant (see Table 7.3). These appear to imply that in an ideal situation, contacts, capacity building and demonstration have a higher degree of impact in determining the incremental and sustainable linkages for these stakeholders.

Table 7.3: Factors that influence linkages between farmers and extension officers

Variables	Model A Beta	Model B Beta	Full Model Beta
Network	0.31	0.25	0.13
Communication	0.41	0.40	0.17
Capacity building	0.34	0.22	0.19
Dissemination		0.22	0.12
Contacts			0.21
Demonstration			0.18
Coordination			0.13
Constant	-	-	-
N	213	213	213
F-stats	910.49	913.41	52839.47
Prob > F	0.00	0.00	0.00
Adj. R ²	0.93	0.95	0.99
Root MSE	0.26	0.23	0.02
Breusch-Pagan/ Cook- Welsberg			
Chi2	0.73		
Prob > chi2	0.39		
VIF	2.82		

Note: all the variable were found to be highly significant at 99% level,

The results presented in Figure 7.3, further explain that there are differences in factors that influence the linkages of these stakeholders. According to the results, it appears that in lowly educated male smallholder farmers suggest that demonstration is a prominent in linking them with extension service whilst the female counterparts seems to think that frequency of contacts is the most likely factor that could link them to this service. On the contrary, the results from the highly educated smallholder farmers seem to suggest that capacity building and demonstration are the likely factors that may link them to extension services regardless of gender differences.

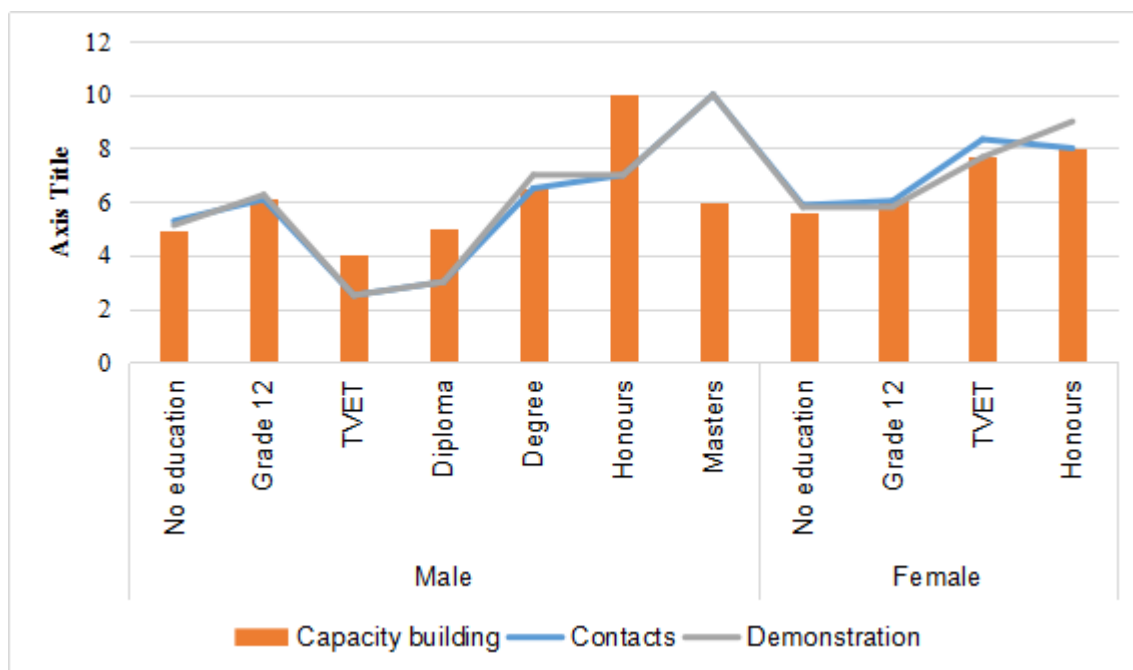


Figure 7.3: Comparative analysis of factors that determine the linkages between farmers and extension services by the gender and educational achievements

7.3.3 THE CHALLENGES AND PERCEPTIONS IN THE EXTENSION SERVICES

Table 7.4 presents the results of the determination of factors that could impose challenges on the positive perception of extension services to smallholder farmers. According to the results, it is revealed that lack of financial access ($\beta = -0.19$, $P < 0.00$) can significantly reduce the likelihood of extension services to be perceived positively. On the other hand, technology access ($\beta = 0.18$, $P < 0.00$) can significantly increase the likelihood of extension services to be perceived positive.

Table 7.4: Determination of factors that impose challenges on the positive perception of extension services

Variables	Model A	Model B	Full Model
	Coef. (SE)	Coef. (SE)	Coef. (SE)
Finance	-0.19 (0.09)***	-0.16 (0.10)*	-0.15 (0.11)
Technology	0.18 (0.08)***	0.19 (0.08)***	0.20 (0.92)***
Extension service		-0.09 (0.09)	-0.07 (0.10)
Input supply			-0.01 (0.10)
Market access			-0.01 (0.11)
Expertise			-0.02 (0.11)
Training			-0.02 (0.09)
N	213	213	213
LR chi2 (2)	6.11	7.10	7.22
Prob > chi2	0.05	0.07	0.41
Pseudo R2	0.02	0.03	0.03

In figure 7.4 the results showed that access to technology is viewed by both male and female smallholder farmers as the key challenge to the image of the public extension officers. However, lack of finance seems to be regarded as the most challenge by male who have TVET and degree qualifications. In the female gender category, it appears that both uneducated and highly educated regard access to technology and lack of finance as critical to the negative perceptions regarding the extension service profile.

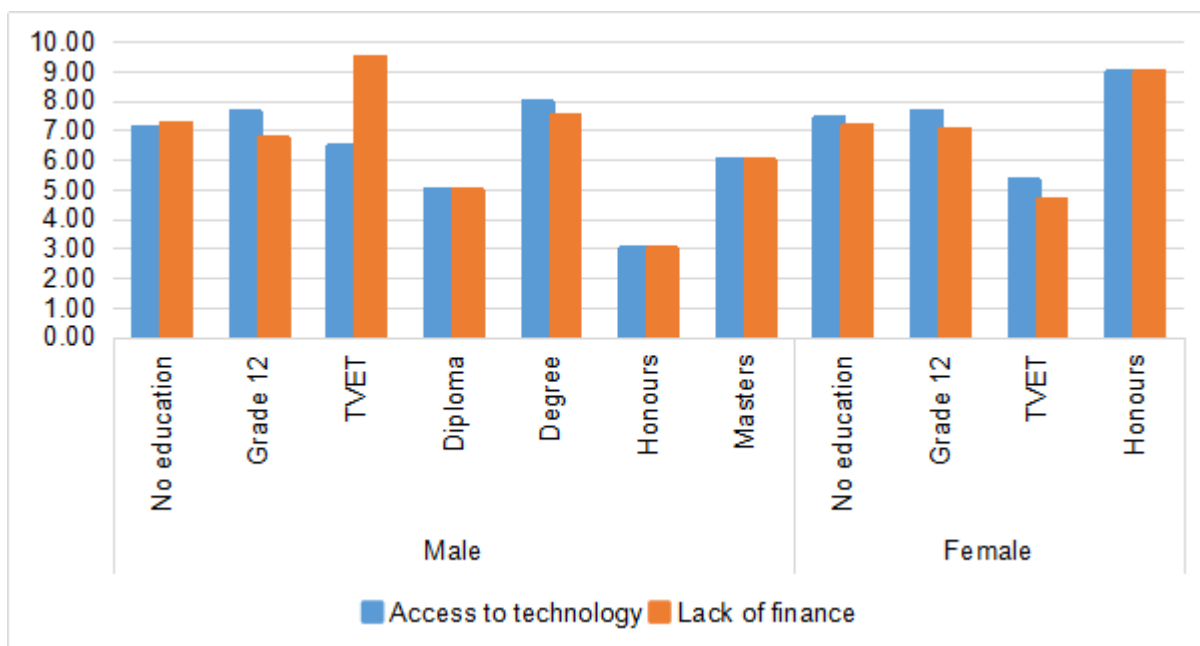


Figure 7.4: Analysis of factors that impose challenges to the perception of public extension officers by smallholder farmers

7.3.4 NEW INNOVATION FOR THE EXTENSION SERVICE

Table 7.5 shows the results of the evaluation of the usefulness of new innovations introduced through the extension service department. In these results, it was clear that cell phone was regarded as the most feasible technology (average 7.34), followed by tablet (average 6.52). Although tablet was on average the second rated useful gadget, its popularity amongst the males was superseded by the use of video (average 6.57) whilst amongst females was superseded by smart pen (average 6.64).

As illustrated by Figure 7.5, it is clear that female farmers regardless of education seem to appreciate the usefulness of government initiated innovations brought to them by the extension officers. On the contrary, male farmers seems to be selective in their choice of which innovation is useful. It can be observed that male farmers do not regard Smart pen and Agri-Touch as useful regardless of their educational achievement.

Table 7.5: The evaluation of the usefulness of new innovations introduced through the extension service department

Gender	Educational achievement	Smart pen	Phone	Tablet	Video	Extension suite online	Fruit look	Agri-Touch
Male	No education	5,08	6,24	6,00	6,20	5,92	5,96	5,76
	Grade 12	6,63	7,51	6,51	6,63	6,34	6,03	6,34
	TVET	5,00	9,50	7,50	7,00	6,50	6,50	6,50
	Diploma	4,00	8,00	5,00	7,00	3,00	6,00	7,00
	Degree	8,50	8,00	8,50	9,00	8,50	8,00	8,00
	Honours	1,00	10,00	10,00	10,00	9,00	3,00	3,00
	Masters	10,00	10,00	5,50	5,50	10,00	9,50	10,00
Male Total		6,04	7,24	6,41	6,57	6,35	6,13	6,25
Female	No education	6,71	7,30	6,52	6,23	5,84	6,20	6,19
	Grade 12	6,51	7,39	6,51	6,35	6,01	6,11	6,06
	TVET	7,67	8,67	8,33	8,00	8,00	8,00	8,33
	Honours	8,00	9,00	9,00	9,00	8,00	8,00	9,00
Female Total		6,64	7,39	6,57	6,34	5,99	6,21	6,19
Grand Total		6,45	7,34	6,52	6,42	6,10	6,18	6,21

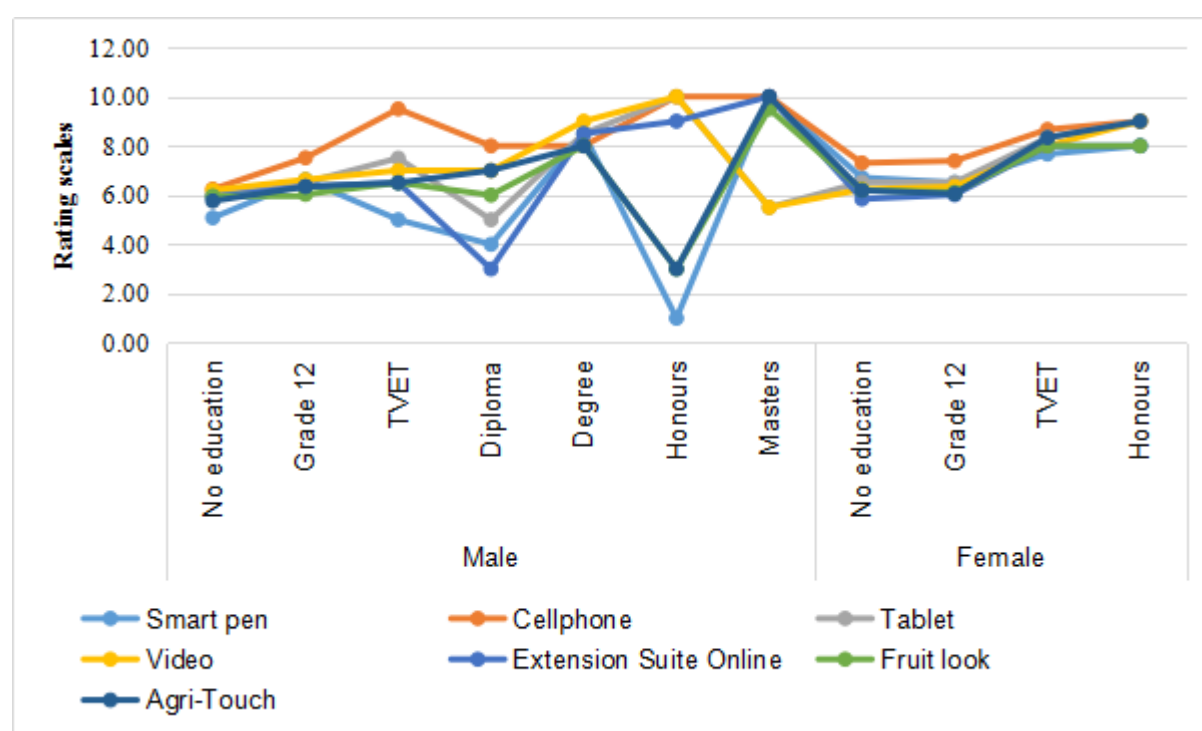


Figure 7.5: The evaluation of the usefulness of new innovations introduced through the extension service department

7.3.5 DEVELOPMENT OF EFFECTIVE EXTENSION SERVICE FRAMEWORK FOR SMALLHOLDER FARMING

In the development of extension service framework, composite factors such as enablers, linkages, service and innovation were formed using factorial analysis. During the development of composite factors, the enabling factors were composed by agricultural advice, expert consultation and video demonstrations, whilst linkages was composed of contacts, capacity building and demonstrations with service being composed of finance and technology access and lastly innovation was composed of cellphone usage, tablet, extension suite online and video.

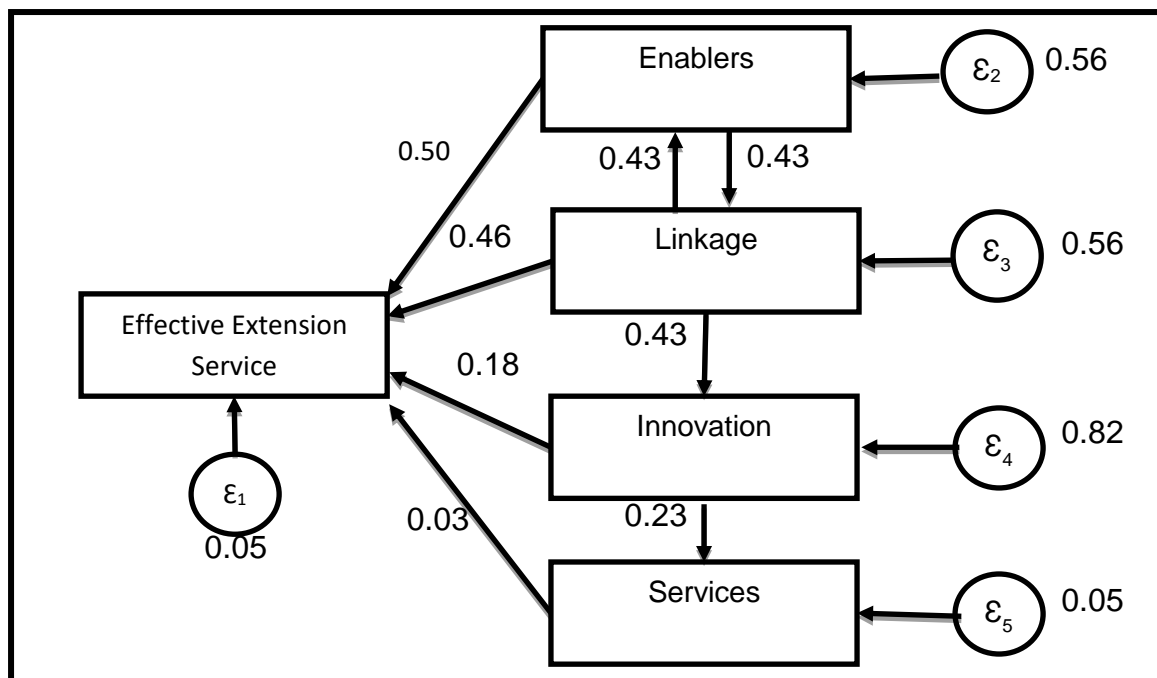


Figure 7.6: Illustration of the effective extension service framework for smallholder farmers
Source: Adapted from Mmbengwa et al. (2009).

The results of the development of extension service framework for smallholder farmers in Western Cape Province were presented in Table 7.6 and illustrated in Figure 7.6. According to the results, it was found that factors such as the enablers, linkages, innovation and services were significant to cause the effective extension services in Western Cape Province. However, the causality effect was pronounced in the enabling factors (Beta = 0.50, P = 0.00) and linkages (Beta = 0.46, P = 0.00) whereas innovation (Beta = 0.18, P = 0.00) and service (Beta = 0.03, P = 0.05) had lower significant causality effect on the effective extension service.

In relation to the non-recursive causal effect between enabling factors and linkages, the results showed that there were no causal effects whilst in relation to linkages and innovation, the results showed that linkages causes innovation (Beta = 0.43, P = 0.00). In addition, it was also found that innovation causes service (Beta = 0.23, P = 0.00).

Table 7.6: Stability analysis of simultaneous equation systems

Eigenvalue	Modulus
0.43	0.43
-0.43	0.43
$1.25e-07 + 2.17e-07i$	$2.5 e-07$
$1.25e-07 - 2.17e-07i$	$2.5 e-07$
$-2.50e-07$	$2.5 e-07$

Stability index = 0.43, All the eigenvalues lie inside the unit circle. SEM satisfies stability condition.

The result of the quality of the model was presented in Table 7.6. These results indicate that 4 out of 5 criteria that measures the goodness of fit confirm that the model is well fitted, meaning that the model is good for the purpose. On the other hand, stability analysis of non-recursive variables was test and was found that all eigenvalues lies inside the unit circle and therefore, indicates that the structural equation model (SEM) satisfies the stability condition (See Table 7.7).

Table 7.7: The results of the standardized structural equation model for extension service

Variables	Beta Coef.	OIM Std. Err.	P > z
Structural			
Extension service ←			
Enabler	0.50	0.03	0.00
Linkage	0.46	0.03	0.00
Innovation	0.18	0.02	0.00
Service	0.03	0.01	0.05
_cons	-3.02	0.01	1.00
Enablers ←			
Linkage	0.43	414.92	0.99
_cons	2.35	0.05	1.00
Linkage ←			
Enablers	0.43	414.92	0.99
_cons	1.78	0.05	1.00
Innovation ←			
Linkage	0.43	0.06	0.00
_cons	-3.31	0.06	1.00
Service ←			
Innovation	0.23	0.06	0.00
_cons	4.91	0.07	1.00
Var (e.enabler)	0.56	245.36	
Var (e.extension service)	0.04	0.01	
Var (e.linkages)	0.56	245.36	
Var (e.innovation)	0.82	0.05	
Var (e.service)	0.95	0.03	

Likelihood ratio (LR) test of the model vs. saturated: $\chi^2(2) = 21.49$, prob > $\chi^2 = 0.00$

Table 7.8: The presentation of the goodness of fit of the extension service model

Fit statistics	Value	Description	Remarks
Likelihood ratio			
chi ² _ms(2)	21.49	Model vs. saturated	
P > chi ²	0.00		Not good fit
chi ² _bs(10)	904.26	Baseline vs. saturated	
P > chi ²	0.00		
Population error			
RMSEA	0.21	Root mean squared error of approximation	
90% CI, lower bound	0.14		Good fit
Upper bound	0.30		
Pclose	0.00	Probability RMSEEA ← 0.05	
information criterion			
AIC	1879.32	Akaike's information criterion	Good fit
BIC	1939.82	Bayesian information criterion	
Baseline comparison			
CFI	0.98	Comparative fit index	Good fit
TLI	0.89	Tucker-Lewis index	
Size of residuals			
SRMR	0.05	Standardized root mean squared residual	Good fit
CD	0.34	Coefficient of determination	

7.4 SUMMARY OF THE FINDINGS

7.4.1 DESCRIPTIVE ANALYSIS

In conclusion descriptive analysis revealed that the gender representation in the sample was more skewed towards the female (68.08%) majority. The age difference within the sample was also skewed towards youth and economically active smallholder farmers with the majority of respondents being illiterate and semi-illiterate in their educational profiles.

Hence, 83.57% of these farmers benefited from short learning government agricultural training.

7.4.2 INFERENCE ANALYSIS

7.4.2.1 EFFECTIVENESS OF GOVERNMENT EXTENSION SERVICES

In summary, the study revealed that in a less complex environment, the odds ratios for the sufficient agricultural advice, expert linkage and usage of video have significant impact on the effectiveness of government extension services to smallholder farmers. On the contrary, in a more complex situation the odds seem to be suggesting that an increase in expert linkages and usage of videos are the most influential factors to drive the effectiveness of government extension services in these types of farmers.

In addition, it was further revealed that at the lowest educational achievement both male and female smallholder farmers view expert linkages as the most effective factor that could improve government extension service followed by the provision of sufficient agricultural advice and usage of video. The rankings amongst both male and female educated smallholder farmers seemed to suggest that the usage of video and expert linkage are the most effective instrument that could improve government extension services.

7.4.2.2 THE LINKAGES BETWEEN FARMERS AND EXTENSION SERVICES

In summary, the results indicated that contacts, capacity building and demonstration have higher impact on the linkages between smallholder farmers and extension officers when network, communication and coordination were held constant. These appear to imply that in an ideal situation, contacts, capacity building and demonstration have a higher degree of impact in determining the incremental and sustainable linkages for these stakeholders.

However, lowly educated male smallholder farmers seem to suggest that demonstration was more important in linking them with extension service whilst the female counterparts seems to think that frequency of contacts was the most likely factor that could have link them to this service. Highly educated smallholder farmers seemed to suggest that capacity building and demonstration were the most likely factors that could link them to extension services regardless of their gender differences.

7.4.2.3 THE CHALLENGES AND PERCEPTIONS IN THE EXTENSION SERVICES

The results for the factors that could determine challenges and perception of extension services revealed that lack of financial access could significantly reduce the likelihood of extension services to be perceived positively whilst technology access was viewed to be significant in increasing the likelihood of extension services to be perceived positive. Furthermore, access to technology is viewed by both male and female smallholder farmers as the key challenge to the image of the public extension officers with the lack of finance being regarded as the most challenge for male who have TVET and degree qualifications. However, females appear to regard access to technology and lack of finance as critical to the negative perceptions regarding the extension service profile.

7.4.2.4 NEW INNOVATION FOR THE EXTENSION SERVICE

In summary, the impact of new innovation for extension services was found to be pointing out at the access to cell phone, followed by tablet. Although tablet was on average the second rated useful gadget, its popularity amongst the males was superseded by the use of video whilst amongst females was superseded by smart pen.

7.4.2.5 DEVELOPMENT OF AN EFFECTIVE EXTENSION FRAMEWORK FOR SMALLHOLDER FARMERS

In summary, the model for effective extension service for smallholder farming in Western Cape was successfully developed. This model was composed of factors such as enablers, linkage, innovation and services. All these factors were found to be significant in influencing effective extension services in the province. However, their influences varied with enablers and linkages having a supreme influence over innovation and service. Although, the enablers and linkages are supreme in influencing extension service, they have no non-recursive relationship. On the contrary, innovation and services seems to influence each other significantly.

7.5. SUMMARY OF THE CHAPTER

Chapter 7 presented the findings of the study in terms of descriptive as well as the inferential analysis. The descriptive analysis revealed that the data was more skewed towards female farmers (68.08%) as the ones who had regular contact with government extension services. The focus for the inferential analysis had been on the effectiveness of government extension services, linkages between farmers and extension services, challenges and perceptions in the extension services and new innovations for the extension service. Based on a number of factors such as enables, linkage and innovation and services, an extension framework for smallholder farming in the Western Cape was developed. The next chapter present the discussion and interpretation of the results.

