

Economic Growth and Development through Agriculture: The Case of the North West Province of South Africa

By

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Declaration:

I declare that the thesis hereby submitted by me for the PhD degree in Agricultural Economics at the University of the Free State is my own independent work and has not previously been submitted by me at another university/facility

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Date

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This thesis is dedicated to my father

Pieter Andries Cloete

Who passed away on 26 October 2006, shortly after I commenced with my PhD study

My greatest mentor and example in life

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ABSTRACT

The overall objective of the study was two-folded, firstly to improve the success of rural agricultural development in the North West Province (NWP) through the development of an institutional framework and secondly, to quantify the impact of the proposed institutional changes on the different agricultural sectors in the province. The development of an institutional framework contributes towards the existing mechanisms available to role-players and decision makers involved with rural agricultural development. The ability to quantify and simulate the impact of changes in the institutional framework addresses the concerns of researchers that theory is outstripping empirical research to an excessive extent in the field of institutional economics. Furthermore, by simulating the impact of the proposed institutional framework, in-depth knowledge on the economic impact of rural agricultural development in the NWP was gained.

In order to reach the first objective, a review/study was undertaken of the principles of the New Institutional Economics theory and how it relates to agricultural development in the NWP. This was followed by a SWOT-analysis to identify the main agricultural opportunities and factors inhibiting rural agricultural development in the province. From this, an institutional framework was developed to create an enabling environment for rural agricultural development in the NWP. The proposed institutional arrangements/improvements include amongst others: the establishment of public-private partnerships between government, private sector and communities, the introduction of rural finance systems, equity sharing schemes, integrated research-training programmes and market access solutions. A strategic framework for the implementation of the proposed institutions and institutional arrangements was also developed.

The second objective was achieved through the application of two methodological approaches. In the first approach, the economic impact of the proposed institutional framework was estimated through a partial macro-economic equilibrium model, calibrated to a Social Accounting Matrix for the NWP. Different scenarios were simulated, with the land reform programme that served as a proxy for calculating the impact of the proposed institutional changes. From this, the baseline scenario assumed 30% of agricultural land being redistributed with a 20% success rate. This scenario closely mimics reality in the province. The second scenario assumed a success rate of 35%, with the success rate in the third scenario being 50%. The main results from this analysis include the quantitative impact of the land reform policy on the different agricultural sectors of the province as well as the impact of the proposed institutional framework thereon.

The simulated results proved that development policies (i.e. land redistribution) yield different economy-wide impacts within the various agricultural sub-sectors of the province. Results from the baseline scenario show that the grain and oil-seed sectors of the province have the most significant impact on the economy, reducing provincial GDP by 6.19% compared to the 4.19% of the livestock sector. Moreover, under the assumptions of the baseline scenario, the grain and oilseeds sub-sector will reduce employment opportunities with 25 307, and government income with an estimated R 160 million.

The rest of the scenarios confirm that the creation of an enabling environment for rural agricultural development through the introduction of the proposed institutional framework will significantly reduce the impacts of development policies. For example, in scenario 3 the grain and oilseed sector reported a 3.19% decline in the contribution to GDP compared to the 6.19% under the assumptions of the baseline scenario. The impact on employment opportunities is also likely to decrease by 3% for every 15% increase in the success rate.

The second methodological approach entails the calculation of three sets of economic multipliers (production, value added and labour). The calculated multipliers were used to determine the economy-wide impact of the proposed institutional framework. Despite numerous shortcomings of economic multipliers, this analysis was performed to quantify the direct, indirect and induced economy-wide impacts resulting from the proposed institutional changes. Results from the multiplier analysis confirm the positive impact that the creation of an enabling environment might have on the proposed land reform policies.

The main conclusion of the study is that the lack of proper and functional institutions could be seen as the main reason for the high rate of rural agricultural development failure in the NWP. Thus, should government fail to address the identified institutional shortcomings, the success rate of rural agricultural development will remain a mere 20%, which will have severe consequences for the economy and the rural people in the province. It therefore calls for the creation of an enabling environment that will support rural agricultural development. This could be achieved through the implementation of the proposed institutional framework; however, commitment from all role-players involved in rural agricultural development will be a prerequisite for success in this regard.

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CHAPTER 1

Introduction

1.1 Background

The rural nature and diverse natural resource base of the North West Province (NWP) provide significant opportunities for growth and agricultural development that would help to empower small-scale farmers. Large amounts of taxpayers' money have been invested in agricultural development initiatives; but unfortunately most of them have not been successful. This has increased pressure on government departments to deliver on their promises made, as more and more productive agricultural land has been virtually taken out of production in the province. Besides, most of the past development initiatives have simply become poverty traps, which has added to the economic hardship already experienced by most people in the rural regions of the province.