CHAPTER 8

DISCUSSION AND INTERPRETATION OF THE RESULTS

8.1 INTRODUCTION

This chapter presents the discussions of the results obtained in this study. The inferential analysis were explained whilst the results of descriptive analysis were excluded in this chapter. These discussions were presented based on the hypothesis and research questions. Importantly, the related literature which show similarities, differences and alternative were used to draw comparisons with relative experiences. An attempt to provide logical scientific arguments which is critical to augment of the current situation that prevails in a Western Cape Province was prioritized in this section.

8.2 THE EFFECTIVENES OF GOVERNMENT EXTENSION SERVICES

The hypothesis that none of the factors identified had no impact on the effectiveness of government extension service was not accepted. However, it was revealed that three factors such as sufficient agricultural advice, expert linkage and usage of video was found to have impact on the effectiveness of government extension services. In relation to sufficient agricultural advice and expert linkages, it appears that the findings of this study concur with the finding by Mmbengwa et al. (2009) who said:

“an intensive investigation using desktop, government reports, research articles and case studies on the pre and post-settlement delivery of services by extension officers, revealed that support is grossly inadequate in terms of funding, training, technical advice, mentoring, monitoring and evaluation. This is also exacerbated by the extension workers’ lack of capacity and specialization in particular fields, such as production, marketing and management to adequately service the land reform programs. It is therefore recommended that extension workers be capacitated on specialisation, production, management, mentoring, monitoring and evaluation in order for them to deliver quality services that will contribute to in making these SMME’s sustainable”

These authors also expose the rationale reasons why extension workers need to be linked with experts. In their views, it appears that extension training has some serious shortcoming such that linking them with expert could assist them a great deal to complement their skills base. At a moment these workers are faced with enormous challenges in the execution of their duties in assisting smallholder farmers or beneficiaries to access sustainable markets with their produce (Mmbengwa et al., 2009). Furthermore, Afful (2016) highlighted that technical information is significant in ensuring that smallholder farmers in Limpopo could increase their resilience for climate change variability in order to increase their yield and profit.

The general observation by various research outcomes seems to indicate that a public agricultural extension service is by its nature ineffective around the whole world (Ragasa, Ulimwengu, Randriamamonjy & Budibonga, 2013; Williams, Mayson, Satgè, Shelley & Semwayo, 2008). Davis & Terblanche (2016) reported that human resource are fundamental bottleneck to effective extension service and also won that effective extension advice is not a function of simply providing messages about technology package but is a function of capacity to manage organizational and social processes.

Rivera & Qamar (2003) seems to think that human capital development is an essential ingredients of extension services and capacity building innovations should be embedded into extension education (Sulaiman & Davis, 2012). According to these authors, the use of new information technology can technically improve the effectiveness of extension services. In this research, it does seem that the use of videos seems to be much more favourable in disseminating technical extension service. From a policy perceptive, revitalization of extension services as articulated by Nairobi declaration seems to suggest that without effective extension services, the smallholder farmers could hardly improve their profitability and resilience and therefore, policy makers should invest in the human and social capital within the extension services (Sulaiman & Davis, 2012).

In south Africa, the National and Extension Advisory policy was developed in 2014 with a view to provide the necessary capacity development of extension professional with relevant, diverse knowledge and tools (Davis & Terblanche, 2016). It also seeks to review and develop multi-disciplinary curricula for extension practitioners with the objective to broaden knowledge and skills.

8.3 THE LINKAGES BETWEEN FARMERS AND EXTENSION SERVICES

The objective of the study in this section was to determine the factors that could influence the linkages between smallholder farmers and extension services. Although, there is no standard conceptualization of extension linkages with farmers, Havelock (1986) attempted to define extension linkages as connectedness of two systems in order to derive greater benefits. Nyamupangedengu & Terblanche (2016) seems to agree that linkages could lead farmers to achieve more of their goals.

The hypothesis that there is no factors that could yield linkages was not supported in this study. Instead, the results shows that there are various systems that could enhance these linkages with varying effects. In summary, the results indicated that contacts, capacity building and demonstration have higher impact on the linkages between smallholder farmers and extension officers when network, communication and coordination were held constant. These appear to imply that in an ideal situation, contacts, capacity building and demonstration have a higher degree of impact in determining the incremental and sustainable linkages for these stakeholders.

These results seem to be corroborated by Nyamupangedengu & Terblanche (2016) who argued that demonstration in a form of agricultural shows had higher proportions (16.92%) compared to contacts in a form of cellphones (13.85%) and weekly meeting (12.31%). These authors seems to underestimate the importance of capacity building with regard to its impact on linkages between extension officers and farmers. However, in this study lowly educated male smallholder farmers seem to suggest that demonstration was more important in linking them with extension service whilst the female counterparts seems to think that frequency of contacts was the most likely factor that could have link them to this service.

On the contrary Masuka et al. (2016) found that education has no significant impact on the use of cellphones (frequent contact). However, they found age, commercial activities and total income as some of the factors that could influence the linkages through contacts via cellphone. This shows that there is no anonymous agreement amongst the researchers on whether frequency of contact through cellphone possession could in a way provide the outmost linkages as suggested by this study. However, it appears that some forms of

demonstrations through radio and extension shows have higher appeal towards the linkages of farmers with extension services.

This seems to discount the findings in this study which proclaim that highly educated smallholder farmers seemed to suggest that capacity building and demonstration were the most likely factors that could link them to extension services regardless of their gender differences. Although, it does appear that the two studies that are in comparisons are derived from different countries. It may be true that in Zimbabwe, education doesn't not play a role in facilitating the linkages between extension services and the farmers whilst in South Africa, education could play a role. In essence, the comparison between the farmers from these countries maybe unfair due to the different educational system and quality in their respective countries.

8.4 THE CHALLENGES AND PERCEPTIONS IN THE EXTENSION SERVICES

Extension and advisory services in South Africa and in particular Western Cape Province are without challenges and perceptions that brand them neither positive nor negative to its image. Consequently, Davis & Terblanche (2016) have emphasize the need for effective and efficient extension and advisory services as a way to address the National Development Plan and its vision 2030. This assertion assume that extension services has an impact on (amongst others) rural development and its economy. It also assume that without extension, rural development could be far-fetched. This implies that extension services act as a catalyst towards the improvement of rural economies. Recent studies, found that extension services have its own inherent challenges, part of which is the quality of the extension service itself (Mmbengwa et al., 2012).

The results of this part of the study suggest that factors that could determine challenges and perception of extension services are associated with lack of financial and technological access. These factors are purported to have high propensity to reduce the likelihood of extension services to be perceived positively whilst technological access could be viewed to be significant in increasing the likelihood of extension services to be perceived positive. This observation is corroborated by Bembridge (1987) who found that less than one in four extension workers have sufficient knowledge and he further highlighted that many extension

workers lack the necessary knowledge and skills in the technology to disseminate useful information to farmers.

This may point out that lack of financial access and technology have the bearing on extension workers image and profile as per their client. South African extension may have the negative image as a result of limited budgetary constraints (Mmbengwa et al., 2012). Other reports point out that extension workers are failing to meet the expectations of the agricultural business communities in South Africa whilst unable to diagnose and remedy were the challenges are (URS (Umhlaba Rural Services), 2006), CDS, (2007). Furthermore, access to technology is viewed by both male and female smallholder farmers as the key challenge to the image of the public extension officers with the lack of finance being regarded as the most challenge for male who have TVET and degree qualifications. Ekepu & Tirivanhu (2016) recommended that extension service delivery should focus on the technology that could disseminate message effectively. However, females appear to regard access to technology and lack of finance as critical to the negative perceptions regarding the extension service profile.

8.5 NEW INNOVATION FOR THE EXTENSION SERVICE

For a while, extension services has been premised on the adoption of new innovation and technology with little initiative on the development of their own innovations. This concept of technology adoption, leave extension service handicapped. The sooner the extension service starts to innovate the better for them to promote their innovations. Ekepu and Tirivanhu (2016) advocated for an increase in the speed of technology adoption as a key for the enhancement to improve food security, agricultural productivity, economic growth and reduction of poverty.

These authors have presented several factors that could influence adoption of technology. In this study, one of the objective was to assess the usefulness of the new innovation introduced by the extension service department. A variety of technologies and innovations were identified and respondents were advised to choose which of these innovations were useful to their production. In summary, the results found that innovations related to access to cell phone were the most compatible to the farmers with regard to dissemination of information, followed by the tablet.

Masuka et al. (2016) concur that mobile phone are the most popular (95.32%) amongst the producers and 51.1% of the farmers use this mobile phone service to access market information on inputs products, advisory service, weather data and money transfer.

This appears to show that information and technology (ICT) in a form of mobile phones have higher probabilities of improving extension services and agribusiness activities for the smallholder farmers and Jensen (2001) called this phenomenon as rapid transformation and growth of the use of ICT in agriculture for Africa. Although tablet was on average the second rated useful gadget, its popularity amongst the males was superseded by the use of video whilst amongst females was superseded by smart pen.

8.6 DEVELOPMENT OF EFFECTIVE EXTENSION SERVICE FRAMEWORK FOR SMALLHOLDER FARMING

The study found that factors such as the enablers, linkages, innovation and services could significantly constitute an effective extension services framework in Western Cape Province. It also found that all the indicators of extension service were positive implying that each of these indicators had a propensity to increase the effectiveness of extension service. This is in line with the existing economic theory and previous studies (Maoba, 2016; Ali et al., 2012; Sinkaiye, 2005). According to Faoun (1984) the theory of effective extension work suggest that management and operational procedures together with organizational structure constitute effective extension work. This author corroborated the finding of this study by suggesting that favorable work environment (enablers), systems (linkages and innovation) and predacious handling of administration (services) contribute immensely to effective extension service. Mott (1972) defined effectiveness as an ability of the organization to be mobilized to meet the demand in the area of production and flexibility and therefore, the actual effectiveness is when an organization is able to meet its goals within a specified period (Etzioni, 1964).

Furthermore, Maoba (2016) highlighted the fact that effectiveness of extension service is highly dependent on the ability of competent extension workers to transfer information to farmers. Although, Maoba's suggestion is not exposing the factors that could make extension workers to be competent, it can be argued that the information transfer cannot happen without a proper systems and therefore, innovation and linkages with experts who have developed a

system will be necessary to ensure that the information and services are provided to their clients. The latter may require an enabling environment to ensure effectiveness of both communication and delivery of the service.

8.7 SUMMARY OF THE CHAPTER

The summative findings regarding the effectiveness of government extension points out that extension service in Western Cape Province still require significant and sufficient linkages, advice and usage of videos to be effective. This seems to validate the assertions as articulated by number of policies adopted across the continent and in South Africa. In as far as the linkages between farmers and extension services, the study has uncovered that there are varying linkages which points out that high impact linkages could be established through frequency of contacts, capacity building and demonstration.

Furthermore, it is also evident that the challenges and the perception in the extension services still exist despite various initiatives and to avert such challenges and perception, financial and technical technology access is suggested to be crucial. Regarding the usefulness of the new innovation employed by extension service Western Cape Department of Agriculture, cellphone and tablets were amongst those that are impactful and critical in disseminating crucial extension service information. Furthermore, the model for effective extension service was suggestive that indicators such as enablers, linkages, innovation and services were crucial in order to ensure the effectiveness of the extension services in the aforesaid province. Having discussed the results in Chapter 8, Chapter 9 presents the conclusion, implications and recommendations of the study.

CHAPTER 9

CONCLUSION, IMPLICATION AND RECOMMENDATIONS OF THE STUDY

9.1. INTRODUCTION

This chapter provides the conclusions of the study, the framework for extension service delivery, implications and recommendations, limitations of the study, the future policy considerations and suggestions for further research. These were provided in order to provide conclusive remarks which were derived from the main study.

9.2. OVERALL SUMMARY OF THE STUDY

Relevant literature was reviewed in order to ascertain ways and means by which the quality of government extension services can be improved. According to Dladla & Associates (2005) weak extension service is blamed for high failure rate of land reform projects. In addition the following findings and conclusion were drawn from the literature:

- a) Extension service plays an important role on the success of land reform programme in South Africa. The expectation is quite high on the extension service to deliver considering that most of the land reform beneficiaries are people who have no farming experience and thus are looking at government extension service for support (Phuhlisani, 2008);
- b) According to Masiteng and Westhuizen (2001) government extension service is ineffective and inadequate and is considered key among the main causes of the poor agricultural performance of the land reform farms in South Africa. According to Düvel (2001) linkages between research capacity and extension organisations often are fragmented. The role of extension officers is clouded by a number of non-extension duties, and thus making the service ineffective. Many extension officers appear to have become project managers and are spending almost 90% of the time, planning, developing business plans, collecting quotations, receiving equipment, writing status reports, and expenditure reports just to name a few Terblanché (2008). This obviously, takes the time they have to interact with the farming communities, because, clearly extension workers are engaged in extra non-extension work;

- c) The White Paper on Agriculture (Department of Agriculture, 1995) argued that the extension service is not productive. According to Muyanga & Jayne (2006) an extension system that is not in touch with the people and does not significantly contribute to improving the lives of its clientele is considered irrelevant. In addition, land reform farmers seem to have lost faith in the service. In a review of land reform farms in the North-West Province, by Kirsten & Machethe (2005) it was found that land reform farms received limited technical advice and support from the Provincial Department of Agriculture (PDoA). This is confirmed in this research, as land reform farmers don't seem to receive marketing information;
- d) In addition, majority of land reform farmers are not producing for markets owing to lack of information about the functioning of markets. This is clearly not desirable given the challenges facing South Africa and the fact agriculture is the only sector that many rural people rely on for their livelihood.

9.3 CONCLUSIONS OF THE STUDY

9.3.1 EFFECTIVENESS OF GOVERNMENT EXTENSION SERVICES

On the effectiveness of government extension services, the study has concluded that sufficient agricultural advice, expert linkage and usage of video were the most important factors to be taken into consideration when servicing the smallholder farmers. Additionally, it has also been uncovered that educational achievements along gender do have some impact on how these services could be effective. In other words, the study has shown some significant difference of the effectiveness through gender disparities.

9.3.2 THE LINKAGES BETWEEN FARMERS AND EXTENSION SERVICES

The study concluded that in order for smallholder farmers and extension services to have a sustainable linkage, contacts, capacity building and demonstration should be highly considered. The impact of these factors on the linkages between smallholder farmers and extension services appear to be influenced by the level of education and gender of the smallholder farmers.

9.3.3 THE CHALLENGES AND PERCEPTIONS IN THE EXTENSION SERVICES

The study concluded that for Western Cape extension service department to avert challenges and perceptions on its services, financial resources and technological access should be made available to both extension service workers and smallholder farmers. Similarly, there seem to be an agreement by both male and female smallholder farmers that access to technology could imply more financial resources to be available to the smallholder farmers. This may be challenging considering the economic situation of South African government.

9.3.4 NEW INNOVATION FOR THE EXTENSION SERVICE

With regard to the new innovation driven by the Western Cape department for extension service, the study concluded that innovations that are associated with cellphone, tablet, extension suite online and video were found to be currently useful to disseminate the extension information to the smallholder farmers in the province. However, these new innovations appear to be useful along gender differences with smart pen technology, tablet, cellphone and video being prominent amongst female smallholder farmers and cellphone, tablet, video and extension suite online being highly considered by the male smallholder farmers.

9.4 A FRAMEWORK FOR EXTENSION SERVICE DELIVERY

The study's findings are that there can be no universal extension system which fits all situations. An extension framework should be situation-specific and dependent on a number of factors, such as the agro-ecological, infrastructural, historical (previous experience), environmental, socio-economical and even political situation. For this reason a single extension system may not be appropriate for all districts of the Western Cape Province. It is in view of the foregoing, that the researcher has resolved to develop a flexible extension framework based on broad principles that serves as a guideline for smallholder extension in the Western Cape. In addition, the study propose that such an extension framework should include factors such as enablers, linkage, innovation and services be prioritized in order to ensure the effectiveness of the extension services in Province.

9.5 IMPLICATIONS AND RECOMMENDATIONS

In view of the lack of a universal extension framework, the study makes the following recommendation as principles to enable an effective extension towards the development of smallholder farmers in the Western Cape.

9.5.1 KNOWLEDGE AND RESOURCE SUPPORT

A strong knowledge support system is inevitable in view of the low effectiveness and efficiency regarding extension delivery in Western Cape as well as in other provinces of the country, as it can (if correctly implemented) provides the most drastic improvement in the relatively low credibility of extension personnel and thus their extension impact. The most far-reaching recommendation is a proposal regarding a strong team of subject matter specialists and their revised functions and a new focus on front line extension workers as primary target audience.

The proposed new functions include continuous and purposeful upgrading and capacity building of extensionists working in their specific field or discipline supported with message design, strengthening the link between extension and research and coordinating commodity programmes falling within their (the subject matter specialist's) field of competence. As far as knowledge support for the extension science is concerned, the current need can temporarily be dealt with by subject matter specialists in extension. Ultimately, however, this function should be taken over by the extension supervisors and managers. The need for in-service training is tremendous and needs urgent attention on a continuous basis.

9.5.2 NEEDS-BASED EXTENSION SERVICES

The importance of needs assessment as a basis for setting priorities and making decisions such as the allocation of resources is widely recognised. The purpose of need assessments is well appreciated, namely to find a leverage or linkage point for behaviour change purposes, to identify the main focus or content of development and to encourage participation. However to give effect to these different purposes, it should be clear that the customary participatory approaches are as such insufficient or even inappropriate and need to be adapted to be more problem focused and to pursue a compromise between an 'objective' problem assessment (based on considerations of improvement potential of commodities) and community expressed needs or preferences. There is general consensus, in the extension

fraternal for the principle of participation, but opinions vary regarding the meaning of participation. Similar differences occur among extension personnel as far as the focus or content of development is concerned, but agree in the main that no extension can deliver unless it is informed by the needs of the farmers.

9.5.3 COMMODITY BASED EXTENSION SERVICES

The generalist notion of extension services can no longer deliver the promise of graduation into commercial farming. There is a need therefore for agricultural advisors to specialize in some field similar to what is the case in the commercial agriculture if the dream of many smallholder farmers, largely the beneficiaries of land reform is to be realised. The Department would need to proactively encourage specialization whilst strengthening the linkage with commercial farmer formations.

9.5.4 CAPACITY BUILDING OF AGRICULTURAL ADVISORS

The findings of this study infer that the value of the extension services is of lower quality such that it may be difficult for it to positively impact on the development and the profitability of farming ventures under consideration. The study also found that the critical area where the extension officers are unable to impact farmers is around marketing, technology transfer and finance. This problem persists despite the positive linkages between extension workers and entrepreneurs. In addition, the frequent contacts between the extension workers and entrepreneurs should have had positive impact but on the contrary, the quality of services remained poorly rated. Furthermore, it appears that the national roll out of the extension recovery plan since 2009 by Department of Agriculture Forestry and Fisheries has not yielded positive results in the area of marketing skills of agricultural advisors. The Department should introduce capacity building programme for Agricultural Advisors. Such a training programme should not only focus on technical skills but should also include business development issues. The study revealed that more than 50% of the respondents did not receive marketing information from the extension officers and this is cause for concern if land reform is to bring about transformation within the agricultural sector.

9.5.5 DEVELOPMENT OF AN EXTENSION POLICY

Currently, there is no policy of extension services in the Western Cape, the study recommends that such a policy be considered with guidelines on how the agricultural advisors are to support smallholder farmers. Such a policy should include Standard Operating Procedures (SOP) to provide guidance to the advisors whilst delivering service to the farmers. This will enable extension managers to effectively manage performance from the extension agents based on clearly defined approach and targets. Furthermore, the policy must take its cue from the recently approved National policy on extension and advisory services coupled with the norms and standards for extension.

9.5.6 PURPOSEFUL AND PROGRAMMED EXTENSION

Programmed extension should, in view of its unquestionable advantages, be accepted as policy by the Western Cape Province. It is proposed that at least half of the front line extension workers' time should be spent on purposeful or programmed extension. In spite of the general support for a programmed approach, it is not reflected in personnel activities. The following is suggested to encourage commitment of extension staff: a) Extension officer must be made part of the decision making process regarding the time to be devoted to programmes; b) the programme must be flexible and ensure staff is protected from external political interferences. It is important that extension programmes be owned or co-owned by communities and implemented in a situational appropriate manner that provides for maximum participation, ownership and self-determination. Accountability should be to target communities (or their coordinating structure) as well as to management structures within the Department of Agriculture.

9.5.7 USE OF ICT TO AUGMENT LIMITED RESOURCES

Although the Western Cape is way ahead of the pack in the use of digital pen by agricultural advisor, the study recommends that the Department should consider the use of bulk smses to communicate critical information with the farmers as and when necessary. This would help mitigate the inadequate number of agricultural advisors. However, this need not be a way approach where farmers are always receiving, but it must also allow farmers to provide feedback and raise concerns when they need to do so.

9.5.8 MONITORING AND EVALUATION

The general and widespread support for the importance of monitoring and evaluation (M & E), especially with regard to its potential contribution to improve current and future extension delivery, justifies the implementation of a national evaluation and monitoring programme compulsory for all extension personnel. As far as evaluation procedures and criteria are concerned, the following guidelines should be considered:

- a) The number of objectives and criteria should be as many and as extensive as possible in order to provide for as much evidence of extension achievements as possible. Programme objectives should be formulated to focus on and include the full spectrum of criteria ranging from resource and activity inputs to clients' responses and opinions, behaviour determinants, behaviour change, outcome or efficiency aspects;
- b) Due attention needs to be given to criteria related to behaviour change since they allow for true monitoring and are the best and most direct reflection of extensionists' achievements. Behaviour determinants, namely; needs, perceptions and knowledge, are the actual focus of extension and their positive change is a precondition for behaviour change (practice adoption) and the consequent change in efficiency and the resulting financial and other outcomes. Behaviour determinants are the focus of every encounter and thus lend themselves to monitoring after every extension delivery. In this way extension can continuously (on a monthly basis) come up with evaluation evidence;
- c) There is a clear difference between the program objectives and those of the extensionist or programme manager, particularly in the phase of programme development, i.e. until the delivery begins. For this reason activity objectives should be formulated to form the basis of the agricultural technician's monthly work program or work calendar. Their evaluation, although of an input nature, can form the basis of performance management and could also serve the purpose of public or community accountability.

9.5.9 REGULAR FEEDBACK FROM THE FARMERS

Feedback from the customers is always critical in shaping value proposition of organisations. The study revealed that the perception of smallholder farmers towards extension is not positive and this could be due a number of reasons. The study recommends that regular external surveys be considered to guide help improve the service offerings based on the

feeling of the farmers. It is also suggested that when such studies are conducted the Department should approach the results with the intention to improve as opposed to explaining what happened which could easily be tempting.

9.5.10 PARTICIPATION AND COMMUNITY INVOLVEMENT

The principle of participatory development is widely accepted as essential. However, extension personnel differ in opinion as to whether participation should be a means to an end or an end in itself. A framework for smallholder agriculture need to be clear in setting the right priorities, namely that the ultimate goal ought to be agricultural development, with the important proviso though, that it is to be pursued primarily if not exclusively through the means of human development.

The goal of community empowerment to the degree of enhancing ownership of the development process should, no matter how important, be seen as a long-term goal, which requires a certain degree of maturity on the part of the communities and cannot necessarily be taken lightly. A challenge for extension workers is to pitch into the most appropriate level of participation or partnership with the farming community. Currently it seems that a partnership where the Department of Agriculture (as service provider) still has to take the major initiatives and responsibilities. However, with the necessary facilitation a partnership equally sharing the development responsibilities should be achievable in most extension service areas.

9.5.11 PRIVATIZATION AND OUTSOURCING

The path of privatisation has to be treated with care, but cannot be ignored. It is important that the topic be brought into open debate to rid it of emotional ties and to enable rational debate. In it should feature the strengths and weaknesses, principles of effectiveness and efficiency as well as the issue of affordability by smallholder farmers who are largely resource poor.

Other recommendations in this regard are:

- An immediate but slow introduction of various forms of privatisation where appropriate, such as outsourcing and in-sourcing;
- Promoting and sponsoring research in privatization; and

- Increasing efforts leading to ownership of communities as probably the most ideal form of privatisation.

In judging successful privatisation efforts elsewhere in the world, care should be taken that the real determinants, often not part but only associated with privatization, are identified. The outcome of this study therefore, has major implication on the current agricultural extension policies and legislation. Of importance, the study has greater impact on Extension Recovery Programme (ERP) which seems to seek for the improvement for the quality of extension services by revitalization and capacitation. Notably, none of the factors identified in the study were captured in the ERP. This implies that the programme may need to be revised to ensure the extension services is effective as per the model suggests in this study. Looking at the perspective of the ERP and the outcome of this study (which was derived from the opinion of the farmers), it was clear that there was very remote convergence as to how the department and farmers could stimulate the effectiveness of this service. In essence, extension service should take into account not only the views of the extension workers rather both the views of the extension workers and the farmers (clients). The current situation seems to suggest that the two are in tandem with each other. It is the recommendation of this study to test the efficacy of the model in practice and also to adjust the current policies to reflect the working model which could improve the effectiveness of this services.

9.5.12 MENTORSHIP SUPPORT FOR SMALLHOLDER FARMERS

A well planned and managed comprehensive mentorship programme during their initial and after establishment period to help farmers gain the experience and expertise needed to become successful commercial farmers. In this regard on site mentorship programmes may be most effective to build capacity of farmers on the range of knowledge and skills needed by this target group. In this regard mentorship could be structured on a business basis where the mentors share in both the success and failure of the enterprise.

9.5.13 POLICY ON PRODUCTION AND BUSINESS PLANNING FOR SMALLHOLDER FARMERS

Production and business plans play a crucial role in the profitability of any enterprises. This study found that farmers, who have a proper feasibility study and business plan, have a better chance of making a profit than those without. In addition it was found that smallholder farmers lack technical skills to compile these plans and consequently, the government hires consultants to prepare such plans. In many instances, these consultants do not involve and capacitate these farmers. That is one of the reasons why these farmers lack the understanding of the role of these plans. As results farmers do not understand how to use these plans for business operation. It is therefore, important for the Western Cape to have a policy that regulates business planning process. The policy should specify processes, participants and the role different stakeholders in implementation and aftercare of smallholder farmers.

9.5.14 LINKAGES WITH TRAINING INSTITUTIONS

The linkages with training institutes are crucial for technology and skills transfer. For smallholder farmers to be sustainable, there should well-defined linkages with these institutions. A policy framework on how training institutions will be incentivised is important. Clearly, the policy that encourages these linkages would play a pivotal role in ensuring that farmers receive training on both technical and managerial skills. It would also reduce the incidence of inappropriate training. Based on the finding that the smallholder farmers lack farming skills, technology, business planning and marketing skills, the study suggest that a policy on sustainable linkages with training and research institution be developed in order to provide training on an ongoing basis.

9.5.15 A NEED FOR FARMER ORGANIZATIONS

One of the major challenge facing smallholder farmers in the Western Cape is lack of access to formal markets. This is partly due to their limited economy of scale and general lack of quality of produce. This limitation, makes it impossible to participate meaningfully in the formal economy. The study recommends that smallholder framers be supported to organize formations that will strengthening their ability to negotiate with big business for their access to markets.

9.5.16 IMPROVE ACCESS TO LAND BY SMALLHOLDER FARMERS

Improving access to land can have an indirect positive impact on income by smallholder farmers to pursue more remunerative livelihood strategies such as livestock production. Given the inverse farm size productivity relationship that results of the present study found, improved land access could also increase total crop production in rural areas by enabling more productive smallholders to expand their production. This could be achieved by improving the operation of land rental markets. Besides evidence of the inverse farm size productivity relationship, land redistribution programs seeking to increase smallholders' ownership of land may be justified on the basis of sustainability considerations, as adoption of certain soil conservation practices is more incentivised on owned land than on rental land.

9.5.17 NEED FOR AGRICULTURE POLICY

South Africa is yet to develop an agriculture policy to guide the development and support for smallholder farming. This is so despite what had been put forth through the White Paper (1995) and the Agricultural Sector Plan (2001). Both, these documents had argued already for an extension and financial support system to advance the course for smallholder farmers who had been left out by the apartheid extension system which served the interest of white farmers. This study therefore recommends that such a policy should be given priority if smallholder farmers are to participate meaningfully in the mainstream economy whilst deepening transformation with the agricultural sector.

9.6 FUTURE POLICY CONSIDERATIONS

Having noted the outcome of this study and the importance of agricultural extension services in smallholder agriculture and family farming, also further noting its role as dynamic innovation systems, and the critical importance of the efficient agricultural extension and advisory services, it is important that the future policy should focus on the mutual experiences of both extension workers and their clients (farmers). According to the opinion of the farmers, it appears to be important that the policy be developed for the effectiveness of extension services with the consideration of indicators that were uncovered in this study.

9.7 LIMITATIONS OF THE STUDY

The limitation of the study could be traced from its design since this study was cross-sectionally designed and thus may have some associative limitation on the sample adequacy. Secondly, the study reflected the views of smallholder farmers and not of the extension workers. This implies that the study cannot be generalized on the views of entire spectrum, i.e. subsistence and commercial farmers in relation to a framework for extension for smallholder farmers. Ideally, the study should have included all the views of interested stakeholder in order to get balanced opinion.

9.8 SUGGESTIONS FOR FURTHER RESEARCH

This study suggest that there is a credible evidence to investigate the sources of ineffectiveness of extension services from the point of view of extension workers themselves since this study uncovered the views of smallholder farmers. It would also be important to ensure that studies be conducted to test the feasibility and efficacy of the proposed extension service framework developed in this study.

10. CONCLUSION

The aim of this study was to formulate an extension framework for smallholder farming in the Western Cape Province. The objectives of the study were to determine the effectiveness of government extension services, to assess the factors that could influence the linkages between smallholder farmers and extension services, to examine factors that could be perceived by public extension officers as challenges in smallholder farming, to evaluate the usefulness of new innovations introduced through the extension service department and to develop a framework for extension service delivery in the Western Cape in order to improve the effectiveness of this service.

The study used an explanatory research design which involves both qualitative and quantitative research approaches. The study consisted of a randomly selected sample size of 234 smallholder farmers and the sampling technique was non-probability sampling such as typical case purposive sampling. The data collection was drawn from a survey through a close-ended questionnaire. A focus group session was used to collect secondary data as part of a qualitative research approach. The data were analyzed for descriptive and inferential research output.

The study suggests that there is no universally acceptable extension framework which fits all situations. An extension framework should be situation-specific and dependent on a conglomerate of factors the agro-ecological, infrastructural, historical (previous experience), environmental, socio-economical and even political situation. For this reason a single extension system may not be appropriate for all districts of the Western Cape Province. In view of this discernment, the researcher decided to develop a flexible framework of principles that can serve as broad guidelines for the extension system for the Western Cape Province rather than coming up with a rigid system.

Furthermore, the study revealed through descriptive analysis that the gender representation in the sample was more skewed towards the female (68.08%) majority. The age difference within the sample was also skewed towards youth and economically active smallholder farmers with the majority of respondents being illiterate and semi-illiterate in their educational profiles. Hence, 83.57% of these farmers benefited from short learning government agricultural training.

The results further indicate that contacts, capacity building and demonstration have higher impact on the linkages between smallholder farmers and extension officers when network, communication and coordination were held constant. These imply that in an ideal situation, contacts, capacity building and demonstration have a higher degree of impact in determining the incremental and sustainable linkages for these stakeholders. However, poorly educated male smallholder farmers suggest that demonstration was more important in linking them with extension service whilst the female counterparts think that frequency of contacts was the most likely factor that could have linked them to this service. Higher educated smallholder farmers suggested that capacity building and demonstration were the most likely factors that could link them to extension services regardless of their gender differences.

The findings regarding the effectiveness of government extension point out that the extension service in Western Cape Province still require significant and sufficient linkages, advice and usage of videos to be effective. This seems to validate the assertions as articulated by the number of policies adopted across the continent and in South Africa. Regarding the linkages between farmers and extension services, the study has uncovered that there are varying linkages which point out that high impact linkages could be established through frequency of contacts, capacity building and demonstration. Furthermore, it is also evident that the challenges and the perception in the extension services still exist despite various initiatives and to avert such challenges and perception, financial and technical technology access is suggested to be essential.

Regarding the usefulness of the new innovation employed by extension service the Western Cape Department of Agriculture, cellphone and tablets were amongst those that are impactful and critical in disseminating key extension service information. Furthermore, the model for effective extension service was suggestive that indicators such as enablers, linkages, innovation and services were fundamental in order to ensure the effectiveness of the extension services in the Western Cape.

The outcome of this study has major implications for the current agricultural extension policies and legislation. Of importance, the study has greater impact on extension recovery programmes seek for the improvement of the quality of extension services by revitalisation and capacitation. Notably, none of the factors identified in the study were captured in the programme.

This implies that the programme may need to be highly revised to make sure that the extension services are effective as per the model suggests in this study. It is the recommendation of this study to test the efficacy of the model in practice and also to adjust the current policies to reflect the working model which could improve the effectiveness of this services. This study suggest that there is a credible evidence to investigate the sources of ineffectiveness of extension services from the point of view of extension workers themselves since this study uncovered the views of smallholder farmers. Such an undertaking would also assist government in the development of an extension policy for smallholder agriculture given the current land reform processes that South Africa is faced with.

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APPENDIX A: LETTER OF INFORMATION



LETTER OF INFORMATION

Title of the Research Study:

Development of an Extension Framework for Smallholder Farming: Case Study of the Western Cape Department of Agriculture

Principal Investigator/s/researcher: (Mohale Peter Sebopetsa, D. Tech – Public Management)

Co-Investigator/s/supervisor/s: (Prof. M.S Bayat, Ph.D)

Brief Introduction and Purpose of the Study:

The Western Cape is one of the 9 Provinces of South Africa whose development indicators are better when compared with the rest of the provinces. However there are pockets of poverty due to the deliberate policies of the previous government. It is the goal of the South African government to see agriculture playing a pivotal role in socio-economic emancipation of the rural people and those living in commonages. The need to increase black entrepreneurs by 5% per year was echoed by the former State President Mbeki in his 2008 State of the Nation Address.

Aim of the Study: The aim of this research is to evaluate the effectiveness of government extension services on the development of smallholder farmers in the Western Cape Province of South Africa.

The objectives of the study are:

- To measure the linkages between smallholder farmers and extension officers.
- To examine the current challenges and perceptions of public sector extension as a baseline.
- To evaluate the frequency of visits by extension officers to smallholder farmers.
- To determine the perception of smallholder farmers on government extension services.
- To determine new innovations to help improve the extension service.
- To develop a framework for Extension Service delivery in the Western Cape.

Outline of the Procedures:

Participants would be consulted individually for the interviews which would not last longer than 90 minutes and also participate in a 4 hour focus group discussion in their own locals with the researcher. Participants would be selected based on their involvement and contact with government extension service and the Department of Agriculture's commodity approach.

Participation is voluntary and no farmer should feel pressured to participate and there are no consequences for not taking part in this study.

Risks or Discomforts to the Participant:

Participants are not coerced to take part in the study and they would not be free to not take part.

Benefits:

The study would be beneficial in developing a framework for extension in the Western Cape which would be responsive to felt needs of the smallholder farmers themselves. Furthermore, recommendations flowing from the study would provide a critical input to extension policy review at the national level.

Reason/s why the Participant May Be Withdrawn from the Study:

Participants would be withdrawn from the study should they fail to avail themselves for one to one interview and focus groups sessions. However, there will be no adverse consequences for the participant should they choose to withdraw.

Remuneration:

There will be no remuneration for participants.

Costs of the Study:

Participants would not be expected to cover any cost relating to this study.

Confidentiality:

The information provided would be kept confidential and will be destroyed thereafter.

Research-related Injury:

Not applicable.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher (tel no. 082 458 5291), my supervisor (Prof. Bayat) on telephone 083 786 1326 or the Institutional Research Ethics administrator on 031 373 2900.

Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or dvctip@dut.ac.za.

Yours truly,

M.P. Sebopetsa

Student Number: 21452728

DATE: 15 JAN 2016

APPENDIX B: CONSENT



CONSENT

Statement of Agreement to Participate in the Research Study:

Towards the Development of an Extension Framework for Smallholder Farming Supported by the Western Cape Government through its Department of Agriculture

- I hereby confirm that I have been informed by the researcher, **Mohale Sebopetsa** about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

**Full Name of Participant
Thumbprint**

Date

Time

Signature / Right

I, **Mohale Peter Sebopetsa** herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Mogale Sebopetsa

15 January 2016

Full Name of Researcher

Date

Signature

Full Name of Witness (If applicable)	Date	Signature
_____	_____	_____

Full Name of Legal Guardian (If applicable)	Date	Signature
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APPENDIX C: GATE KEEPERS' LETTER



Mogale Sebopetsa
Farmer Support and Development
Email: mogales@eisenburg.com
Tel: +27 21 808 5103 Fax: +27 021 808 7629

Reference:
Enquiries: M Sebopetsa

Ms JS Isaacs
The Head of Department
EISENBURG

Dear Ms Isaacs

RE: PERMISSION TO CONDUCT EXTENSION RESEARCH IN THE WESTERN CAPE.

Title: Towards the Development of an Extension Framework for Smallholder Farming Supported by the Western Cape Government through its Department of Agriculture.

I hereby request your permission to conduct a study that will focus on the government extension services on smallholder farming in the Western Cape Province. This research will be conducted professionally with full adherence to confidentiality. The study will contribute to the existing body of knowledge on the quality of government extension service and more importantly bring about a framework for delivering the service to smallholder farmers.

Sincere regards,


MR M SEBOPETSA
ACTING CHIEF DIRECTOR:
FARMER SUPPORT AND DEVELOPMENT

DATE: 18-01-2016

Approved/ Not Approved

[REDACTED]

MS JS ISAACS
HEAD OF DEPARTMENT
WESTERN CAPE

C.C: Darryl Jacobs, Acting Deputy Director General

20/1/16
DATE:

APPENDIX D: STUDY QUESTIONNAIRE



DURBAN UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF PUBLIC MANAGEMENT AND ECONOMICS

QUESTIONNAIRE - FARMERS

TITLE OF THE STUDY: TOWARDS THE DEVELOPMENT OF AN EXTENSION FRAMEWORK FOR SMALLHOLDER FARMING SUPPORTED BY THE WESTERN CAPE GOVERNMENT THROUGH ITS DEPARTMENT OF AGRICULTURE.

This questionnaire is prepared to collect data which will be used in the study of the above subject. The findings will help in providing necessary information and guidelines for improving public extension services.

Please be assured that all your personal information will be treated confidential and will only be used for the purpose of this study.

Please tick (✓) or fill in the blanks

A) Socio-demographic information

Farmer's Name :

Address :

.....

Telephone :

Fax Number :

District :

Municipality :

A.1) Age in years

15 – 20 years	Code		Male	Female
21 – 40 years	1			

41 – 60 years	2			
61 – 70 years	3			
71 – 80 years	4			
80 and above	5			

A.2) EDUCATIONAL LEVEL

Educational level	Code:	
No school	1	
Primary school	2	
Junior secondary	3	
Senior Secondary	4	
Tertiary	5	

B) LAND OWNERSHIP INFORMATION

1. What is the land ownership / access or rights arrangements?

Commonage	Private Lease	Government Lease	PLAS	Title deed	Church land	Other (Please specify)

2. What is the size of your farm land?

< 1ha	1	
Between 1 – 5 ha	2	
Between 6 – 10 ha	3	
Between 11 – 20 ha	4	
Greater than 20 ha	5	

3. What area is cultivated (ha)?

C) FARMING OPERATIONS

4. How long have you been farming:

..... years

5. What role have you been playing on the farm?

Owner	Manager	Worker	Strategic partner
-------	---------	--------	-------------------

6. Tell me more about your involvement in farming or farming experience

.....
.....

7. How is your farming operations organized? (tick the applicable).

Sole Ownership / Individual Farmer	
Group	
Trust	
CC	
Company	
Other	

8. If it is not a sole ownership, how many members/trustees are in this group/entity?

2 – 10	
11 – 20	
21 – 30	
31 – 40	
More (please specify)	

8.1. How many members are actively involved in the farming business?

.....

9. Which of the following presents your labour practice?

Numbers involved

Family labour	
Immediate family	
Contract workers	
Permanent workers	

Other (please specify)	
------------------------	--

10. What farming system are you practicing?

Extensive	1	
Intensive	2	
Semi-intensive	3	
Other (specify)	4	

11. What is your vision in farming?

.....

D) PERFORMANCE OF FARMING OPERATION

12. Do you think your farming operations make profit? **Yes [1] No [2]**

13. Please indicate estimated profit/loss in the past 5 years and remarks.

Year	Profit/ (loss) Rands*	Remarks/ reasons for performance
2013		
2012		
2011		
2010		
2009		

*in the absence of estimated amount, kindly indicate whether profit or loss was made for year.

14. Do you have a business plan? **Yes [1] No [2]**

15. If yes, are you following the plan? **Yes [1] No [2]**

.....

16. Do you have access to markets: **Yes [1] No [2]**

17. 1. If yes, where do you sell your produce? (Please Tick the applicable box)

Informal farmer	
-----------------	--

Formal market	
Government market	
Export market	
Other (please specify)	

18. Have you encountered any difficulties in your farming? **Yes [1] No [2]**

18.1. If yes, please indicate the difficulties encountered.

.....

G) PERCEPTION ABOUT PUBLIC EXTENSION SERVICE DELIVERY

19. Do you receive any assistance from public/government extension officers?

Yes [1] No [2]

19.1. If yes, what kind of assistance?

.....

20. Do you know your extension officer by name? **Yes [1] No [2]**

a. If yes how well do you know your extension officer?

Fairly well	
Very well	
By name	
Not at all	

21. How often do extension officers visit your farm?

Weekly	
Bi-weekly	
Monthly	
Bi-monthly	
Quarterly	

22. Do you know where the Extension Officer's office is located? **Yes [1] No [2]**

23. In your opinion, what is the main purpose of the extension service?

.....

.....

24. Do you think the extension service is responsive to your farming need? **Yes [1] No [2]**

24.1. If yes, how so? (Please explain)

.....

.....

25. How satisfied are you with the public extension service?

Extremely Satisfied (ES)	Very Satisfied (VS)	Satisfied (S)	Unsatisfied (US)	Very Unsatisfied (VU)

25.1. If satisfied, please explain.

.....

.....

25.2. If not, please indicate your area/s of concern.

.....

.....

26. How would you rate the efficiency of and performance of the extension officer you had contact with?

Excellent (E)	Good (G)	Fair (F)	Average (A)	Below Average (BA)

27. If you were to rate government extension service on the scale of 1-10 with 1 meaning "not important" and 10 being "extremely important". Where will you rate the service?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Not important -----extremely important

28. What changes do you see on the farm based on extension service?

.....

.....

29. In your opinion what are the shortcomings of the public/government extension service?

.....

.....

30. What are the strengths of the public/government extension service?

.....

.....

31. Please make suggestions on how the service can be improved.

.....

.....

32. Will you recommend your extension officer to other farmers in in your area?

Yes	
No	
No comment	

H) INNOVATION FOR FARMING

Which of the following innovation will help in improving your farming? Rate them:

	Not useful					extremely useful				
E1: Smart pen	1	2	3	4	5	6	7	8	9	10
E2: Cell phone	1	2	3	4	5	6	7	8	9	10
E3: Tablet	1	2	3	4	5	6	7	8	9	10
E4: Video	1	2	3	4	5	6	7	8	9	10
E5: Internet	1	2	3	4	5	6	7	8	9	10
E6: Fruit look	1	2	3	4	5	6	7	8	9	10
E7:Agri-Touch	1	2	3	4	5	6	7	8	9	10
E8:Extension suite online	1	2	3	4	5	6	7	8	9	10
E9: GreenAgri	1	2	3	4	5	6	7	8	9	10
E10: Cape farm manager	1	2	3	4	5	6	7	8	9	10
E11: Spatial intelligence	1	2	3	4	5	6	7	8	9	10

E12: Western Cape AgriStat portal	1	2	3	4	5	6	7	8	9	10
E13: Cape agricultural mobile information system (CAMIS)	1	2	3	4	5	6	7	8	9	10
E14: Export certification system	1	2	3	4	5	6	7	8	9	10

33. Do you think smallholder farmers are successful? **Yes [1] No [2]**

34. Out of every 10 smallholder farmers you know, how many do you think are successful?

.....

35. What do you think are the reasons for failure/success of the farming operations of smallholder farmers?

.....
.....

36. What do you suggest would be the solution to help address performance of smallholder farmers?

.....
.....

I) INNOVATION IN EXTENSION

37. Do you receive support from any commodity organization/s? **Yes [1] No [2]**

38. Are you a member of any commodity group? **Yes [1] No [2]**

43.1. If yes, which commodity do you belong to?

Aquaculture	
Dairy	
Fruit	
Grain	
Piggery	
Poultry	
Red meat	
Vegetables	
Sheep and Wool	
Other (Please specify)	

39. Do you receive any mentorship support from the commodity group? **Yes [1] No [2]**

40. If yes, how satisfied are you with the support received?

Extremely Satisfied (ES)	Very Satisfied (VS)	Satisfied (S)	Unsatisfied (US)	Very Unsatisfied (VU)

41. Do you pay for the mentorship support received? **Yes [1] No [2]**

42. If No, who pays for the support you receive?

.....

43. What is your take on paid mentorship?

.....

44. Does the support contribute to your improved productivity? **Yes [1] No [2]**

APPENDIX E: COMMODITY APPROACH

COMMODITY APPROACH TO ENSURE MORE SUSTAINABLE AGRICULTURAL DEVELOPMENT IN THE WESTERN CAPE

PREPARED BY: MR DUDLEY ADOLPH

CHIEF DIRECTOR: FARMER SUPPORT & DEVELOPMENT

SOME REALITIES PERTAINING TO THE REFORM OF THE AGRICULTURAL SECTOR

Transformation within Agriculture, Forestry and Fisheries, suffers a skewed interpretation pivoting on a historical notion that it involves the 'blackness' of a corporation or industry. This notion has displaced the transformation agenda away from addressing the conditions faced by workers, economic empowerment and by allowing shallow interpretations, transformation in Agriculture, Forestry and Fisheries, only benefited a small number of black entrepreneurs to become the preferred beneficiaries of “transformation”.

Thus despite the many changes in South African society since 1994, forms of structural inequality continue to hamper the best efforts of development policy, reinforcing old forms of economic marginalisation at the same time as facilitating new ones (TIPS, 2009). Similarly in Agriculture, Forestry and Fisheries, smallholder farmers, foresters and fishers, have been subject to years of official neglect, despite numerous policies and programmes that proclaim the opposite (Hall, R. and Aliber, M. 2010).

Factors such as the **lack of access to land, water, markets, finance, communications infrastructure, education, skills development facilities and flows of information** and opportunities still prevent Black South Africans from making substantive progress in farming, forestry and fisheries across the entire value chain. These are some of the factors that gave way to **a cycle of skills deficit, crushing poverty, underdeveloped markets, low rates of public and private sector investment and a lack of infrastructure that reinforces the cycle by impacting on the ability of black communities to engage in meaningful rural based economic activities**. Broad based black economic empowerment (BBBEE), together with land reform initiatives, is regarded as vitally important catalysts to address these imbalances (FIP, 2006).

Concurring with the Second Economy Strategy, most national programmes within Agriculture, Forestry and Fisheries explicitly targeting the second economy, with the expected outcome of transforming the sector, and building equity, falls short in the following ways:

- Most programmes were not designed to **impact at the scale required** to make a difference at a socioeconomic level. Most programmes, **acted in isolation of each other**, leaving beneficiaries seeking support from a fragmented array of projects and programmes.
- Most programmes **benefitted a few beneficiaries**, without addressing the structural and systemic challenges that perpetuates inequality along racial divides within these industries. This has thus limited transformation of Agriculture, Forestry and Fisheries to a privileged few.
- **Poverty and food insecurity remains unabated** and worsening in certain areas, within the current market structure, whilst industry consolidated and increased in both its efficiency of production and relative profitability.
- Lack of capacity of government and State Owned Enterprises (SOE's) to reach and offer efficient and sufficient support, limiting their scope to achieve the scale required.

While spending trends of government within Forestry and Fisheries in support of smallholder and subsistent farmers and fishers are not available, the following uses Agriculture as a case to argue for improved budget spending strategies, geared towards the transformation of these sectors, and the equitable distribution of capital assets.

The past decade, and particularly the past five years or so, has seen the growth of budgets to provide direct support to black and disadvantaged smallholder farmers in agriculture, in the form of grants for infrastructure, production inputs and other items, and recently through an extension service “recovery programme”, within agriculture (Hall, R. and Aliber, M., 2010). However, a different picture emerges analyzing more in depth as to what kinds of activities these budgets finance, and who is enjoying their benefits.

Hall and Aliber (Hall, R. and Aliber, M., 2010) provides evidence that the Comprehensive Agricultural Support Programme (CASP), the Micro Agricultural Financial Institutional Scheme of South Africa (MAFISA), and extension services, averaging over the period 2005/06 through 2008/09, collectively absorbed about 58% of total provincial expenditure, whereas the other 42% is assumed to have covered operational costs. However, from official delivery statistics, we see that during that four year period, there was an annual average of about 61,000 beneficiaries of CASP (most of whom were land reform beneficiaries, as we will discuss in more detail below), and about 2,500 loan recipients via MAFISA. As for the numbers of those benefitting from extension services, there is no recent data, with the best indicator on offer from Stats SA 1997 *Rural Survey*, which found that among those engaged in farming in the former homelands, only 11% had had contact with an extension officer within the previous 12 months (Stats SA 1998).

What this means is that, in a given year, at most 13% of black farming households are deriving direct benefits from the 58% of the provincial spending made up from these three interventions.

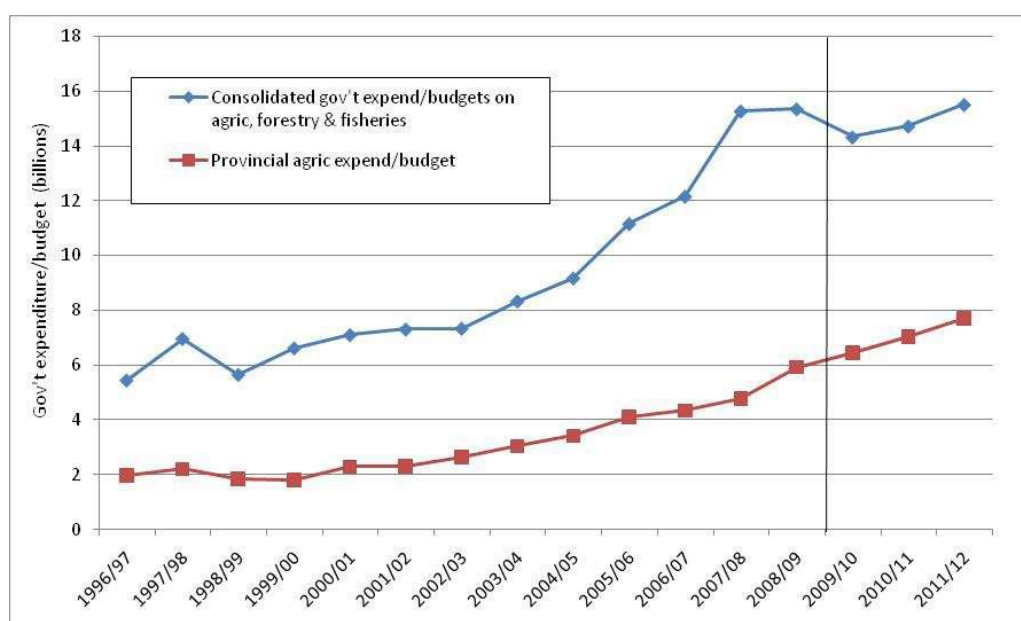


Figure 1: Agricultural sector expenditure/budgets (Hall, R. and Aliber, M., 2010)

In conclusion, we found evidence suggesting that despite strong political and policy support for small-scale farmers in South Africa, and despite significant increases in agricultural budgets over the past decade, the support currently rendered to small-scale farmers in South Africa is not consistent with the visions of current policy and strategy. The implication is for improved spending strategies, ensuring that government spending is a reflection of government policy and strategy, thus requiring the sector GDP also propose the development of a financial/spending strategy.

The inadequacy of the current support measures to small-scale farmers is most vividly illustrated by the fact that only a very small portion of small black farmers in South Africa in fact benefit from such support in a typical year, potentially illustrating that the current budget is not geared at making any real impact. (Abstract from Proposed Sector IGDP:p 42-44,August 2010)

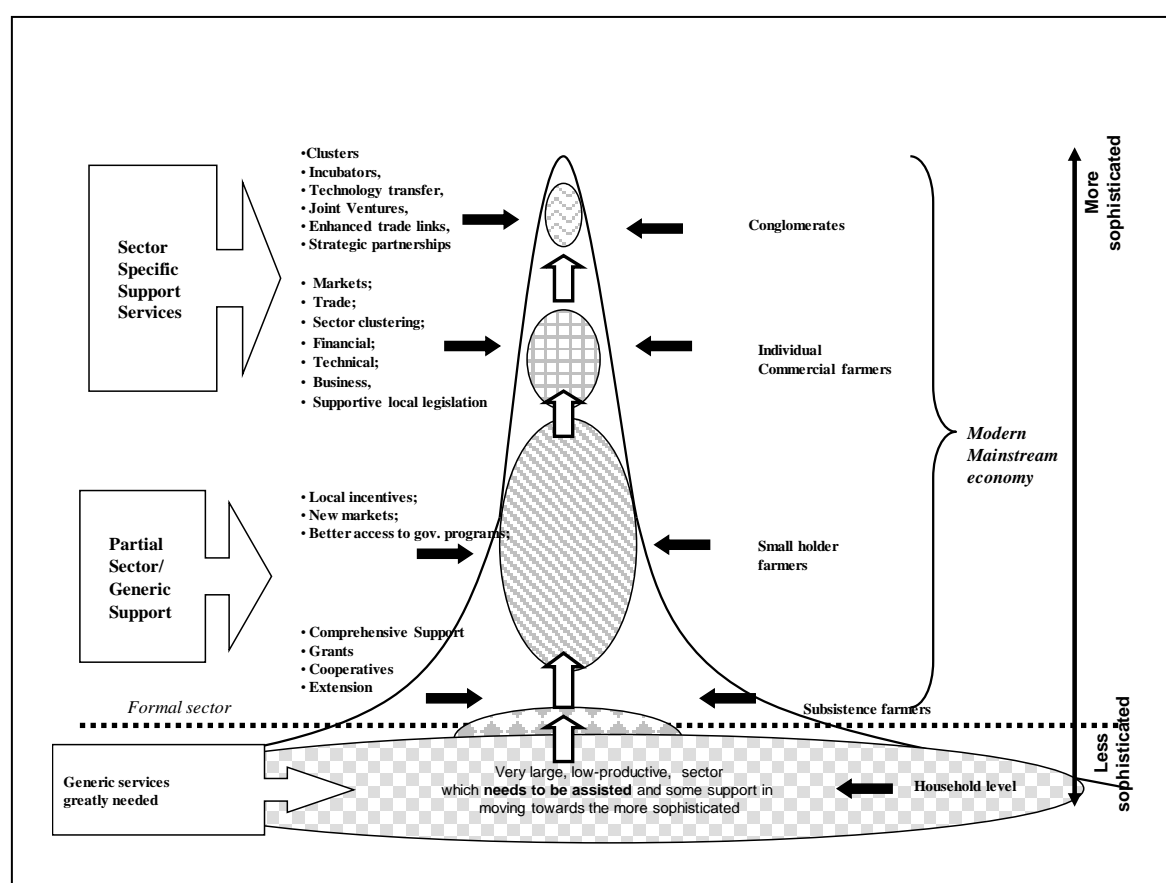
CLASSIFICATION OF FARMERS

It is important to note that, in addition to new entrants into the farming sector, there are also a number of existing individuals with access to land. For example, in the Western Cape Province a recent conservative survey of farmers in rural areas has shown that there are at least 9040 previously disadvantaged farmers with access to at least one hectare of land or who owns a large stock unit.

In providing services to both the beneficiaries of land reform as well as existing farmers in the targeted groups, it is important to develop appropriate **service delivery plans**. The approach that will be used is provided in **Annexure A**.

This figure illustrates that a significant part of the targeted clients are not yet in the position to enter the formal economy. The requirement is therefore that a specific set of services must be rendered and conditions must exist in order to support them to enter the formal economy. Once they enter the formal economy, the requirement would also change as the size and nature of their business improves. In other words, service needs change as the businesses start to grow over time.

Figure 2: The service delivery model to be applied on various farm categories.



It is clear that the required comprehensive service delivery would entail certain changes in the approach to the Comprehensive Agricultural Support Programme (CASP) and to the way in which we do business through our support programmes to new entrants into the agricultural arena and market. It is important to note that the purpose of these proposed changes to the

implementation of CASP is to ensure higher success rates and to increase productivity for food security purposes as well as to protect poor households against ever rising food prices.

COMMODITY APPROACH

It was argued in the previous section that a unique and targeted approach is necessary in appropriately supporting new entrants into farming. To this end the National Department of Agriculture has launched the Agricultural Production Strategy linked to the notion of agrarian reform within the context of Rural Development which *inter alia* includes the following principles:

- a) The use of focus areas to concentrate service delivery;
- b) An aligned comprehensive support package;
- c) The application of cooperative government by establishing joint planning, budgeting, approval and implementation procedures; and
- d) The full utilisation of partnerships in order to exploit the strengths of key non-governmental stakeholders.

The purpose of the Production Strategy is to unlock the principles and support structures embedded in the success stories as highlighted in the previous section, to the benefit of new entrants into agriculture. The commodity approach in terms of providing universal access to agricultural support services must be seen as complimenting the traditional or generic approach to extension. In other words the training and visit (T&V) approach does not always meet the needs of all the different categories of clients the Department serves. These include **smallholder farmers and commercial farmers**.

To improve the impact of extension services the following will be our focus and it includes working with commodity groups for the different products identified by the Department:

- Improving the management of extension especially the **monitoring and evaluation** to ensure we see cause and effect;
- **“Institutional pluralism”** in other words mobilising other organisations especially sector bodies;
- **Hands-on approach** to ensure empowerment and participation at ground level;
- **Market lead approach** to ensure sustainability ;
- Up to date information dissemination to the extension staff with closer links to research.

Furthermore, our commodity specific extension will focus on our commercial or export crops identified which are linked to established markets, firms or farmer associations. It is also linked to established marketing or processing outlets. The distinctive feature we will focus on lies in vertically integrating most of the components of the production and **marketing system, including research, input supply, product marketing, credit, extension and sometimes**

pricing. This system of complementary extension services will assist us to reach and respond to the diverse farmer groupings and farming systems in our Province. In the Western Cape agricultural growth has high multipliers, both in terms of incomes and jobs. To illustrate this point, research has indicated that 22 951 employment opportunities will be created in the Province with every 5 percent increase in the export of certain selected agricultural products. More importantly, 13 446 of these jobs will be created in the non-agricultural part of the Western Cape economy. Hence, fostering agricultural growth directly and indirectly benefits many of the rural poor. Due to the linkages and multipliers many poor people will benefit from the second and third rounds of local expenditure, as opportunities for local employment increase and demand for local services rises. Local economic development (Rural Development) in the rural context includes diversifying the economic base, building backward and forward linkages, ensuring basic standards of health, housing and safety through provision of basic infrastructure and services, maximising job creation and building on the inherent potential of local areas.

To create and capture the full benefits of these linkages and synergies it is necessary to concentrate efforts on particular focus areas. These could be agricultural corridors (high-potential production areas close to national roads), the location of large concentrations of farm dwellers and areas of high farm dweller eviction rates, particular market or agricultural conditions or geographic location. A particular focus could emanate from commodities which have been shown to be attractive, competitive and which have the size to make a meaningful contribution to a sustainable income through production, business development and export, and where the impact of scarce resources can be maximised.

During 2007 the National Department of Agriculture contracted the Monitor Group to conduct an investigation into how the various agricultural products fit into the criteria of size, attractiveness and competitiveness. The result of this process is schematically presented in **Figure 5**.

According to this analysis it is clear that certain commodities, such as maize, milk and vegetables are significantly large commodities in South Africa and that it is attractive for certain reasons (i.e. vegetables is labour intensive and requires advanced cash flow management).

Wheat, in turn, is of medium size and is considered to be internationally competitive. However, it faces certain drawbacks such as the indivisibility of the capital items required. Then, there are a number of products which are both attractive and competitive. Citrus and deciduous fruit falls into this category and is, in addition, also fairly large commodities. Although the Rooibos

industry (including Honeybush) is a fairly small industry, it is both attractive and competitive according to this analysis.

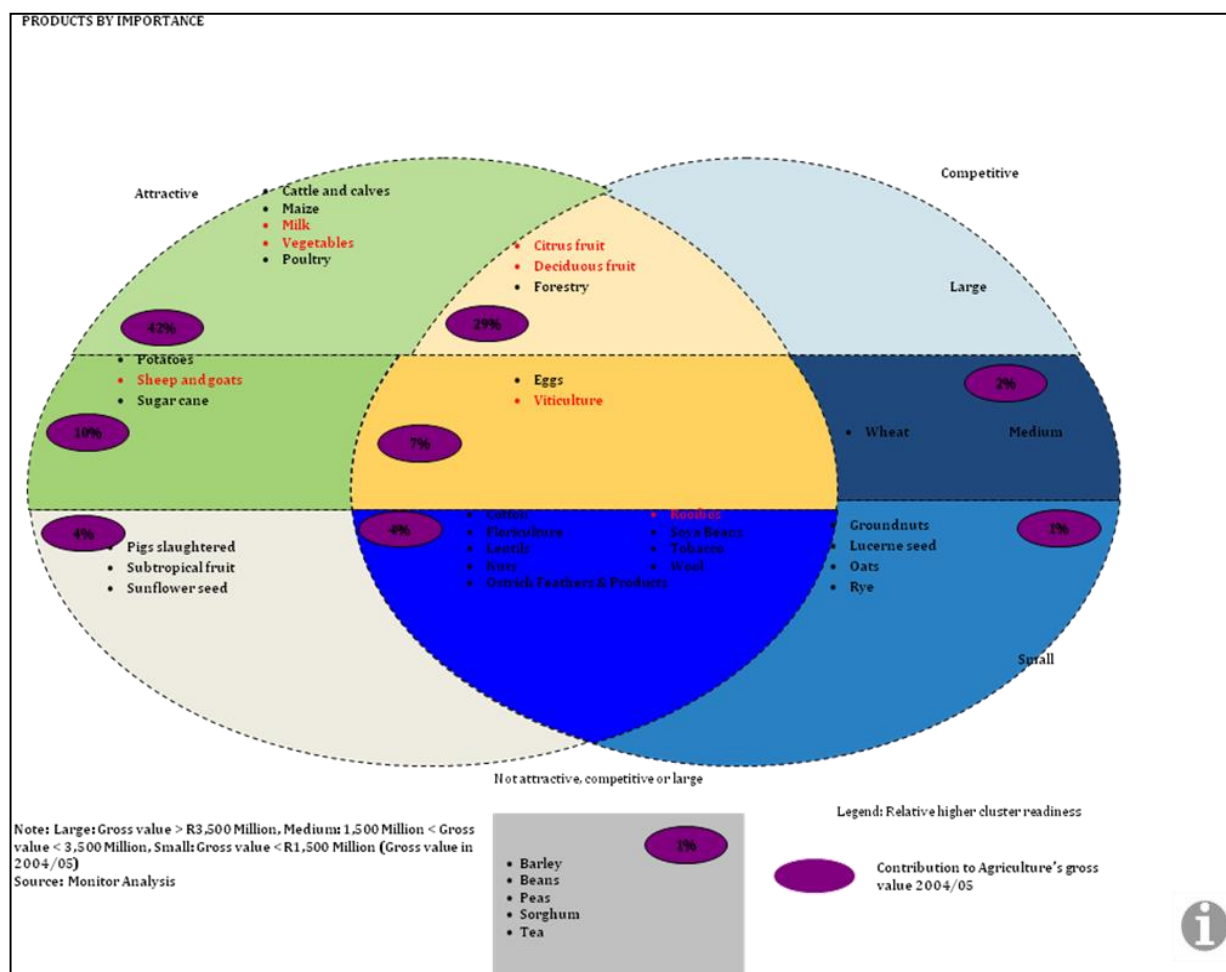


Figure 5: Classification of agricultural commodities in South Africa

Source: DOA (2008)

Nevertheless, it is evident that due to financial and resource constraints the Western Cape Province cannot focus on all the products selected at a National level, but needs to identify certain commodities from this list. To this end and based on the attractiveness, competitiveness and the current economic importance and geographical distribution of the various commodities in the Province, the Western Cape: Department of Agriculture took the decision to focus on the following commodities:

- Fruit
- Dairy,
- Grain,
- Viticulture (wine grape production) and table grapes,

- e) Vegetables,
- f) Beef,
- g) Ostriches feathers and products,
- h) Sheep and wool,
- i) Piggery,
- j) Aquaculture

The Department will also explore lifestyle and niche products such as essential oils. It is important that this process links with the Provincial Spatial Development Framework and the corridors and growth nodes identified as part of that process. It can be hence linked as follows **but especially to the Rural Development nodes identified through the CRDP in the Province:**

- City Hub (urban agriculture focused on poverty stricken areas - vegetables);
- Agricultural Hinterland of the City of Cape Town (e.g. Stellenbosch, Worcester and Robertson - vegetables, viticulture and deciduous fruit);
- N7 Corridor (e.g. Malmesbury, Citrusdal, Ebenhaezer – vegetables, viticulture, rooibos and citrus);
- N1 Corridor (e.g. Laingsburg and Beaufort West – sheep and goats, ostriches and vegetables);
- R62 South Cape Corridor (e.g. Oudtshoorn, Mossel Bay and Knysna – milk, honeybush, ostriches and deciduous fruit); and lastly
- R62 Overberg Hub (e.g. Swellendam, Bredasdorp Elim and Villiersdorp – milk, vegetables and deciduous fruit).

It is argued in this paper that, although farming usually takes place within the context of a basket of different commodities, international preferences, prices and norms and standards reach the farm through commodity chains. As some of these chains are extremely efficient, the structure of farming is continuously changing. Furthermore, the commercial producers of these commodities have organised themselves into bodies representing them and, quite often, have ensured that appropriate support services are in place.

It is good practice that the support framework of emerging farmers should not only focus on area-based or training and visit approaches, but should also incorporate the resources created by these commodity organisations. By locking in these commodity-based resources, government funds are leveraged to provide more outputs per unit of input. Although a number of commodities have been selected on a national level, the Western Cape Province does not have

the resources or climatic conditions to focus on all these commodities. As a result ten commodities were selected in the Province to receive special attention. Specific emphasis was not only placed on the competitiveness and size of the selected industries, but also on the climate and hence geographic distribution of the commodities.

FOCUS AREA or CASP Pillars	TYPE OF SERVICE	Subsistence Farmer	Small Holder Farmer	Commercial Farmer
Infrastructure	Planning support	+	+	+
	Development	+	+	+
	Funding	+	+	+
	Maintenance	+	+	+
	Mechanisation	+	+	+
Economic	Cost of production	+	+	+
	Record keeping	+	+	
	Business plan evaluation	+	+	
Financial support	Capital	+	+	+
	Current	+	+	+
Marketing	Identification	+	+	+
	Information	+	+	+
	Compliance	+	+	+
	Facilitation	+	+	
Agribusiness	On-farm support		+	+
	Off farm support (inputs)		+	+
	Off farm support (output)		+	+
Extension/ Mentorship	Technical mentorship	+	+	+
	Business mentorship		+	
	Individual advice	+	+	
	Group advice	+	+	

	Social support & integration	+	+	
Research	Resource description		+	+
	Technology identification		+	+
	Technology development		+	+
	Adaptation of technology		+	+
Training	Formal training		+	+
	Informal training	+	+	
	Preparation of new farmers	+	+	
Animal health	Disease control		+	+
	Export certification		+	+
	Herd health support		+	+

FOCUS AREA or CASP Pillars	TYPE OF SERVICE	Subsistence Farmer	Small Holder Farmer	Commercial Farmer
Infrastructure	Planning support	+	+	+
	Development	+	+	+
	Funding	+	+	+
	Maintenance	+	+	+
	Mechanisation	+	+	+
Economic	Cost of production	+	+	+
	Record keeping	+	+	
	Business plan evaluation	+	+	
Financial support	Capital	+	+	+
	Current	+	+	+
Marketing	Identification	+	+	+
	Information	+	+	+

	Compliance	+	+	+
	Facilitation	+	+	
Agribusiness	On-farm support		+	+
	Off farm support (inputs)		+	+
	Off farm support (output)		+	+
Extension/ Mentorship	Technical mentorship	+	+	+
	Business mentorship		+	
	Individual advice	+	+	
	Group advice	+	+	
	Social support & integration	+	+	
Research	Resource description		+	+
	Technology identification		+	+
	Technology development		+	+
	Adaptation of technology		+	+
Training	Formal training		+	+
	Informal training	+	+	
	Preparation of new farmers	+	+	
Animal health	Disease control		+	+
	Export certification		+	+
	Herd health support		+	+

ANNEXURE F: PICTORIAL EVIDENCE



Plate 1: Focus sessions with smallholder farmers



Plate 2: Research meeting with smallholder farmers



Plate 3: Demonstration taking place for smallholder farmers



Plate 4: Discussing farming designs



Plate 5: Second focus sessions with smallholder farmers



Plate 6: Other farm demonstration for smallholder farmers

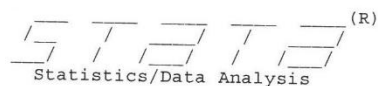


Plate 7: On farm visits and demonstrations



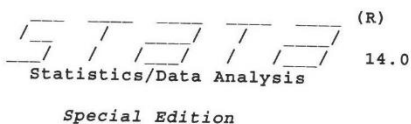
Plate 8: Class discussions with smallholder farmers

APPENDIX G: FACTORIAL ANALYSIS



Statistics/Data Analysis

User: Victor
Project: Eco



Statistics/Data Analysis

Special Edition

(R)
14.0

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Notes:

1. Unicode is supported; see [help unicode advice](#).
2. Maximum number of variables is set to 5000; see [help set_maxvar](#).
3. New update available; type `-update all-`

- 1 . *(110 variables, 213 observations pasted into data editor)
- 2 . factor i2dasaa i3daggak i4dalwi i5dali i6davyf i7dausp i8dauv
(obs=213)

Factor analysis/correlation
Method: principal factors
Rotation: (unrotated)

Number of obs = 213
Retained factors = 3
Number of params = 18

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	4.95219	4.72368	0.9863	0.9863
Factor2	0.22851	0.12291	0.0455	1.0318
Factor3	0.10560	0.13392	0.0210	1.0528
Factor4	-0.02832	0.03474	-0.0056	1.0472
Factor5	-0.06306	0.01036	-0.0126	1.0346
Factor6	-0.07342	0.02694	-0.0146	1.0200
Factor7	-0.10036	.	-0.0200	1.0000

LR test: independent vs. saturated: $\chi^2(21) = 1419.62$ Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Uniqueness
i2dasaa	0.8135	0.0175	-0.2342	0.2831
i3daggak	0.9338	0.0158	-0.1262	0.1119
i4dalwi	0.8830	-0.2485	0.0685	0.1539
i5dali	0.8791	-0.2557	0.0879	0.1541
i6davyf	0.8974	0.1720	0.0606	0.1614
i7dausp	0.8225	0.1513	0.0436	0.2987
i8dauv	0.6198	0.2199	0.1298	0.5507

- 3 . predict factor
(regression scoring assumed)

Scoring coefficients (method = regression)

Variable	Factor1	Factor2	Factor3
i2dasaa	0.07739	-0.01100	-0.48319
i3daggak	0.30739	0.19724	-0.63469
i4dalwi	0.17931	-0.57477	0.21539
i5dali	0.15819	-0.62096	0.33216
i6davyf	0.22321	0.59507	0.31667
i7dausp	0.10401	0.25790	0.12328
i8dauv	0.04016	0.18753	0.17827

4 . rename factor enablers

5 . factor j2link j3comm j4capb j5disssm j6conta j7demo j8coor
(obs=213)

Factor analysis/correlation	Number of obs =	213
Method: principal factors	Retained factors =	3
Rotation: (unrotated)	Number of params =	18

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	5.07891	4.92126	1.0141	1.0141
Factor2	0.15765	0.14018	0.0315	1.0455
Factor3	0.01747	0.01973	0.0035	1.0490
Factor4	-0.00226	0.03858	-0.0005	1.0486
Factor5	-0.04084	0.04179	-0.0082	1.0404
Factor6	-0.08263	0.03712	-0.0165	1.0239
Factor7	-0.11976	.	-0.0239	1.0000

LR test: independent vs. saturated: $\chi^2(21) = 1360.79$ Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Uniqueness
j2link	0.8277	0.0256	0.0582	0.3109
j3comm	0.8834	-0.0289	-0.0757	0.2131
j4capb	0.8568	0.2391	-0.0394	0.2072
j5disssm	0.8182	0.1802	0.0513	0.2954
j6conta	0.8941	-0.0687	0.0203	0.1954
j7demo	0.8365	-0.2125	0.0387	0.2537
j8coor	0.8432	-0.1290	-0.0475	0.2702

6 . predict factor
(regression scoring assumed)

Scoring coefficients (method = regression)

Variable	Factor1	Factor2	Factor3
j2link	0.12140	0.05697	0.17388
j3comm	0.19080	-0.10888	-0.28672
j4capb	0.17470	0.64866	-0.12088
j5disssm	0.12939	0.32693	0.15474
j6conta	0.20860	-0.20650	0.09850
j7demo	0.14814	-0.43396	0.13279
j8coor	0.13459	-0.26935	-0.13862

7 . rename factor Linkages

8 . factor k2input k3markac k4exp k5finace k6exts k7train k8techac
(obs=213)

Factor analysis/correlation	Number of obs =	213
Method: principal factors	Retained factors =	3
Rotation: (unrotated)	Number of params =	18

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	3.57618	3.22319	0.9804	0.9804
Factor2	0.35299	0.20067	0.0968	1.0772
Factor3	0.15232	0.16451	0.0418	1.1190
Factor4	-0.01219	0.03586	-0.0033	1.1156
Factor5	-0.04805	0.08691	-0.0132	1.1025
Factor6	-0.13495	0.10380	-0.0370	1.0655
Factor7	-0.23876	.	-0.0655	1.0000

LR test: independent vs. saturated: $\chi^2(21) = 715.95$ Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Uniqueness
k2input	0.7540	-0.1238	-0.0936	0.4073
k3markac	0.7409	-0.2893	-0.0858	0.3601
k4exp	0.7670	-0.0778	-0.0635	0.4017
k5finace	0.8051	-0.1420	0.1619	0.3055
k6exts	0.6904	0.2452	-0.1367	0.4446
k7train	0.6067	0.3907	-0.0523	0.4766
k8techac	0.6146	0.1225	0.2907	0.5227

9 . predict factor
(regression scoring assumed)

Scoring coefficients (method = regression)

Variable	Factor1	Factor2	Factor3
k2input	0.17685	-0.12032	-0.17123
k3markac	0.17615	-0.37011	-0.17357
k4exp	0.19473	-0.07068	-0.09579
k5finace	0.26075	-0.20410	0.37829
k6exts	0.15181	0.32018	-0.23943
k7train	0.14807	0.41317	-0.04040
k8techac	0.11186	0.15541	0.35569

10 . rename factor Services

11 . factor l1spen l2cphon l3tablet l4video l5intern l6fruitl l7agrit l8extso l9greena l10capefm l11sp:
> rt
(obs=213)

Factor analysis/correlation
Method: principal factors
Rotation: (unrotated)

Number of obs = 213
Retained factors = 8
Number of params = 84

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	8.97122	7.94296	0.8454	0.8454
Factor2	1.02826	0.44027	0.0969	0.9423
Factor3	0.58799	0.31728	0.0554	0.9977
Factor4	0.27071	0.12412	0.0255	1.0233
Factor5	0.14659	0.10336	0.0138	1.0371
Factor6	0.04322	0.01499	0.0041	1.0411
Factor7	0.02823	0.01740	0.0027	1.0438
Factor8	0.01083	0.04261	0.0010	1.0448
Factor9	-0.03179	0.00514	-0.0030	1.0418
Factor10	-0.03693	0.01679	-0.0035	1.0383
Factor11	-0.05371	0.00923	-0.0051	1.0333
Factor12	-0.06294	0.04263	-0.0059	1.0274
Factor13	-0.10557	0.07912	-0.0099	1.0174
Factor14	-0.18469	.	-0.0174	1.0000

LR test: independent vs. saturated: $\chi^2(91) = 3243.30$ Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Factor8
11spen	0.5390	0.3027	0.4584	0.1765	-0.0182	0.0306	0.0153	-0.0082
12cphon	0.4807	0.4912	0.2698	-0.0541	0.1081	-0.0122	-0.0089	0.0257
13tablet	0.6806	0.4602	0.0099	-0.1373	-0.1471	0.0124	-0.0032	-0.0386
14video	0.7391	0.3617	-0.3343	-0.0319	-0.0855	0.0166	-0.0690	0.0100
15intern	0.7462	0.2976	-0.3144	0.0696	0.0732	-0.0659	0.0624	0.0250
16fruitl	0.8129	0.0151	-0.1710	0.3519	0.0409	0.0094	0.0304	-0.0195
17agrit	0.8252	-0.0938	-0.1297	-0.0334	0.1454	0.0961	-0.0497	-0.0304
18extso	0.8760	-0.0630	0.0169	-0.2430	0.0320	-0.0305	0.0427	0.0239
19greena	0.8861	-0.1419	0.0397	-0.1480	0.1761	0.0125	0.0350	-0.0358
110capefm	0.8505	-0.2277	-0.0630	-0.0121	-0.1226	0.0915	0.0361	0.0390
111spi	0.8958	-0.1787	0.1582	0.0501	0.0114	0.0459	-0.0460	0.0462
112wcap	0.9057	-0.2139	0.0871	0.0018	-0.1047	-0.0185	0.0545	-0.0115
113camis	0.9056	-0.2216	0.0661	0.0578	0.0421	-0.1124	-0.0775	0.0074
114excert	0.9072	-0.2290	0.0743	-0.0078	-0.1324	-0.0592	-0.0200	-0.0296

12 . predict factor
(regression scoring assumed)

Scoring coefficients (method = regression)

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Factor8
11spen	0.04329	0.25975	0.39324	0.11683	0.02344	0.05372	0.03112	-0.02047
12cphon	0.03854	0.24438	0.25291	0.03266	0.10078	-0.01405	0.00083	0.04395
13tablet	0.06309	0.34161	0.10061	-0.09603	-0.26219	0.01759	-0.04119	-0.09058
14video	0.10051	0.34271	-0.43746	-0.19605	-0.19162	0.07513	-0.22777	0.01175
15intern	0.07707	0.24278	-0.32654	0.05911	0.15158	-0.21926	0.17453	0.09825
16fruitl	0.07996	0.02121	-0.21894	0.80955	0.11004	0.08203	0.17245	-0.08457
17agrit	0.05541	-0.05901	-0.16280	-0.03551	0.27739	0.27558	-0.17469	-0.09144
18extso	0.08579	0.01846	-0.01310	-0.54119	0.10127	-0.10986	0.18802	0.13885
19greena	0.11604	-0.07125	0.01948	-0.46617	0.67836	0.13364	0.20035	-0.22068
110capefm	0.06006	-0.20404	-0.17696	0.01240	-0.27497	0.33898	0.11165	0.17694
111spi	0.11472	-0.08644	0.35933	0.16545	0.05920	0.37589	-0.21111	0.28024
112wcap	0.12031	-0.19328	0.15489	0.02117	-0.41442	-0.00033	0.42022	-0.07821
113camis	0.10820	-0.24133	0.07064	0.27359	0.34755	-0.70681	-0.53228	0.10082
114excert	0.12374	-0.24156	0.10501	-0.09038	-0.68965	-0.25880	-0.10551	-0.25919

13 . rename factor Innovation

```
14 . sem (enablers -> Ext_Service, ) (Linkages -> Ext_Service, ) (Services -> Ext_Service, ) (Innovation -> Ext_Service, )
> saa -> enablers, ) (i4dalwi -> enablers, ) (i8dauv -> enablers, ) (j4capb -> Linkages, ) (j6conta
> > Linkages, ) (k5finace -> Services, ) (k8techac -> Services, ) (l2cphon -> Innovation, ) (l3table
> eo -> Innovation, ) (l8extso -> Innovation, ), standardized latent(Ext_Service ) nocapslatent
model not identified;
no paths from latent variable Ext_Service to observed variables
r(503);
```

15 .

```
16 . sem (enablers -> Ext_Service, ) (Linkages -> Ext_Service, ) (Services -> Ext_Service, ) (Innovation -> Ext_Service, )
> saa -> enablers, ) (i4dalwi -> enablers, ) (i8dauv -> enablers, ) (j4capb -> Linkages, ) (j6conta
> > Linkages, ) (k5finace -> Services, ) (k8techac -> Services, ) (l2cphon -> Innovation, ) (l3table
> eo -> Innovation, ) (l8extso -> Innovation, ), standardized latent(Ext_Service ) nocapslatent
model not identified;
no paths from latent variable Ext_Service to observed variables
r(503);
```

```

17 .
18 . sem (i2dasaa -> Ext_Service, ) (i4dalwi -> Ext_Service, ) (i8dauv -> Ext_Service, ) (j4capb -> Ext_Service, )
> xt_Service, ) (i7dausp -> Ext_Service, ) (k5finace -> Ext_Service, ) (k8techac -> Ext_Service, )
> (l3tablet -> Ext_Service, ) (l4video -> Ext_Service, ) (l8extso -> Ext_Service, ), standardized :
> slatent
model not identified;
no paths from latent variable Ext_Service to observed variables
r(503);
19 .
20 . sem (i2dasaa -> Ext_Service, ) (i4dalwi -> Ext_Service, ) (i8dauv -> Ext_Service, ) (j4capb -> Ext_Service, )
> xt_Service, ) (i7dausp -> Ext_Service, ) (k5finace -> Ext_Service, ) (k8techac -> Ext_Service, )
> (l3tablet -> Ext_Service, ) (l4video -> Ext_Service, ) (l8extso -> Ext_Service, ), standardized :
> slatent
model not identified;
no paths from latent variable Ext_Service to observed variables
r(503);
21 .
22 . factor enablers Linkages Services Innovation
(obs=213)

```

Factor analysis/correlation

Method: principal factors	Number of obs =	213
Rotation: (unrotated)	Retained factors =	2
	Number of params =	6

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	1.79550	1.42973	0.9948	0.9948
Factor2	0.36577	0.51503	0.2027	1.1974
Factor3	-0.14926	0.05785	-0.0827	1.1147
Factor4	-0.20711	.	-0.1147	1.0000

LR test: independent vs. saturated: $\chi^2(6) = 307.40$ Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Uniqueness
enablers	0.8590	-0.0988	0.2524
Linkages	0.8188	-0.1864	0.2949
Services	0.0743	0.4616	0.7814
Innovation	0.6179	0.3289	0.5101

```

23 . predict factor
(regression scoring assumed)

```

Scoring coefficients (method = regression)

Variable	Factor1	Factor2
enablers	0.47868	-0.10475
Linkages	0.36468	-0.28339
Services	0.04926	0.32120
Innovation	0.17378	0.42529

```

24 . rename factor Ext_Service

```



```
25 . sem (i2dasaa -> Ext_Service, ) (i4dalwi -> Ext_Service, ) (i8dauv -> Ext_Service, ) (j4capb -> Ext_Service, ) (j6conta -> Ext_Service, ) (j7dausp -> Ext_Service, ) (k5finace -> Ext_Service, ) (k8techac -> Ext_Service, ) (l3tablet -> Ext_Service, ) (l4video -> Ext_Service, ) (l8extso -> Ext_Service, ), standardized 1
```

Endogenous variables

Observed: Ext_Service

Exogenous variables

Observed: i2dasaa i4dalwi i8dauv j4capb j6conta i7dausp k5finace k8techac l2cphon l3tablet l4video

Fitting target model:

Iteration 0: log likelihood = -5245.1456
Iteration 1: log likelihood = -5245.1456

Structural equation model
Estimation method = ml
Log likelihood = -5245.1456
Number of obs = 213

Standardized	Coef.	OIM Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
Ext_Service <-						
i2dasaa	.1294711	.0200203	6.47	0.000	.090232	.1687102
i4dalwi	.2617506	.0216572	12.09	0.000	.2193033	.3041978
i8dauv	.0848308	.0161146	5.26	0.000	.0532469	.1164148
j4capb	.169494	.0207744	8.16	0.000	.1287769	.2102111
j6conta	.2287373	.0212119	10.78	0.000	.1871627	.2703119
i7dausp	.1578589	.0205654	7.68	0.000	.1175514	.1981664
k5finace	-.006442	.0167577	-0.38	0.701	-.0392865	.0264024
k8techac	.0477474	.0174122	2.74	0.006	.0136202	.0818747
l2cphon	.0325474	.0153286	2.12	0.034	.0025039	.062591
l3tablet	-.0323033	.020416	-1.58	0.114	-.072318	.0077114
l4video	.0916051	.0198985	4.60	0.000	.0526048	.1306053
l8extso	.1350181	.0183199	7.37	0.000	.0991117	.1709246
_cons	-2.97173	.0504036	-58.96	0.000	-3.07052	-2.872941
var(e.Ext_Service)	.0326041	.0031577			.0269671	.0394194

LR test of model vs. saturated: chi2(0) = 0.00, Prob > chi2 = .

```
26 .  
27 . sem (i2dasaa -> Ext_Service, ) (i4dalwi -> Ext_Service, ) (i8dauv -> Ext_Service, ) (j4capb -> Ext_Service, ) (j6conta -> Ext_Service, ) (j7dausp -> Ext_Service, ) (k5finace -> Ext_Service, ) (k8techac -> Ext_Service, ) (l3tablet -> Ext_Service, ) (l4video -> Ext_Service, ) (l8extso -> Ext_Service, ), standardized 1
```

Endogenous variables

Observed: Ext_Service

Exogenous variables

Observed: i2dasaa i4dalwi i8dauv j4capb j6conta i7dausp k5finace k8techac l2cphon l3tablet l4video

Fitting target model:

Iteration 0: log likelihood = -5245.1456
Iteration 1: log likelihood = -5245.1456

Structural equation model
Estimation method = ml
Log likelihood = -5245.1456
Number of obs = 213

Standardized	Coef.	OIM Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
Ext_Service <-						
i2dasaa	.1294711	.0200203	6.47	0.000	.090232	.1687102
i4dalwi	.2617506	.0216572	12.09	0.000	.2193033	.3041978
i8dauv	.0848308	.0161146	5.26	0.000	.0532469	.1164148
j4capb	.169494	.0207744	8.16	0.000	.1287769	.2102111
j6conta	.2287373	.0212119	10.78	0.000	.1871627	.2703119
i7dausp	.1578589	.0205654	7.68	0.000	.1175514	.1981664
k5finace	-.006442	.0167577	-0.38	0.701	-.0392865	.0264024
k8techac	.0477474	.0174122	2.74	0.006	.0136202	.0818747
l2cphon	.0325474	.0153286	2.12	0.034	.0025039	.062591
l3tablet	-.0323033	.020416	-1.58	0.114	-.072318	.0077114
l4video	.0916051	.0198985	4.60	0.000	.0526048	.1306053
l8extso	.1350181	.0183199	7.37	0.000	.0991117	.1709246
_cons	-2.97173	.0504036	-58.96	0.000	-3.07052	-2.872941
var(e.Ext_Service)	.0326041	.0031577			.0269671	.0394194

LR test of model vs. saturated: chi2(0) = 0.00, Prob > chi2 = .

28 .
29 . factor i2dasaa i4dalwi i8dauv
(obs=213)

Factor analysis/correlation
Method: principal factors
Rotation: (unrotated)
Number of obs = 213
Retained factors = 1
Number of params = 3

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	1.57030	1.64791	1.2017	1.2017
Factor2	-0.07760	0.10833	-0.0594	1.1423
Factor3	-0.18594	.	-0.1423	1.0000

LR test: independent vs. saturated: chi2(3) = 208.99 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Uniqueness
i2dasaa	0.7738	0.4013
i4dalwi	0.7971	0.3647
i8dauv	0.5799	0.6638

30 . predict factor
(regression scoring assumed)

Scoring coefficients (method = regression)

Variable	Factor1
i2dasaa	0.38290
i4dalwi	0.43633
i8dauv	0.18655

31 . rename factor enabler2

32 . factor j4capb j6conta j7demo
(obs=213)

Factor analysis/correlation
Method: principal factors
Rotation: (unrotated)

Number of obs = 213
Retained factors = 1
Number of params = 3

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	2.09173	2.12808	1.0921	1.0921
Factor2	-0.03635	0.10363	-0.0190	1.0731
Factor3	-0.13998	.	-0.0731	1.0000

LR test: independent vs. saturated: $\chi^2(3) = 380.08$ Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Uniqueness
j4capb	0.7904	0.3753
j6conta	0.9005	0.1891
j7demo	0.8100	0.3438

33 . predict factor
(regression scoring assumed)

Scoring coefficients (method = regression)

Variable	Factor1
j4capb	0.22822
j6conta	0.53016
j7demo	0.25315

34 . rename factor Linkage2

35 . factor k5finace k8techac
(obs=213)

Factor analysis/correlation
Method: principal factors
Rotation: (unrotated)

Number of obs = 213
Retained factors = 1
Number of params = 1

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	0.91924	1.16262	1.3601	1.3601
Factor2	-0.24339	.	-0.3601	1.0000

LR test: independent vs. saturated: $\chi^2(1) = 87.22$ Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Uniqueness
k5finace	0.6780	0.5404
k8techac	0.6780	0.5404

```
36 . predict factor
    (regression scoring assumed)
```

Scoring coefficients (method = regression)

Variable	Factor1
k5finace	0.42873
k8techac	0.42873

```
37 . rename factor service2
```

```
38 . factor l2cphon l3tablet l8extso l4video
    (obs=213)
```

Factor analysis/correlation
 Method: principal factors
 Rotation: (unrotated)

Number of obs = 213
 Retained factors = 1
 Number of params = 4

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	2.18251	2.20231	1.1439	1.1439
Factor2	-0.01980	0.07420	-0.0104	1.1335
Factor3	-0.09400	0.06675	-0.0493	1.0843
Factor4	-0.16075	.	-0.0843	1.0000

LR test: independent vs. saturated: $\chi^2(6) = 347.81$ Prob> $\chi^2 = 0.0000$

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Uniqueness
l2cphon	0.5860	0.6566
l3tablet	0.8277	0.3149
l8extso	0.7083	0.4984
l4video	0.8077	0.3476

```
39 . predict factor
    (regression scoring assumed)
```

Scoring coefficients (method = regression)

Variable	Factor1
l2cphon	0.14032
l3tablet	0.38424
l8extso	0.21299
l4video	0.33622

```
40 . rename factor Innovation2
```

```
41 . sem (enabler2 -> Ext_Service, ) (Linkage2 -> Ext_Service, ) (service2 -> Ext_Service, ) (Innovation2 -> Ext_Service, )
    > ndardized nocapslatent
```

Endogenous variables

Observed: **Ext_Service**

Exogenous variables

Observed: **enabler2 Linkage2 service2 Innovation2**

Fitting target model:

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pclose	1.000	Probability RMSEA <= 0.05
Information criteria		
AIC	1833.822	Akaike's information criterion
BIC	1853.990	Bayesian information criterion
Baseline comparison		
CFI	1.000	Comparative fit index
TLI	1.000	Tucker-Lewis index
Size of residuals		
SRMR	0.000	Standardized root mean squared residual
CD	0.957	Coefficient of determination

```
46 . sem (enabler2 -> Ext_Service, ) (enabler2 -> Linkage2, ) (Linkage2 -> Ext_Service, ) (Linkage2 ->
> Ext_Service, ) (Innovation2 -> Ext_Service, ), standardized nocapslatent
```

Endogenous variables

Observed: **enabler2 Ext_Service Linkage2**

Exogenous variables

Observed: **service2 Innovation2**

Fitting target model:

```
Iteration 0: log likelihood = -1022.3525 (not concave)
Iteration 1: log likelihood = -946.01942
Iteration 2: log likelihood = -942.99478 (not concave)
Iteration 3: log likelihood = -942.9712 (not concave)
Iteration 4: log likelihood = -942.96669 (not concave)
Iteration 5: log likelihood = -942.96669
Iteration 6: log likelihood = -942.96667
```

```
Structural equation model                      Number of obs      =      213
Estimation method = ml
Log likelihood      = -942.96667
```

Standardized	Coef.	OIM Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
enabler2 <-						
Linkage2	.4292134	133.465	0.00	0.997	-261.1573	262.0158
_cons	2.35e-09	.0513646	0.00	1.000	-.1006728	.1006728
Ext_Service <-						
enabler2	.5325084	.0306058	17.40	0.000	.4725221	.5924947
Linkage2	.4938083	.031405	15.72	0.000	.4322556	.555361
service2	.0322463	.0159802	2.02	0.044	.0009258	.0635668
Innovation2	.1907109	.0213329	8.94	0.000	.1488991	.2325227
_cons	-3.24e-09	.0154912	-0.00	1.000	-.0303622	.0303622
Linkage2 <-						
enabler2	.4292134	133.465	0.00	0.997	-261.1573	262.0158
_cons	1.78e-09	.0513646	0.00	1.000	-.1006728	.1006728
var(e.enabler2)	.5619631	78.92373			1.6e-120	2.0e+119
var(e.Ext_Service)	.0511151	.0067006			.0395336	.0660894
var(e.Linkage2)	.5619631	78.92373			1.6e-120	2.0e+119

LR test of model vs. saturated: chi2(3) = 64.11, Prob > chi2 = 0.0000

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```

47 .
48 . sem (enabler2 -> Ext_Service, ) (enabler2 -> Linkage2, ) (Linkage2 -> Ext_Service, ) (Linkage2 ->
> Innovation2, ) (service2 -> Ext_Service, ) (Innovation2 -> Ext_Service, ) (Innovation2 -> service2, )
> atent

```

Endogenous variables

Observed: enabler2 Ext_Service Linkage2 Innovation2 service2

Fitting target model:

```

Iteration 0: log likelihood = -1363.0392 (not concave)
Iteration 1: log likelihood = -1102.5691 (not concave)
Iteration 2: log likelihood = -1049.9782 (not concave)
Iteration 3: log likelihood = -1008.9571 (not concave)
Iteration 4: log likelihood = -928.37967 (not concave)
Iteration 5: log likelihood = -922.25228
Iteration 6: log likelihood = -921.6613
Iteration 7: log likelihood = -921.65824
Iteration 8: log likelihood = -921.65824

```

```

Structural equation model                               Number of obs      =          213
Estimation method   = ml
Log likelihood       = -921.65824

```

	OIM					
Standardized	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
enabler2 <-						
Linkage2	.4292133	414.9167	0.00	0.999	-812.7926	813.651
_cons	2.35e-09	.0513646	0.00	1.000	-.1006728	.1006728
Ext_Service <-						
enabler2	.496897	.0329534	15.08	0.000	.4323095	.5614846
Linkage2	.460785	.0313592	14.69	0.000	.399322	.5222479
Innovation2	.1779572	.0201219	8.84	0.000	.138519	.2173954
service2	.0300898	.0149895	2.01	0.045	.000711	.0594686
_cons	-3.02e-09	.0144552	-0.00	1.000	-.0283317	.0283317
Linkage2 <-						
enabler2	.4292133	414.9167	0.00	0.999	-812.7926	813.651
_cons	1.78e-09	.0513646	0.00	1.000	-.1006728	.1006728
Innovation2 <-						
Linkage2	.4258334	.05641	7.55	0.000	.3152718	.5363949
_cons	-3.31e-09	.061996	-0.00	1.000	-.1215099	.1215099
service2 <-						
Innovation2	.2305108	.0648781	3.55	0.000	.1033521	.3576696
_cons	4.91e-09	.0666736	0.00	1.000	-.1306779	.1306779
var(e.enabler2)	.5619632	245.3585			.	.
var(e.Ext_Service)	.044507	.0059471			.0342523	.0578319
var(e.Linkage2)	.5619632	245.3585			.	.
var(e.Innovation2)	.8186659	.0477735			.7301879	.917865
var(e.service2)	.9468648	.0299102			.8900197	1.00734

LR test of model vs. saturated: chi2(2) = 21.49, Prob > chi2 = 0.0000

```

49 .
50 . estat mindices
    (no modification indices to report, all MI values less than 3.841458820694123)

```

51 . estat gof, stats(all)

Fit statistic	Value	Description
Likelihood ratio		
chi2_ms(2)	21.494	model vs. saturated
p > chi2	0.000	
chi2_bs(10)	904.256	baseline vs. saturated
p > chi2	0.000	
Population error		
RMSEA	0.214	Root mean squared error of approximation
90% CI, lower bound	0.138	
upper bound	0.300	
pclose	0.000	Probability RMSEA <= 0.05
Information criteria		
AIC	1879.316	Akaike's information criterion
BIC	1939.820	Bayesian information criterion
Baseline comparison		
CFI	0.978	Comparative fit index
TLI	0.891	Tucker-Lewis index
Size of residuals		
SRMR	0.048	Standardized root mean squared residual
CD	0.335	Coefficient of determination

Remark

*not good
but*

good fit

Good fit

Good fit

Better

52 . estat stable

Stability analysis of simultaneous equation systems

Eigenvalue stability condition

Eigenvalue	Modulus
.4292133	.4292133
-.4292133	.4292133
1.250e-07 + 2.166e-07i	2.5e-07
1.250e-07 - 2.166e-07i	2.5e-07
-2.501e-07	2.5e-07

stability index = .4292133

All the eigenvalues lie inside the unit circle.

SEM satisfies stability condition.

53 . estat eqtest

(model has no exogenous variables)

54 . sem (enabler2 -> Ext_Service,) (enabler2 -> Linkage2,) (Linkage2 -> Ext_Service,) (Linkage2 -> Innovation2,) (service2 -> Ext_Service,) (Innovation2 -> Ext_Service,) (Innovation2 -> service2 -> atent

Endogenous variables

Observed: enabler2 Ext_Service Linkage2 Innovation2 service2

Fitting target model:

Iteration 0: log likelihood = -1363.0392 (not concave)
 Iteration 1: log likelihood = -1102.5691 (not concave)
 Iteration 2: log likelihood = -1049.9782 (not concave)
 Iteration 3: log likelihood = -1008.9571 (not concave)
 Iteration 4: log likelihood = -928.37967 (not concave)
 Iteration 5: log likelihood = -922.25228
 Iteration 6: log likelihood = -921.6613
 Iteration 7: log likelihood = -921.65824
 Iteration 8: log likelihood = -921.65824

Structural equation model Number of obs = 213
 Estimation method = ml
 Log likelihood = -921.65824

Standardized	Coef.	OIM Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
enabler2 <-						
Linkage2	.4292133	414.9167	0.00	0.999	-812.7926	813.651
_cons	2.35e-09	.0513646	0.00	1.000	-.1006728	.1006728
Ext_Service <-						
enabler2	.496897	.0329534	15.08	0.000	.4323095	.5614846
Linkage2	.460785	.0313592	14.69	0.000	.399322	.5222479
Innovation2	.1779572	.0201219	8.84	0.000	.138519	.2173954
service2	.0300898	.0149895	2.01	0.045	.000711	.0594686
_cons	-3.02e-09	.0144552	-0.00	1.000	-.0283317	.0283317
Linkage2 <-						
enabler2	.4292133	414.9167	0.00	0.999	-812.7926	813.651
_cons	1.78e-09	.0513646	0.00	1.000	-.1006728	.1006728
Innovation2 <-						
Linkage2	.4258334	.05641	7.55	0.000	.3152718	.5363949
_cons	-3.31e-09	.061996	-0.00	1.000	-.1215099	.1215099
service2 <-						
Innovation2	.2305108	.0648781	3.55	0.000	.1033521	.3576696
_cons	4.91e-09	.0666736	0.00	1.000	-.1306779	.1306779
var(e.enabler2)	.5619632	245.3585			.	.
var(e.Ext_Service)	.044507	.0059471			.0342523	.0578319
var(e.Linkage2)	.5619632	245.3585			.	.
var(e.Innovation2)	.8186659	.0477735			.7301879	.917865
var(e.service2)	.9468648	.0299102			.8900197	1.00734

LR test of model vs. saturated: chi2(2) = 21.49, Prob > chi2 = 0.0000

55 .
 56 .

The Strategic Plan for South African Agriculture

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Glossary

ABC	Agricultural Business Chamber
AGIS	Agricultural Geographical Information System
Agri SA	Agri South Africa
ARC	Agricultural Research Council
BEE	Black Economic Empowerment
DA	Department of Agriculture
DTI	Department of Trade and Industry
EU	European Union
GDP	Gross Domestic Product
GNP	Gross National Product

IDP	Integrated Development Plan
ISRDS	Integrated and Sustainable Rural Development Strategy
LRAD	Land and Redistribution for Agricultural Development
MAP	Millennium African Recovery Plan
MEC	Members of the Executive Committee
MinMec	Council of Agriculture Ministers
NAFU	National African Farmers Union
NAMC	National Marketing Council
NDA	National Department of Agriculture
NGO	Non Governmental Organisation
NOCOC	National Operational Co-ordinating Committee
OIE	International Animal Health Association
PDA	Provincial Department of Agriculture
R&D	Research and Development
SADC	Southern Africa Developing Community
SARS	South African Revenue Service
SAPS	South African Police Service
SANDF	South African National Defence Force
SPS	Sanitary Phyto-sanitary
USA	United States of America

Foreword by Ms Thoko Didiza, MP and Minister for Agriculture and Land Affairs

The strategic agriculture sector plan is of critical importance because it is a product of government and the industry. I therefore want to express my sincere gratitude and appreciation to the President, Mr Thabo Mbeki, for his leadership when he invited industry representatives of Agri-SA and the National African Farmers' Union (NAFU) to join government in drawing up a common agricultural perspective to which government and industry would commit their efforts and resources in its implementation.

The implications of this partnership are that government and industry now share a common perspective on the sector's strategic issues; they can build the partnership from a common framework; they are going to share the burden of black economic empowerment and enhancing the profitability of agricultural industries at the same time; and from now on have common key messages to convey to the public, the sector, our country, the African continent and the world.

The vision of a united, non-racial and prosperous agricultural sector is based on three strategic goals of access and participation, competitiveness and profitability and of sustainable resource management. This is a long-term vision that will be pursued through much of this century to bring about a new, different and superior agricultural order from the present one.

The envisaged new sector will be geared to play its historic role of providing food and agricultural products and services to our country, our continent and the world. To this end, the Department of Agriculture has identified proposed actions that government is expected to perform, and has incorporated those applicable into its strategic plan for the coming three years. The Department is further incorporating the same proposed actions into its annual corporate work plans from 2002 onwards.

At intergovernmental level, the Department has engaged and will continue to engage provincial Departments of Agriculture and agricultural public entities, to adopt the strategic sector plan as a policy framework in designing their respective strategic and corporate work plans.

At national governmental level, the Department has put the strategic sector plan on the agenda of the Cabinet Cluster System to obtain support from other departments to successfully implement the plan. The Department will then seek Cabinet support and incorporate the proposed actions in the Government Medium Term Strategic Framework for inclusion in the Medium Term Expenditure Framework.

In the meantime, the Department is reprioritising its budget accordingly to obtain funds to communicate the strategic sector plan in the country, including Parliament, provinces, local governments, agricultural industries and community organisations. To this end, the Department will rely on its partners to participate and lead in their respective areas.

I wish to thank Agri SA President, Mr Japie Grobler and National African Farmers' Union President, Mr Peter Ramotla without whom the completion of this Presidential assignment would not have been possible. They provided their officials to join those of the Department to form the Task Team to do the work. They also availed Agri-SA MD, Mr Jack Raath and NAFU MD, Mr Mocks Mothabela to join the Director-General, Ms Bongiwe Njobe to oversee the activities of the Task Team.

I also wish to thank the Deputy Minister, Advocate Dirk du Toit, the MECs for Agriculture, the Director-General, Ms Bongiwe Njobe and the Provincial Heads of Agriculture as well as other senior government officials for supporting this sector plan process.

This initiative would not have succeeded without the constructive inputs of the leaders of organised agriculture in South Africa. These include the President, Mr Japie Grobler; Managing Director, Mr Jack Raath and leaders of Agri SA; the President, Mr Ramotla, Mr Teddy Matsetela and leaders of NAFU.

Working within the Task Team was surely an enriching experience for each of the following members:

Masiphula Mbongwa (Chairperson) Department of Agriculture
Hans van der Merwe Agri SA
Attie Swart Department of Agriculture
Mookela (Mocks) Mothabela NAFU
Johan van Rooyen Agribusiness Chamber
Andrew Makenete NAFU Mr
Teddy Matsetela NAFU
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Statement of intent

Agriculture, which includes all economic activities from the provision of farming inputs, farming and value adding, remains an important sector in the South African economy despite its small direct share of the total gross domestic product (GDP). Agriculture provides food and fibre to meet two of the basic human needs. It has successfully met these needs by increased productivity when the population of this country was a mere 4 million at the turn of the 20th century to the present 40 million. Farmworkers, farmers and their families also contribute to the economy when they spend their wages and salaries on consumer goods and services, or when they buy inputs for production in the next season. In this way agriculture becomes the backbone of growth and development. Its influence on the economy has been demonstrated by the recent floods that destroyed parts of the Northern and Mpumalanga provinces in February 2000, when the GDP growth rate of the country dropped by 1 %.

Primary agriculture accounts for 4,5 % of the GDP of South Africa while the larger agro-food complex accounts for another 9 %. There are about 50 000 large commercial farmers that are predominantly, but not exclusively, drawn from the white population. In 2000 they exported about R16 billion worth of products, or nearly 10 % of South Africa's total exports. They employ about 1 million workers, or about 11 % of the total formal employment of South Africa. Many farmworkers live on commercial farms and their children receive education on farm schools. Commercial farms therefore provide livelihoods and housing to about 6 million family members of 1 million employees and provide for their education needs.

There are also 240 000 small farmers who provide a livelihood to more than 1 million of their family members and occasional employment to another 500 000 people. They supply local and regional markets where large numbers of informal traders make a living. Furthermore, there are an estimated 3 million farmers, mostly in the communal areas of the former homelands, who produce food primarily to meet their family's needs. Finally, the productive and social activities of rural towns and service centres are centred on their support to primary agriculture and related activities such as agri-tourism and game farming. More than half of the provinces and about 40 % of the country's total population are therefore primarily dependent on agriculture and related industries.

Because of this critical role of the broader agricultural sector, President Thabo Mbeki regarded it as necessary to have regular meetings with a working group from organised agriculture to determine the sector's needs and position with regard to national issues. During one of these meetings in March 2001 the President was informed that the sector was plagued by a host of policy and institutional constraints that prevent it from operating at full potential and therefore contributing optimally to the national objectives of growth, competitiveness and equity. The President requested the different role-players to identify a mutual strategy that would provide enough focus to unite and grow the sector.

He said this shared vision should have objectives, policies and actions that would lead to growth and real development for all role-players in the sector.

This document outlines a strategic sector plan for South African agriculture and contributes towards the well-being of all South Africans. It was drafted in a consultative process with a wide range of stakeholders by the key strategic partners, namely the National African Farmers' Union, Agri SA and the Department of Agriculture.

The strategic sector plan has the following as its objectives:

- Create a common vision for key stakeholders
- Design and implement a strategic framework to guide policy and implementation in the future
- Address issues undermining investor confidence and the building of better understanding and good social relations
- Ensure increased access and participation in the sector through well-designed empowerment processes and programmes
- Combine, share and optimise the resources and benefits among the partners
- Foster global competitiveness, growth and profitability in the sector in order to attract new investment
- Ensure sustainable development
- Build lasting partnerships among public, private and community stakeholders and NGOs

The vision for the agricultural sector is:

A united and prosperous agricultural sector

This vision implies sustained profitable participation in the South African agricultural economy by all stakeholders, recognising the need to maintain and increase commercial production, to build international competitiveness and to address the historical legacies and biases that resulted in skewed access and representation.

In support of the vision for agriculture, the core focus for the strategy will be on the following strategic goal:

"To generate equitable access and participation in a globally competitive, profitable and sustainable agricultural sector contributing to a better life for all."

The vision gives a clear picture of where South African agriculture wants to be in the long term. The main impediment to successful implementation of this strategy is the vast untapped potential that lies in its people and material resources, and the low profitability and competitiveness that constrain the participation of a full spectrum of people and economic entities. This problem is manifested in a number of sub problems, each providing its own challenges.

Constrained competitiveness and low profitability

Indications are that the South African agricultural sector is responding positively to the challenge for increased competitiveness. However, there is also evidence that some subsectors of agriculture and value-adding activities are uncompetitive in the local and international market. This has various causes, including high input costs combined with low productivity, poor business strategies and inefficiencies, and unfair trade practices by our competitors, etc. The lack of international competitiveness also leads to low profitability and below normal returns in the sector, which is again responsible for low investment in certain industries. This is possibly the major challenge that needs to be addressed to put agriculture on the high growth path that is envisaged.

Skewed participation

Because of the legacy of exclusion and discrimination in South African agriculture, the challenge is now to improve participation in all facets of the sector and rid it once and for all of the many entry barriers rooted in its historical dualism. The challenge is especially to identify programmes that will encourage new entrants—black and white; young and old; men and women; small and medium- scale enterprises to enter the sector. It is important to find ways to ensure that all these different constituents of the sector genuinely feel and see themselves as belonging to a single entity.

Low investor confidence in agriculture

The poor investor confidence in agriculture is caused by the low returns as well as definitive and hard-core economic and social problems impacting on investment and production such as the spate of farm murders, evictions and illegal occupations. Investor confidence is necessary to achieve a vibrant and growing agricultural sector.

Inadequate, ineffective and inefficient support and delivery systems

The lack of delivery and implementation of a wide range of government measures, regulations and programmes as well as ineffective support systems—all of which are critical to ensure an enabling environment for agriculture—constitute a major concern and a challenge to all state agencies supporting the agricultural sector. Aspects that contribute to this problem are the fragmentation of certain services, inadequate resources, weak governance and accountability as well as poor executive decisions and often long delays in taking decisions.

Poor and unsustainable management of natural resources

Unused land of high and medium potential is not abundant in South Africa, and there is a limit to the horizontal extension of agricultural production. In addition, the infrastructure and services to support sustainable land use are inadequate. Government programmes (i.e. LandCare and Working for Water) aimed at protecting the resource base are successful but insufficient. Land degradation remains a problem on good and marginal lands.

With increasing pressure on agriculture to increase output per unit of land, it is a major challenge to ensure that this does not take place to the detriment of our natural resource base.

In addressing the challenges and achieving the vision, the strategic plan will consist of three core strategies, namely to:

- Enhance equitable access and participation in the agricultural sector
- Improve global competitiveness and profitability
- Ensure sustainable resource management

Some elements of the core strategies are complementary and will contribute towards creating and restoring confidence in agriculture. With this in mind, the following essential supporting and enabling strategies, which are crosscutting to the core strategies, have been identified:

- Good governance
- Integrated and sustainable rural development
- Knowledge and innovation
- International cooperation
- Safety and security

These complementary strategic objectives are vital because they provide the critical foundation without which the strategic goal of a competitive, inclusive and sustainable agriculture will not be realised. They also emphasise the dependence of the sector on the support of other government cluster departments and industries.

The vision of a united and prosperous agricultural sector requires partners to have action plans, key performance indicators, service delivery standards, monitoring and evaluation systems and time frames in order to realise the aims of the strategic sector plan. It also requires that the Government does things differently—with greater speed and urgency and in partnership with farmers, agribusiness, NGOs and other government departments.

The detailed action plans of this strategic plan are going to be produced by all of those partners who have charged themselves with the responsibility for its implementation. What are outlined in this document are the strategic framework, priority programmes, joint implementation organ and provisions for community-public-private partnerships. To this end, the lead partners, namely the Department of Agriculture, Agri SA and NAFU—will establish the permanent joint committee. Efforts are underway to involve organised labour, NGOs, community-based organisations and foreign organisations.

As a first step to move the strategic plan closer to implementation, the strategic partners identified the following priority programmes and actions:

- Implementing the broad-based safety and security strategy for good working and social stability, trust and confidence
- Fostering a shared vision on agriculture, good governance and social partnerships

- Fast tracking the programme of land redistribution for agricultural development and processes of empowerment for targeted groups
- Transforming agricultural research, transfer of technology, education and extension to be more responsive to markets
- Redefining the mandate of agriculture marketing and international trade in the post-control board era against greater global competition and demands for market access, infrastructure and information
- Building credible agricultural statistical and economic analysis systems that will be accessible to all farmers and enterprises
- Establishing the integrated rural financial services system outlined by the Strauss Commission Report
- Developing effective an integrated risk management system for plant and animal health systems, price and income systems and natural disasters
- Targeting investment in rural development nodes to provide livelihoods, infrastructure, irrigation, electricity, telecommunications, transportation, training and skills development
- Establishing an agricultural cooperation programme for Africa to spearhead the New Africa Initiative in agriculture
- Lowering the overall cost of production, including a further reduction in the taxes and duties on diesel and other inputs.

In all of this the valuable role of the private sector in achieving the goals of participation, competitiveness and sustainability is recognised. Therefore everything will be done to ensure greater collaboration and coordination between government and the private sector—implying farmers, farmers' organisations and agribusiness—in order to attain the new vision of a united and prosperous agricultural sector. The following outcomes are expected from the successful pursuit of these strategic objectives:

- Increased wealth creation in agriculture and rural areas
- Increased sustainable employment in agriculture
- Increased incomes and increased foreign exchange earnings
- Reduced poverty and inequalities in land and enterprise ownership
- Improved farming efficiency
- Improved national and household food security
- Stable and safe rural communities, reduced levels of crime and violence, and sustained rural development
- Improved investor confidence and greater domestic and foreign investment in agricultural activities and rural areas
- Pride and dignity in agriculture as an occupation and sector

The partners commit themselves to provide the necessary time and financial and material resources to see to the successful implementation of the strategic plan. There is a clear understanding and appreciation that a new chapter is being opened for agriculture in South Africa, the SADC subregion and the African continent.

Signed by:

MINISTER: AGRICULTURE AND LAND

AFFAIRS PRESIDENT: AGRI SA

PRESIDENT: NAFU

1. Introduction

In his State of the Nation Address on 9 February 2001, President Thabo Mbeki indicated that while balance and stability had been achieved at the macro level, the growth rate of the economy was still too low. In his address the President announced an action plan to:

- Move the economy to a high-growth path
- Increase competitiveness and efficiency
- Raise employment levels
- Reduce persistent poverty and inequality

The President indicated that these objectives could best be achieved through special attention within the Integrated Government Planning Framework to economic sectors demonstrating a high potential for growth and job creation. He highlighted agriculture, energy, tourism, cultural industries, certain export sectors (including agro-processing), and the information and telecommunications industry.

The agricultural sector, defined as all activities relating to agricultural input provision, farming and the processing and distribution activities that add value to farm products, remains an important sector in the South African economy despite its small direct share of the total gross domestic product (GDP).

It provides for two of the basic human needs, namely food and fibre, and has strong economic and employment linkages with the other sectors of the economy, thus contributing substantially to economic growth. It has successfully met these needs by increased productivity when the population of this country was a mere 4 million at the turn of the 20th century to the present 40 million. It is therefore a backbone of growth and development in South Africa because it provides a strong foundation and support to other sectors of the economy. Its influence on the economy has been demonstrated by the recent floods that destroyed parts of the Northern Province and Mpumalanga in February 2000, when the GDP growth rate dropped by about 1 %.

Primary agriculture, which consists of production within the boundaries of the farm gate, accounts for less than 5 % of the GDP of South Africa. The agro-food complex, which consists of primary production plus the input and agro-processing sectors, accounts for about 14 % of the GDP. There are approximately 50 000 large-scale commercial farmers who are predominantly, but not exclusively, drawn from the white population. In 2000 they exported about R16 billion worth of products, or nearly 10 % of South Africa's total exports. They employ about 1 million workers, which is 11 % of total formal sector employment in the country. Many of these workers live on commercial farms and their children receive education in farm schools. Thus commercial farms provide livelihoods and housing to about 6 million family members of these 1 million employees and provided for their education needs.

There are also 240 000 small farmers who provide a livelihood to more than 1 million of their family members, and occasional employment to another 500 000 people. These farmers supply local and regional markets where large numbers of informal traders make a living. Furthermore, an estimated 3 million household farmers who are located mainly in the communal areas of the former homelands, produce largely to meet part of their family's total needs. Finally, almost all the productive and social activities of rural towns and service centres are dependent on primary agriculture and related activities. This includes increasingly popular and economically significant agro-tourism and game-farming activities.

More than half of the provinces and about 40 % of the country's total population are therefore dependent mainly on agriculture and related industries. This strategic plan has been developed by the Department of Agriculture, Agri SA and NAFU at the request of the President to translate the favourable environment into objectives, policies and actions that will lead to growth and development for all role-players in the sector. This request was a direct outcome of the meeting of the Presidential agricultural working group in March 2001, where the President challenged the stakeholders to identify a common strategy that would focus on the sector's unification and growth.

A number of strategic partners have been involved in the development and implementation of the strategic sector plan. These include government, farmers, agribusiness, agriservice organisations, organised labour, community-based associations and foreign organisations. These are all important role-players and clients of the strategic plan that is designed to serve the ultimate customer, the South African people to achieve the objective of a better life for all.

Although critical to the success of agriculture, the issue of organised labour was not specifically addressed in the document because most of those issues have been addressed in the recently completed "Common vision on farm labour". The issues in this document form an integral part of implementing this strategic sector plan.

The process of developing the Strategic Plan was preceded by a number of government documents and other strategies. All of these created a useful framework within which the agricultural sector strategy is shaped and include the following:

- The New African Initiative (formerly the Millennium African Recovery Plan) in which African leaders pledge a common vision and a firm and mutual conviction to eradicate poverty and to place their countries on a path of sustainable growth and development
- The Integrated Sustainable Rural Development Strategy with the strategic intent to transform rural South Africa into an economically viable and socially stable and harmonious sector that makes a significant contribution to the nation's GDP
- The Black Economic Empowerment Commission and the formulation of a national

strategy for Black Economic Empowerment (BEE)

- The Land Redistribution for Agricultural Development programme (LRAD), a subprogramme of the land redistribution programme. The programme is designed to provide grants to previously disadvantaged South African citizens to access land specifically for farming purposes.
- The "Vision and Code of Conduct for Labour Relations in Agriculture" drafted by organised agriculture, labour unions and the Department of Labour. A similar shared vision on land reform is also now in the process of being drafted.
- The Integrated Government Planning Framework
- The 1995 White Paper on Agriculture and the 1998 Discussion Document on Agricultural Policy.

In the next section the vision for the agricultural sector is developed and defined. Section 3 subsequently highlights the current situation in the sector, which assists in identifying, in Section 4, the challenges for attaining the vision. The challenges for the sector lead to three core strategies, which are discussed in detail in Section 5. The three core strategies cannot function in isolation, and depend on five complementary strategies that are discussed in Section 6, which in effect, form the foundation for achieving the strategic goal. Section 7 discusses the "how to" of the strategic plan by highlighting the priority programmes and the structures and processes for implementation.

2. The vision for South African agriculture

The context and challenges given by the President as well as the basic premises and values of the new South African society dictate the vision for the agricultural sector. This vision is:

A united and prosperous agricultural sector

The vision defines a unified sector served by a unimodal policy framework designed to bridge the inherent dualism and to maximise the contribution of the sector to economic growth and development. This vision implies *sustained profitable participation* in the South African agricultural economy by a full spectrum of economic entities, taking full cognisance of the importance of continued commercial production as well as the reality of the historical legacies and biases that resulted in skewed access and representation. The vision acknowledges the diversity of the sector and aims to ensure a place and role for all farmers in a united sector. Such a focus is considered appropriate for the current developmental state of the South African nation and will create the basis to accommodate and energise all groups of this historically divided society, *viz.* small, medium and large enterprises and historically disadvantaged groups (referring to race, gender, and youth categories).

In support of the vision for agriculture, the core focus for the strategic sector plan will be focused on the following strategic goal:

□ ***"To generate equitable access and participation in a globally competitive, profitable and sustainable agricultural sector contributing to a better life for all."***

This strategic goal will guide all the relevant social partners in their quest to deliver a range of strategies and programmes. These programmes will be generated and implemented in accordance with the following *basic premises* and *value statements*:

- Fair reward for effort, risk and innovation
- Security of tenure for present and future participants
- Equitable access to resources and production factors
- The sustainable use of natural and biological resources
- Sound research, science, knowledge and technology systems
- Market forces to direct business activity and resource allocation
- A clear regulatory framework and effective government services
- Policy consistency and predictability
- Responsive partnerships between the private and public sector in policy formulation and service delivery.

The following outcomes are expected to flow from the successful pursuit of the strategic objectives:

- Increased creation of wealth in agriculture and rural areas
- Increased sustainable employment
- Increased incomes and increased foreign exchange earnings
- Reduced poverty and inequalities in land and enterprise ownership
- Improved farming efficiency
- Improved national and household food security
- Stable and safe rural communities, reduced levels of crime and violence, and sustained rural development
- Improved investor confidence leading to increased domestic and foreign investment in agricultural activities and rural areas
- Pride and dignity in agriculture as an occupation and sector.

3. The current reality of South African agriculture

South Africa is characterised by high levels of poverty, especially in rural areas where approximately 70 % of South Africa's poor people reside. Their incomes are constrained because the rural economy is not sufficiently vibrant to provide them with remunerative jobs or self-employment opportunities.

There are many reasons for this state of affairs, but most of these are rooted in policies implemented in the past. While natural conditions such as climatic variability are notable risk and cost factors in farming, uncoordinated policies and the unintended effects of policies have in the past contributed to sub-optimal growth and investment in the sector as well. If rural areas had a foundation that would support greater earning and spending power, the rural economy would be stronger, grow and create more opportunities for wage and self-employment. Therefore, it could be argued that if the South African economy had followed a different, labour intensive, inclusive and nondiscriminatory development and settlement path in the past, rural poverty would not have become such a pervasive feature of our present society and economy.

Economies generally grow by shifting human and capital resources out of the primary sectors (agriculture, mining), first into the industrial sector and later into the services sector. This has also been the case in South Africa, where the transition to a post-industrial age is already well under way. Yet there is evidence that in this process the primary sectors (such as agriculture) either failed to reach their full potential or did so in a distorted manner resulting in large numbers of people being excluded from the benefits of modernisation.

South African commercial agriculture has followed a more capital-intensive growth path, while significant agricultural resources (human and material) lie unused or underutilised in the former homeland areas. Both these phenomena have affected the income-earning potential of rural people. Further, the entrepreneurial abilities of Black farmers were suppressed, first by their exclusion from the commercial land market and then because commercially viable freehold farming was almost impossible in the former homeland areas.

Employment opportunities in commercial agriculture were and still are largely limited to unskilled workers earning low wages, and a large share of total employment in commercial agriculture is of a seasonal and temporary nature only. Furthermore, this growth path has meant that upstream (input firms) and downstream (processors of food and fibre) industries relating to agriculture were stunted, therefore depriving rural people of economic opportunities.

These factors were largely responsible for creating the extreme dualism and inequality in agriculture. This dualism has created a polarisation of 'us' and 'them' among participants and has resulted in an approach to policymaking and service delivery that focuses on two agricultures rather than a single unified sector—one for commercial farmers and one for so-called 'emerging farmers'. There is therefore a complete lack of a common ('us/we/our') vision and understanding in agriculture and little sense of togetherness and belonging. This strategic sector plan seeks to end this divisive and harmful approach.

Since 1990, several processes have taken place to reverse discriminatory legislation and to improve participation, while at the same time several other initiatives have been implemented to deregulate and liberalise the sector. Some of these actions had positive results while others had unintended consequences. The main policy shifts in this regard included:

- Deregulation of the marketing of agricultural products
- Changes in the fiscal treatment of agriculture, including the abolition of certain tax concessions that favoured the sector
- A reduction in direct budgetary expenditure on the sector
- Land reform, consisting of the restitution, redistribution and tenure reform programmes
- Trade policy reform, which included the tariffication of farm commodities and a general liberalisation of agricultural trade including free trade agreements
- Institutional reform influencing the governance of agriculture
- The application of labour legislation to the agricultural sector.

These changes had major consequences leading on average to increased productivity and to a more competitive agriculture, although many farmers became more vulnerable to international shocks, unstable weather conditions, a worsening debt situation and deteriorating terms of trade. This, together with new labour, water and land reform legislation, led to skewed perceptions regarding the aims of this legislation, heightened expectations of labour, and public statements by various pressure groups, contributed to a negative reaction among commercial farmers and a reduction in the number of full-time employees on farms.

The rapid process of deregulation and liberalisation in the past decade has also exposed the limited capacity of many farmers to adjust to policy and market changes. Greater exposure to international competition has affected their competitiveness negatively, causing many farmers to leave the industry. In this much more competitive and open economy, small-farming systems are also failing or finding it difficult to become part of mainstream agriculture.

Although a number of constraints and problem areas prevent the agricultural sector from operating at full potential, this is only part of the picture. There are positive indications that some farmers are doing well under the current circumstances.

It is also evident that there is a good base and a positive attitude and willingness among farmers, agribusiness enterprises and government to tackle the following challenges and turn them into opportunities.

4. Sector challenges

From the foregoing discussion it is possible to identify the main problems of and challenges to the sector. The main challenge for South African agriculture is to unlock the untapped potential that lies in its people as well as the low profitability and competitiveness that constrains the participation of a full spectrum of people and economic entities. This problem is manifested in a number of sub-problems—each providing its own challenges.

Constrained global competitiveness and low profitability

Indications are that the South African agricultural sector is responding positively to the challenges of increased competition. However, the progress remains partial, and there is evidence that some subsectors of agriculture and value-adding activities are uncompetitive in the local and international market. This is caused by factors such as high input costs combined with low productivity, sub-optimal business strategies and inefficiencies, and unfair trade practices. The lack of international competitiveness also leads to low investment in certain subsectors. This is perhaps the major challenge that needs to be addressed to put agriculture on the envisaged high growth and development path.

Skewed participation

Given the legacy of exclusion and discrimination, the challenge is now to unlock the talents and creative energy of people and improve their participation in all aspects of the sector and rid it once and for all of the many entry barriers rooted in its historical dualism. The challenge is to identify programmes to encourage new entrants: black and white; young and old; men and women; small and medium-scale enterprises, to enter the sector. Finally, it is important to find ways to ensure that all these different constituents of the sector genuinely feel and see themselves as belonging to a single entity.

Low investor confidence in agriculture

The weak investor confidence in agriculture is caused by the low returns mentioned as well as the definitive and hard-core economic and social impact on investment and production such as farm murders, evictions and illegal occupations. In addition there are negative perceptions of agriculture, aggravating the situation. Investor confidence is necessary to achieve a vibrant and growing agricultural sector.

Inadequate, ineffective and inefficient support and delivery systems

This aspect is one of the key problem areas underlying each of the factors mentioned. The weakness of delivery and implementation of a wide range of government measures, regulations and programmes as well as ineffective support systems—all of which are critical

to ensure an enabling environment for agriculture—is a major concern and a challenge to all government entities supporting the agricultural sector. Aspects that contribute to this problem are the fragmentation of certain services, inadequate resources, weak governance and accountability as well as poor executive decisions and often long delays in taking decisions.

Poor and unsustainable management of natural resources

Unused land of good potential is very scarce in South Africa, and there is a limit to the horizontal expansion of agricultural production. In addition, the infrastructure and services to support sustainable land use, are inadequate. Government programmes aimed at protecting the resource base (i.e. LandCare and Working for Water) are successful but insufficient. Land degradation remains a problem on good and marginal lands. With increasing pressure on agriculture to raise output per unit of land, it is a major challenge to ensure that this does not take place to the detriment of our natural resource base.

5. Core strategies

The challenges identified need to be addressed with great urgency to enable the agricultural sector to move from its current reality to the strategic objective of "equitable access and participation in a globally competitive, profitable and sustainable agricultural sector contributing to a better life for all". This objective is to be achieved by a strategic plan for South African agriculture consisting of three key elements, namely: equitable access and participation, global competitiveness and profitability and sustainable resource management.

5.1 Equitable access and participation strategy

The objectives of this strategy are to enhance equitable access and participation to agricultural opportunities; to deracialise land and enterprise ownership; and to unlock the full entrepreneurial potential in the sector. Its focus will be on land reform, start-up support packages for new entrants to farming, partnership and promotion of the sector.

This strategy addresses the historical dualism and processes of exclusion, and encourages the continued participation of those that are already part of the sector. It also promotes the development of a shared vision and common strategy for an inclusive and diverse agriculture that will cover the entire spectrum of enterprises and farm sizes, from the very small to the very large. Government will in this regard establish a framework for partnerships to implement this core strategy.

The evidence of good solid partnerships and mentorship that is developing between existing commercial farmers and new entrants will be encouraged. Sustained participation in the sector will be guaranteed only if we dispel the negative perception of agriculture as characterised by low profitability, indebtedness, security problems, consumer concerns for food safety, legitimacy issues and slow transformation—and therefore a sector in which people have no confidence and pride. Farming is stereotyped as dominated by Afrikaner males with an exaggerated sense of threat, marginalisation and neglect among existing and prospective farmers. Another farming stereotype is that black people are unable to or should not become anything above the social class of poor subsistence farmers. These views will be countered only if perceptions in and about agriculture are changed and replaced by the concept of a vibrant, successful and representative agriculture that also addresses environmental and food safety concerns by consumers.

To promote new entrants into the agricultural sector, focus will necessarily be on economic empowerment initiatives: on black people, on women, the disabled and on the youth of all races. The process of enabling black South Africans to become successful in commercial farming and agribusinesses will require well-designed and targeted efforts to level the playing field and to bring about a more representative and diverse sector. Furthermore, it is recognised that the youth of all races are the future and they should be encouraged to engage in agricultural activities. These efforts will be designed to produce a diversified and more efficient agricultural sector, which will provide the impetus for a growing rural economy, without penalising existing commercial farmers.

Land reform

As a first step it is important to deal efficiently with land reform to ensure rural stability and market certainty. The process of economic empowerment in South African agriculture starts with improved access to land and the vesting of secure tenure rights in people and to areas where these do not exist. To deal effectively with land reform, it is important that all avenues of land access such as restitution, redistribution and tenure reform be given adequate attention. These processes will include, but are not to become the focus of this strategic sector plan, land uses for nonagricultural purposes such as housing, etc.

Following the slow progress with the implementation of land redistribution in the first five years after 1994, the programme has been redesigned. The new Land Reform for Agricultural Development (LRAD) programme has been designed to expand the range of support measures that will be available to previously disadvantaged South African citizens to access land specifically for agricultural purposes.

It strengthens the philosophy of market-assisted land redistribution of the earlier land reform programme. International experience has shown that market-based programmes of state directed land redistribution tend to perform better than programmes that are operated exclusively by the public sector. The redesigned programme has the potential to speed up delivery of land, because it is a unified and simple programme and is driven by beneficiaries who can use it in flexible ways according to their objectives and resources.

The Government is committed to ensuring the success of this programme and ensuring that individuals from disadvantaged groups obtain access to land in a speedy and orderly fashion. It is, however, important that land should be used productively. This will happen only if other support services as well as training programmes are provided. It is, therefore, acknowledged that land reform and farmer settlement cannot take place in a vacuum and that provincial departments of agriculture and local government will have to play an important role in assisting beneficiaries. This will require that the capacity problems of provincial and local governments be addressed as a matter of urgency.

All possible options to secure rapid and sustainable land reform will be pursued. This will entail the disposal of publicly-owned agricultural land as the first area to focus attention. These will be complemented by measures such as equity sharing schemes, contract farming, rental farming, tenure reform in communal areas and private land acquisition. Because the majority of the rural poor live and farm on communal land, issues of tenure security have to be urgently addressed. It is critical to provide improved incentives and investment opportunities in these areas. And because this is a sensitive matter, a process of continuous engagement with traditional authorities to ensure the success of this process will be undertaken. This will be accompanied by the rehabilitation of irrigation schemes in the former homeland areas and the transfer of their management and ownership to qualified farmers and communities.

Although land reform is the critical point of departure in ensuring broad-based participation in the agricultural mainstream, a number of support services need to be addressed simultaneously to ensure that the process of access and empowerment is successful and sustainable.

Support services

While considerable institutional energy and funds have been expended on providing access to land for new entrants to farming over the past seven years, less attention has been given to farmer support programmes. To date, post-land settlement support to participants in the land reform programmes has been organised on an *ad hoc* basis, with the result that its impact has been partial at best. At the same time, support services to farmers in the former homeland areas have all but collapsed.

There are two challenges regarding post-land settlement support services. First, if new farmers are to be empowered to play a constructive role in the development of agriculture, it is necessary that they should have access to support services. Yet experience from Africa has shown that this should not be done on an *ad hoc* and discriminatory basis. Research has also shown that support services to small and medium-scale farmers should not be separated from those provided to large-scale commercial farmers. Therefore, the first challenge is to improve and expand the existing support services to meet the needs of all farmers. This includes the continuation of a range of ongoing activities such as the strengthening of service delivery institutions for research, financial services, market access and development, training and skills development and Provincial Departments of Agriculture.

- The second challenge is to provide targeted support to new farmers. Three key initiatives will be undertaken in this regard:
- The provision of post-settlement support to farmers who benefit from land reform's restitution, redistribution and tenure reform. Post-land settlement to this end requires better coordination primarily between the Departments of Agriculture and Land Affairs, between national and provincial governments, and with local authorities and farmers' organisations and agribusiness.
- The identification of new farmers from historically disadvantaged groups who have gained access to land by private purchase, rental, bequests, etc. A needs assessment to establish their requirements in terms of access to support services will be conducted, and the geographic areas and service categories where their needs are the greatest will be targeted for preferential support service provision.
- The initiation of innovative development programmes for farmers on communal land. The emphasis will be on solving problem areas and on steps to assist these farmers to become successful producers in the shortest possible time. This will require proper access to markets, training, tenure reform, infrastructure and targeted support services. Programmes in collaboration with commodity organisations, local agribusinesses and cooperatives will be initiated to provide positive incentives to ensure their participation.
- Principal stakeholders in the sector must be committed to focusing their attention on these farmer support programmes to create an inclusive us/we/our agricultural orientation by, amongst others, promoting partnership programmes, strategic work sessions and joint ventures in the following specific areas:
 - Improved market access and removal of market barriers to new entrants
 - Enhanced transfer of technology to new farmers through one-stop farmer support centres at local level
 - Implement a human resource development plan, which includes young entrepreneurial development and mentorship projects
 - Improved access to a comprehensive range of rural financial services *via* outreach and efficiency of rural finance institutions
 - Improved focus, collaboration and coordination between government institutions,

organised agriculture, nongovernment organisations and civic associations that are involved with farmer development programmes through forums at national, provincial and local level. Such forums could be used to identify needs and appropriate programmes that should receive priority, discuss and resolve problem areas with existing programmes, explore the need for incentives and public-private partnerships to improve the viability of programmes and to make inputs with respect to policies and policy instruments

- Improved ability and efficiency of the extension personnel within the private sector and Provincial Departments of Agriculture.

Increased participation in agriculture will be supported by programmes to assist new entrants with on-farm infrastructure. Examples include support for fencing, dip tanks, contours, soil conservation works, finance for livestock purchases and boreholes.

Collective action is in many respects logical to empowering farmers. By working together, farmers identify members' needs and consolidate their demands, aggregate their economic power and address market failures. The Government will therefore support farmers' organisations to build their own capacity and to develop internal communication mechanisms. In this regard a stronger partnership between NAFU and Agri SA will be encouraged as a powerful vehicle for empowering all farmers. Agricultural cooperatives in South Africa are an important structure for supporting new farmers. Existing cooperatives can play an important role, but the establishment of cooperatives in poor rural communities should also be encouraged.

Earlier efforts in this regard failed owing to poor ethics and values among members and management and also as a result of lack of managerial capacity and skills, resulting in poor business practices. New measures to kick start the development of cooperatives through capacity building and responsible financial support measures will be undertaken.

There is a general lack of *infrastructure* in the former homeland areas, while calls abound for upgrading and maintenance in former white rural areas. This has the result of making these areas uncompetitive. In order to address this infrastructural inequity and calls for improved service provision, Provincial Departments of Agriculture and local authorities will be requested to review infrastructure gaps and ensure that a coordinated list is provided in the Integrated Development Plans for infrastructure development. This will include attention being given to rural towns and service centres. Agriculture will be included in the focus of the identified priority local nodes.

Modern farming has changed as a result of economic pressures. Farmers are resorting to cost-saving measures such as diversification, extensification and value adding as ways to address declining profit margins. These strategies often imply switching to much larger operations. The changing nature of farming also means that there is an implicit entry barrier for many potential new entrants to farming. To address these economic challenges, new innovative measures will be designed to make it possible for people to enter the industry under the current conditions.

Although several roles are earmarked for the Government in the access and participation strategy, it is important to note that the private sector—implying agribusinesses, farmers, cooperatives, farmer organisations—has a much more important role to play in fostering empowerment and participation. It is now urgent and necessary that the private sector take up this challenge of empowerment and improved equity. Incentives will be developed to encourage private sector involvement in the agricultural development and empowerment process.

5.2 Global competitiveness and profitability

The aim of this strategy is to *enhance profitability through sustained global competitiveness in the agriculture sector's input supply, primary production, agro-processing, and agri-tourism industries*. Six factors determine and shape the environment in which the sector competes and promote the creation of competitive advantage. These are:

- Factor conditions
- Demand conditions
- Related and supporting industries
- Firm strategy, structure and rivalry
- Government attitude and policy
- The role of chance.

Each of these factors is now addressed with specific strategic actions to improve agriculture's competitiveness.

Factor conditions

Factor conditions refer to factors of production, availability and quality of natural resources, level of input prices such as labour, diesel, pesticides, machinery, knowledge and infrastructure. These factors are necessary for the sector to be globally competitive and profitable. Recent studies have shown that factor conditions in South Africa constrain competitiveness in the agricultural and agro-processing sector. Most important in this regard are input prices, the productivity of the natural resource base, the cost and quality of unskilled labour, the cost of skilled labour, administration costs associated with hiring and managing labour, the quality of infrastructure, the cost of capital and the cost and availability of technology.

In comparison with the major grain producers of the world such as the US, EU, Argentina and Brazil, South Africa has relatively low-potential soils, a dry and unstable climate, and a high-cost economy. These factors make it very difficult for South African agriculture to compete with these countries. Therefore, in order to be competitive, the option open to farmers in the absence of state support is to be more efficient and to reduce production costs mainly by using fewer inputs more effectively.

Many farmers and agribusinesses have successfully implemented programmes of rationalisation, cost cutting, improved labour management and cost-effectiveness as part of a strategy to reduce production costs. However, this provides only partial and temporary solutions for many small and medium-size farms and agribusiness enterprises. Government programmes that impact on lowering the overall cost of production are therefore required to become an important component of a competitiveness strategy.

Of specific importance are fuel, transport and capital costs. Transport costs are influenced largely by inadequate and poorly managed transport infrastructure. Examples of these include the unavailability of railcars for bulk transport, lack of internal competition in rail and port services that result in unreliable and expensive services, limited and costly air freight for agricultural produce, damaged and inadequate national road infrastructure and poor communication infrastructure. These factors alone make production costs in agriculture on the African continent four times more expensive than in Asia, America and Europe.

- Government has an important role in addressing these issues. To this end, the following programmes will be considered:
- A further reduction in the taxes and duties on diesel and other inputs
- Government structural adjustment incentives to reduce the costs of switching into competitive products
- Innovative financing instruments to help new and existing farmers manage the effect of high interest rates on cash flow
- A review of rail transportation requirements in the light of the road-to-rail policy for agriculture
- Implementation of the "Vision and Code of Conduct for Labour Relations in Agriculture" drafted by organised agriculture, labour unions and the Department of Labour, together with further labour market reform.

Demand conditions

The size, growth and composition of the domestic market play an important role in making an industry globally competitive. Strong local competition is important and only in rare cases can an industry that is not competitive in its domestic market become globally competitive. As long

as the economic growth rate is lower than its potential growth rate, the size of the South African market and its slow growth rate for food and fibre products will hamper agriculture competitiveness. Therefore, the critical importance of developing local market demand, which includes but is not limited to the promotion of niche markets and the encouragement of agri-tourism and rural non- farm enterprises and activities.

Market opportunities are often not developed owing to a lack of information. The quality, availability and cost of market information seriously affect the competitiveness of many entrepreneurs in the agri-food complex. Without reliable and timely information, new local markets develop too slowly. In addressing these constraints the following programmes will be considered:

- A business intelligence system for primary agriculture and the agribusiness sector that will provide vital information for business decisions and market development
- The continued improvement of the statistical function in the Department of Agriculture in collaboration with industry and Statistics South Africa
- Development of new local businesses through an incubation process in rural areas.

Related industries

The presence of supplier industries that are globally competitive, such as input industries, financial institutions, research institutions, transport companies, suppliers of packaging material, and suppliers of utilities such as electricity and water have an impact on competitiveness of the agricultural sector.

Increased market concentration among input suppliers and distributors as well as increased domination by multinational firms may negatively affect the competitiveness of the agricultural sector. The power of these firms and lack of competition within the sector may result in high intermediate input prices. In this regard the Government will monitor the competitive practices in agricultural input and distribution industries and, where necessary, review tariff levels or enforce the Competition Act.

Initiatives to unlock the growth potential of primary agriculture proceeds from the fact that producer prices of primary products like grains and oilseeds increase at a slower rate than their input prices over time. The task of producers is to increase their production efficiency through more efficient employment of inputs and production techniques. This means that the key to more efficient production and improved competitiveness lies in the availability of more competitive inputs and the application of improved production technology. Increased efficiency depends on the application of improved technology. Agricultural research, training and extension institutions are therefore critical for the sector.

Financial institutions are an important link in ensuring the competitiveness of the sector. Commercial farmers are usually well served by the commercial banks and the Land Bank. These institutions, however, have a limited outreach and services in poor communities. Further, many small farmers are excluded from most financial services, owing to a high perceived risk profile, which includes amongst others, a lack of collateral. Efforts to develop innovative substitutes for collateral will therefore be encouraged. The establishment of locally-based and micro-financial institutions that include financial service cooperatives and village banks, will also be promoted.

Supply chain performance

Conditions that govern how farms and agribusinesses are created, organised and managed, and the nature of domestic rivalry, have a significant effect on the competitiveness of the sector. A sound competitive environment in the sector through the effective application of competition policy, good business management and skills must be ensured. Managerial capabilities of farmers and the market power of buyers are very important factors in the competitive success of the agro-food sector. Retail chains have become large and extremely powerful in negotiating and determining producer prices locally and internationally. Farmers have as a result been at a disadvantage in price negotiations. To improve the bargaining power of farmers, it has become important to form partnerships and long-standing trust relationships between different role-players in the supply chain and to promote supply chain interaction to allow opportunities to add value. Measures will be taken to encourage the development of competitive supply chain partnerships within major commodity groups.

Enabling policy environment

Government influence can be positive or negative, depending on its policies, programmes and operational systems. A perception exists in certain quarters of the agriculture fraternity that some government policies and a lack of effective implementation of government programmes are constraints to the competitiveness of farming and the agro-food industry. While perceptions differ among existing commercial farmers and new entrants to the sector, there is agreement that the inadequacy and fragmentation of certain services, weak governance and accountability and poor executive decisions as well as slow implementation of executive decisions are matters requiring urgent attention. Government will therefore give particular attention to improvements at all levels of service delivery.

Risk management

Agriculture is per definition an industry that is confronted by risk in the form of climatic variation, pests, disease and price risks as well as natural disasters such as droughts and floods. In the South African context HIV/AIDS, crime, high and fluctuating real interest

rates, natural disasters, and unstable prices caused by the unpredictable climate are the most important factors that increase cost and constrain competitiveness in the agro-food and fibre complex.

An effective risk management strategy is critical to the promotion of risk management tools such as crop insurance products, asset protection and the agricultural futures market. Another component of a comprehensive risk management strategy is an early-warning system that includes adequate access to and utilisation of timely, accurate, relevant and free information about the weather. While this is currently not being done adequately, such information will now be made available through rural information centres through the Agricultural Geographic Information System. Government will promote the wider use of this information system by other information suppliers.

The recent outbreaks of foot-and-mouth disease and karnal bunt have emphasised the importance of dealing effectively with pests, animal and plant diseases. An inadequate regulatory and institutional framework (e.g. increasing international obligations, split responsibilities, weakened veterinary capacity and absence of infrastructure), together with a fragmented and inadequate inspection capacity leaves this sector exposed. The recent restructuring process of plant and quality control and veterinary services is a first step to address this problem. This process will be continued in conjunction with a policy and statutory review of the country's management of plant and animal diseases.

In addition, a protocol for dealing with SPS emergencies and plant and animal health matters is being formulated, as is the establishment of an independent food safety body with increased capacity for improved control. In the light of the move to a free trade dispensation in the SADC region, South Africa will take the lead in promoting regional cooperation on SPS matters (building of capacity, harmonisation of standards and procedures, etc).

Price risk is per definition part of a deregulated agricultural market. Dealing with price risk by applying various risk management tools such as the futures market will become important for all farmers. Government, in collaboration with the private sector, will launch a comprehensive training and awareness programme among farmers to encourage the use of risk management tools such as the agricultural futures market. Market and price risk is also reduced through good and timely market information. Here Government, through its statistical capacity, still has a major role to play, while other initiatives such as the recent creation of an Agribusiness Intelligence System will also be encouraged. These efforts will provide farmers and agribusinesses with the market intelligence required to make informed business decisions and minimise market and price risk.

South Africa currently has no dedicated agricultural support schemes and no permanently functioning institutional structures for disaster management. In this light the creation of an institutional capacity to implement disaster management and to establish comprehensive schemes to deal with disasters such as floods, fires and droughts in the agricultural sector is underway. Such schemes may include income equalisation schemes and risk insurance programmes that will be designed in partnership between Government, farmers and private insurance firms. Finally, current government efforts to manage the HIV/AIDS pandemic, to combat crime, and to ensure macroeconomic stability will be stepped up to reduce other risk factors to the sector.

International trade

Increasing competitiveness is underpinned by the necessity to sustain the integration of the sector in the global economy and is reflected by its ability to sell its products on world markets. This could contribute to higher economic growth through increasing market access. Government actions to support trade opportunities are important but will require addressing excessive support and protection to world agriculture, markets and trade diplomacy to level the international playing field for South African agriculture.

South African agriculture has to cope with an environment that is characterised by an escalating level of transfers to agriculture, high and escalating tariffs and lack of transparency by developed countries. The markets in these countries are also characterised by nontariff barriers in various guises such as complex plant, animal and human health measures. Domestic procedures and border controls are generally insufficient to cope with dumping, illegal imports as well as adequate application of SPS and quarantine measures at ports of entry. Local SPS measures and standards have in the recent past not kept pace with the growth of imports and exports, while demands by industries with respect to SPS issues have often not been given the desired priority by Government or are subjected to costly time delays.

An export-oriented culture is lacking in all but a few parts of South African agriculture and the creations of export councils for agriculture are a relatively recent innovation. Dedicated support to agricultural exports has been lacking since the removal of the general export incentive scheme in 1997.

In essence, a demand side approach (i.e. removing market access barriers and unfair competition) as well as a supply side approach (i.e. export promotion) is needed to fully reap the economic benefits of international trade. This will *inter alia* require the following:

- Better coordination between the relevant authorities in DTI and DOA

- Effective participation in the WTO to address excessive and distortionary support and protection of world agriculture
- Trade promotion initiatives with a strong South African identity (i.e. Proudly South African), high-quality brand names and direct and dedicated support of the agricultural- manufacturing complex (e.g. export market promotion and credit guarantees)
- Proper cost-benefit analysis of trade deals in the process of formation and/or finalised
- A clear and equitable tariff protection policy pertaining to the agricultural sector, and a shortening of the relevant tariff processes
- Transboundary cooperation in e.g. SADC aimed at obtaining a critical mass in export processing, distribution and marketing or reducing unit costs through pooled investments relating to trade-specific research
- Effective border controls to counter illegal imports, fraudulent import activities as well as poor application of SPS and quarantine measures and rules of origin. In addressing these issues Government is already in a process of improving its inspection service, increasing staff at border posts and assisting SARS in upgrading its border facilities as well. In addition Government will limit border posts for entry of agricultural goods to more manageable numbers and ensure that all are linked electronically with Head Office
- In a further measure to improve international trade opportunities attention will be focused on improving the capacity and understanding of sanitary and phytosanitary measures. In this regard Government will launch a trade-related priority campaign to proactively engage and establish relationships with the SPS authorities in current major and potential export markets to ensure measures are science based, harmonised on international standards and that mutual recognition is applied. Furthermore, Government will jointly engage with SADC partners in international standard setting bodies with a view to maintaining manageable but scientifically-based international standards
- Government will promote an export orientation and facilitate processes within the relevant export sectors to enhance competitiveness on export markets through the Export Council and Joint Action Groups
- A programme to promote trade opportunities for poor rural communities (export led poverty reduction programme).

5.3 Sustainable resource management

The objective of this strategy is to enhance farmers' capacities to use resources in a sustainable manner and to ensure the wise use and management of natural resources. This will require a long- term view with a clear vision and values that will guide the present use of resources to ensure their long-term supply. This strategy will impact on landcare, land redistribution, land use in the urban environment, zoning of high-potential agricultural land, the preservation of sensitive land areas, biological diversity and water systems, etc.

Central to this strategy is to preserve agricultural biodiversity and to promote the sustainable use of soil and water through the enhancement of crop and livestock productivity in intensified and more sustainable farming systems. Farmer participation is the key to the success of the strategy. In addition innovative approaches to link natural resource management to support programmes could provide a win-win situation which will result in short-term economic benefits for the farmers and at the same time contribute to the longer-term objective of preserving the natural resource base.

Degradation of soil and water resources poses a serious threat to the country. Strategies need to be designed to overcome the causes of degradation. Strong institutional support structures and incremental change to existing farming practices will be required to improve soil and water use. Introducing more robust farming systems through well-coordinated rotation systems could make a major contribution in this regard.

Soil, water and conservation programmes will be focused on areas where there is a reasonable chance of success: where population pressure is high, opportunity costs for labour are low, land security is high, productive technologies are available and where there is access to markets, inputs and services. As such the successful implementation of agricultural support services could make a meaningful contribution to the sustainable use and management of natural resources.

Further programmes that are currently being considered to improve sustainability are:

- The development of plant breeding strategies that maintain and enhance genetic diversity
- *In situ* conservation of endangered agricultural species and varieties in economically viable farming systems
- Investment in infrastructure and services to support sustainable land use
- Development of a biotechnology strategy to serve the best long-term advantage for South and its people.
- Encourage horticultural production for health and income reasons
- Putting production and sustainability within a farming system perspective. This supports environmentally friendly production systems, including integrated production, integrated crop management and organic farming.

Focused programmes and activities will be balanced by a holistic view and principles of sustainable management of natural resources.

6. Complementary strategies

Various elements of the core strategies (i.e. the equity, competitiveness and sustainable resources use strategies) are crosscutting and will contribute towards creating and restoring confidence in agriculture. Government considers confidence as vital to the future growth of the sector. With this in mind the following essential supporting and enabling strategies have been identified:

- Good Governance
- Integrated and Sustainable Rural Development
- Knowledge and innovation
- International Cooperation
- Safety and Security

These strategies are vital because they provide the critical foundation without which the strategic goal of a competitive, inclusive and sustainable agriculture will not be realised. These strategies will be given high priority and are now discussed in further detail.

6.1 Good governance

The principle of good governance is a universal link that runs through the entire strategic plan. It applies not only to Government but to all the other role-players in the sector. Within Government a framework of good governance to build a coherent, customer-oriented and transparent agricultural public sector will be top priority to ensure a sound foundation for reaching the strategic goal.

A key component of the good governance strategy will be partnerships. In the first place Government will develop a framework for partnerships between the public and private sector and NGOs to give effect to the core elements of the sector strategy, namely equity, competitiveness and sustainability.

This framework will include the following;

- Protocols of cooperative governance between and within the spheres of government departments
- Service delivery standards in line with Government's service delivery policy of Batho Pele
- Partnership agreements between Government and commodity groups and farmers' associations
- A chapter in the Integrated Development Plan to guide Local Governments on strategic aspects relating to agriculture,
- Shareholder compacts between Government and public entities such as the National Agricultural Marketing Council, Agricultural Research Council, and Land Bank
- Service delivery agreements between provincial governments and national public entities

- National government capacity building programmes to support public entities, provincial and local governments.

The quality and efficiency of services delivered by Government will be important in achieving the goal of a more representative agricultural sector. Certain government services and policies are also important for improving competitiveness in the sector. Examples are a sound and functional regulatory framework and effective governance in general. For this reason a new service delivery protocol will be drafted in order to increase the responsiveness and accountability of all public and private service providers to farmers' and agribusinesses' needs. The value of outsourcing services will also be addressed. An increase in efficiency and flexibility will be obtained by decentralising, contracting and sharing costs for services. Particular focus to this end will be given to the following:

- Choosing the local entity to receive the decentralised responsibilities
- Setting a legal and contractual basis for the devolution of responsibilities and flow of funds
- Formulating the institutional "rules of the game"
- Preparing standard terms of reference for the contracted entities
- Establishing qualification guidelines
- Establishing standard contract and procurement procedures
- Establishing the principle that each participant must contribute optimally to the process
- Establishing the consequences for non-contribution

Another aim of the good governance strategy is to position Government as a partner with credible, consistent and predictable policies and programmes that ensure the delivery of optimum benefits to agriculture. Specific actions that will be implemented to this end will include the following:

- Redesign MinMec into a Council of Agriculture Ministers to direct the management of government activities in meeting strategic agricultural sector objectives in the country
- Redesign the Intergovernmental Committee on Agriculture as an Agriculture Management Committee.

The final aim of the strategy of good governance is to build an integrated and systematic approach to identifying, managing and sharing agricultural knowledge and information assets of the public sector. Key aspects will include the development of a guideline, an institutional framework and processes for knowledge management in agriculture.

The protocols of cooperative intergovernmental governance will, amongst others, introduce a legislative framework for intergovernmental relations on agriculture; clarify the roles and responsibilities between the national and provincial departments of agriculture and local

government; establish the framework to guide and manage the formulation, alignment, implementation, monitoring and evaluation of policies and programmes; establish a framework for integrated coordination of budget planning and expenditure; introduce an information management system; introduce a framework and norms and standards for human resource development plans and implementation; and facilitate institutional capacity building for PDAs and local governments.

The protocol of community-public-private partnership, on the other hand, will focus on ensuring that each social partner involved in this process is encouraged to contribute something. The protocol will also ensure that social partners are encouraged to play a leading role in areas of their relative comparative advantage. To this end, Government will generally cover areas of public goods and services such as policy, legislation, regulations, public infrastructure and services. For its part, industry and farmers will be expected to contribute to the development and effective running of their enterprises and representative organisations and to articulate their interests to Government. Joint ventures are also envisaged between Government, industry and farmers where each cannot undertake the enterprise alone. Some of the areas in question include human resource development, provision of extension services, formation and development of farmer organisations, and research and transfer of technology.

Finally, Government is in the process of establishing a framework of service delivery standards, which will be made known to its social partners and the nation in general. In terms of the Batho Pele policy on service delivery, the purpose of service delivery standards is to enable social partners and the public to hold Government to account for the services it has committed itself to providing and at the promised level of quality standards.

6.2 Integrated and sustainable rural development

The strategic intent of the Integrated and Sustainable Rural Development Strategy (ISRDS) is to transform rural South Africa into an economically viable, socially stable and harmonious sector that makes a significant contribution to the nation's GDP. The ISRDS will therefore be beneficial to agriculture and the entire rural sector. The strategic perspective that the sector plan has regarding the ISDRS is in the promotion of the following areas that are vital to agriculture:

- Local economic development with particular attention focused on rural towns, service centres and villages
- Strengthening the profile and role of agriculture and related industries in the Integrated
 - Development Planning processes of especially rural local authorities
- Special attention given to the promotion of income generation and livelihood activities by women, the youth and disabled that are primarily geared to meeting the needs of poor families and local market demands

- Rural development nodes
- Rural settlement planning to accommodate new settlement patterns that are evolving since the removal of apartheid settlement laws and the dawn of the post-1994 democratic order.

Strong government support and dedication to successfully implement the Integrated and Sustainable Rural Development Strategy (ISRDS) is vital to the success of this sector plan. The strategy will benefit the rural poor generally, but particular efforts will be made to target women, young people, and the disabled. A successful agricultural sector will form an important component of integrated sustainable rural development and *vice versa*.

6.3 Knowledge and innovation

The world economy is rapidly being transformed into a knowledge and network economy. In this world, cutting edge innovation and knowledge are crucial for sustained competitiveness and profitability. It is for these reasons that the strategic partners place science and technology as a vital complementary strategy. The main aim of this strategy is to increase the visionary and innovative capacities of role-players and link these to the future market place.

This must lead to increased investment and use of the most advanced and recent products from research, training and extension systems. By implementing this strategy the sector endeavours to use primary research and relevant education programmes to promote new and strategically important technologies, (biotechnology, information, communication) and a range of value-adding technologies to extract future value. The latter will enhance the sustained competitiveness of South African products in world markets and help to meet the stricter food safety requirements imposed by countries of the North.

A specific action that will be implemented is to raise investment in agricultural research, education and extension from the current low level of 1,04 % of agriculture's contribution to the Gross National Product to meet the international benchmark of 3 % of agricultural GNP, which is comparable to the 3,7 % in the USA; 4 % in Australia, and 2,1% in the EU, in order to meet the challenge to the sector set by Government and global developments in general. To this end, particular attention will be given to:

- Promoting collaboration between the ARC, University Faculties of Agriculture, Provincial Departments of Agriculture, agribusinesses and other agricultural research institutions to refocus on strategic priorities, innovation and adaptive research
- Establishing the National Agricultural Research System to integrate, coordinate and link agricultural research with industry and international agricultural research organisations and extension services
- Re-evaluate the funding basis to promote partnerships between agricultural research institutes, universities and the private sector.

Over the years the South African agricultural research system has produced impressive results despite its bias in favour of large-scale farmers, and there is therefore an argument in favour of further support for a "known winner". The decline over the last decade in total investment in agricultural research and technology development does not meet the challenge posed by the President for technology development and the central positioning of the sector as a leader in the rural economy. Government will increase the funding for agricultural research to promote the continuous improvement in competitiveness and leadership in information, communication and biotechnology that is vital to South African agriculture's future.

The high cost of acquiring technology could be overcome through joint ventures with the R&D and technology industry. Government's leading role in this regard will include:

- Ensuring that agricultural research efforts of the ARC, the University Faculties of Agriculture, the PDAs and other agricultural research institutions are coordinated and focused on strategic priorities aimed at sustained competitiveness. The current process of establishing a National Agricultural Research System will have this as one of its objectives
- Ensuring that economic, social and environmental effects are taken into account in the development of new technologies
- Fostering institutional rationalisation within the agricultural research community where appropriate
- Facilitating agricultural research institutions' access to financial resources
- Providing support for contractual relations between agricultural research institutions and representative industry organisations, and with regional and international agricultural research entities.

6.4 International cooperation

Globalisation has brought with it a revolution in terms of the ready availability of information and technology, increased movement of goods, services and people across borders, increased wealth but also an unfortunate continued widening of the gap between rich and poor. South Africa's prominence as a new model democracy has dramatically increased demands on it for international participation in various forums. These demands have strained its capacity to make the most effective use of opportunities and meet challenges of being a world player in many international fields.

The rapid rate of change in agricultural governance, research, trade and environment and domestic and continental food security concerns are compelling reasons for South Africa to remain at the forefront of developments that affect agriculture. Our interests in international cooperation in the field of agriculture are determined by political, trade, technical and training imperatives that are important in supporting the Strategic Plan for the agricultural sector.

South Africa has assumed a leadership role in championing initiatives that favour development in the region and Africa in general. Prime examples are the SADC Trade Protocol, the New Africa Initiative and key positions and alliances in multilateral institutions leading to positive development implications for agriculture in Africa. The Government has identified international cooperation and development friendly outcomes of international treaties as priorities for the medium term, and is reorganising itself to more effectively meet the challenges posed by increased demands for international representatives in the USA, Europe and Far East. Demands for home-grown technical assistance in the field of agriculture emanate from the New Africa Initiative, SADC initiatives and from bilateral meetings with African countries. Government, in cooperation with various stakeholders, will take the lead in developing a technical assistance framework aimed at instituting a proactive programme to support capacity building and development in the region and on the African continent. To this end, Government will aim to collaborate with non-African partners.

In South Africa, Government will engage foreign donors to formulate an investment programme to support agricultural development in line with the strategic plan. While international research has led to new consumer products, the greater availability of information has awakened civil society concerns over food safety, fair labour practices, etc. Increasing consumer concerns over food safety in important foreign markets put our exports at risk and require informed and proactive responses and interventions from Government. Consistent interaction with international standard setting bodies, e.g. FAO Codex Alimentarius, the International Plant Protection Convention, the International Animal Health Association (OIE) and conventions and movements that might impact on agriculture such as those involving the environment, new technologies and intellectual property are key strategic imperatives for South Africa in the new millennium. Government is committed to increasing its involvement and strengthening capacity and resources to interact with these institutions in an organised manner over the next three years.

6.5 Safety and security

Rural crimes have become a shocking statistic. This threatens rural stability, which will eventually constrain investment and ultimately economic growth in rural areas. A comprehensive and dedicated strategy is needed to combat the high rate of violence, crime, social suspicion and tension that dominates rural areas and to promote good working conditions, neighbourly relations and greater confidence in affected communities. In terms of such a strategy the following critical issues will receive priority attention in the short and medium term:

- Formation of a National Peace and Security Forum drawing members from all key rural stakeholders—to complement existing initiatives in combating rural violence, crime, social suspicion and tension that dominates rural areas and to promote good working

conditions, good neighbourly relations and greater confidence within the different communities

- Revitalisation of the criminal justice system and support structures of the system to be seen and experienced as a deterrent to crime
- The staffing of the SAPS and SANDF as well as the part-time forces with adequately trained and experienced police and defence force personnel to enhance the capabilities of these forces to combat criminal activities in the country, especially in the rural areas
- Specific human and financial reserves to be dedicated to the SAPS and SANDF to enable the security forces to execute their mandate in terms of crime prevention and the implementation of the rural safety plan. These funds will be prioritised and allocated to be used in operations and activities to combat farm attacks and rural crime
- The strategic importance of the National Operational Coordinating Committee (NOCOC) Priority Committee, as coordinating structure of all role-players in the rural protection plan, will be reinforced by the necessary human and financial resources to enable it to implement the rural protection plan and to coordinate activities between role-players and Government.

7. Implementing the strategic sector plan

The vision of "*a united and prosperous agriculture sector*" requires partners to have action plans, key performance indicators, service delivery standards, monitoring and evaluation systems and time frames in order to realise the integrated strategic plan. It also requires Government to do things differently—with greater speed and urgency and in partnership with farmers, agribusiness, NGOs, and other government departments.

It is evident from the strategic framework presented here that the action plan to enhance participation, competitiveness and environmental integrity in the agricultural sector requires concerted efforts to ensure the following:

- Proper coordination among the various entities involved in implementation, including within and between the public, private and voluntary sectors
- Goal orientation among all these entities, to ensure that all are focused on achieving universal benefits, rather than merely sectional interests
- Capacity building at all levels, and in the many dimensions, ranging across the spectrum from advanced scientific knowledge to greater participation in project implementation at grassroots
- Sound planning of the implementation process to ensure that projects are started and

completed at the right time, and to oversee coordination between the various entities and projects

- A proper sequencing of implementation actions with the necessary support actions (capacity building, institution building, planning, etc.)
- Monitoring of progress to ensure the proper management of the implementation process. This requires special attention to the provision of information and to management information systems as well as installing a monitoring and evaluation system.

An action plan cannot be detailed without the full participation of those charged with the responsibility for its implementation. The strategic plan makes provision for a proposed protocol of community-public-private partnerships and calls for joint implementation. To this end, a permanent joint committee will be set up between the stakeholders involved in this strategic planning initiative, namely the Department of Agriculture, Agri SA and NAFU. The primary functions of this committee will be to:

- Define in detail all the strategic initiatives identified. These will include the specific action steps that are envisaged, the identification of those responsible for their implementation, the identification of other entities that need to become involved, the identification of other resources (financial and other) and the specification of timetables for implementation
- Create a management structure with the task to support the entities charged with responsibility for the implementation of each of these programmes, whether the entity is in the public, private or voluntary sector. This support will be of such a nature as not to interfere with the prerogatives of the responsible institution
- Create a reporting framework based on a plan for the monitoring and evaluation of the programmes and projects that make up the strategic plan. The permanent joint committee should report the results of these actions to the principal stakeholders on a regular basis.

Priority programmes

As a first step to move the strategic plan closer to implementation the strategic partners identified the following priority programmes:

- Implementation of the safety and security strategy to bring rural stability and confidence
- Improved governance and implementation of partnerships and a mentorship programme
- Fast track the programme of land redistribution for agricultural development (LRAD)
- Transform the system of agricultural technology development and transfer towards being more market responsive
- Establish a broadly accessible market information system (information systems, economic analysis capacity in each province)

- Develop and operationalise an effective risk management system (plant and animal health system, natural disasters, credit guarantees)
- Ensuring fair competition—locally and internationally
- Implementation of the shared vision on labour and land reform
- Process of empowerment in all sectors of the agrifood sector. In this process mentorship programmes are critical and will be established immediately with full government support
- Targeted investment to enhance competitiveness (infrastructure: water, electricity, telecommunications, rail, air, road, financial services; training, mechanisation)
- Lowering the overall cost of production, including a further reduction in the taxes and duties on diesel and other inputs.

Processes

The permanent joint committee will be responsible at national level for the monitoring of progress and will oversee the programme of implementation. Working groups or task teams will be the key to the implementation process in the provinces and will report to the permanent joint committee. The strategic partners have to determine how resources (human and financial) from each partner are committed and managed in the process of implementing the various programmes and strategies.

The first and most important step is to communicate this strategy as widely as possible. The idea is that this document should be read widely and that information on the implementation programme should be shared regularly with all role-players. The process of delivering the sector strategic plan has thus begun.

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