The unsuccessful development initiatives of the past are also notable in the economy of the NWP, which strongly exhibits the socio-economic dualism of the so-called first and second economies. According to Wills (2004), this socio-economic dualism results in two key pressures on the resource base that particularly affect sustainable agricultural development and productivity. They are:

- Unsustainable patterns of consumption and production in the developed economy; and
- Inequitable and unsustainable population and social development patterns which characterise the developing economy. Rural unemployment is in the region of 40% and the poverty rate is high due to a lack of access to resources, skewed ownership patterns and low skills levels.

In addition to the pressures of the socio-economic dualism, other factors that have contributed towards the marginal success of agricultural development in the NWP include amongst others the lack of post settlement support, lack of capacity within governmental departments, lack of

training, and of access to inputs, markets and credit, as well as poor infrastructure. Furthermore, the absence of proper governance, law enforcement, health care and access to basic services reflect additional shortcomings or dysfunctional institutions in the province that have contributed towards marginal success in agricultural development. Thus, unsuccessful agricultural development initiatives in the NWP are mainly due to the lack of institutions and institutional shortcomings. The situation therefore seems similar to that of other developing countries, with the FAO (2007) who state that developing countries are characterised by a lack of proper institutions when it comes to rural development. In fact, the FAO (2007) attributes the failure of agricultural development in most developing countries to a lack of proper institutions.

The impact of this lack of proper institutions and institutional arrangements has been felt across the political and social spectrum, with a general agreement that government's development initiatives to improve the livelihoods of previously disadvantaged people, especially those residing in the rural regions, is in severe difficulties. Several programmes have been launched by government in an attempt to rectify the failures of the past, with most of these programmes focussed on land and water laws as a means of redressing the imbalances of the past (Wills, 2004). This highlights the growing concern about access of resources poor farmers to institutional support services such as credit, extension, access to markets (input and output), etc. from which they have been eliminated for so long. Moreover, Valentinov and Baum (2008) argue that alternative institutional structures to those in urban areas need to be put in place to satisfy the needs of rural farmers, and subsequently improve the success of agricultural development. This also applies to the NWP. These institutions must facilitate a mechanism through which government's development initiatives can be pursued in a successful and sustainable manner.

In this context, the study will firstly focus on the institutional environment that confines small-scale farmers and people residing in rural areas of the NWP. Following a review of institutional economics and factors influencing agricultural development, the study will make recommendations on the institutional responses required to improve agricultural development in the NWP. The results of the first part (i.e. recommendation on institutional responses) will be use to quantify the potential impact on the economy of the NWP. Moreover, the latest land

reform policy (i.e. redistributing 30% of agricultural land) will serve as a proxy for quantifying the impact of the proposed institutional changes.

1.2 Problem Statement

Agricultural development has been targeted by the South African government as the main mechanism for improving the livelihoods of the rural poor, and it has instigated various policies and initiatives that focus on redressing the historical injustices of the past. The most recent policy in this regard states that 30 % of all agricultural land should be redistributed to previously disadvantaged people by 2014. Besides, the NWP has launched the so-called “Provincial Growth and Development Strategy” (PGDS), which focusses on agriculture as a means of rural development in the NWP. Thus, the latest policies and initiatives suggest that agricultural development, with land reform as one of the vehicles of agricultural development, will remain important initiatives from government in trying to make a difference (Deluis and Schirmer, 2001). However, past experiences confirm that the benefits of development initiatives have not translated into improvements in agricultural productivity or livelihood for the majority of participants.

Over the years, government launched several support programmes to rectify the failures of development initiatives in the NWP. These include: research, technology development, technology transfer, bulk infrastructure support, land-care projects, land redistribution and administration, food safety, food security initiatives, environmental impact assessments, environmental planning, pollution control, biodiversity planning, wildlife trade and hunting industry development and regulation and Human Resource Development programmes (Wills, 2004). Despite these initiatives, agricultural development is still characterised by high levels of failure in the province, resulting in a poverty trap for most participating beneficiaries.

The failure of development projects and initiatives in the NWP could be ascribed to several factors, most of which relate to the institutional environment within which small-scale producers and beneficiaries found themselves. According to the theory of “New Institutional Economics” (NIE), the focus to enhance economic and social performance will require that rural development

initiatives are directed to four dimensions, namely: social embeddedness, institutional environment, governance structures and resource allocation. Thus, the framework for ensuring successful development should be refocused along the mentioned dimensions to target the root causes of failure of development initiatives in the NWP. This will allow for the development of an institutional framework that will address the main factors inhibiting growth and development, contributing towards higher levels of sustainable development within the agricultural sector of the NWP.

1.3 Objectives

The overall objective of the study is two-folded, firstly to improve the success of sustainable rural agricultural development in the NWP and secondly to quantify the impact of the proposed institutional changes on the economy of the province. Note that sustainable rural development is reflected in the definition of the North West Department of Agricultural, Conservation, Environment and Rural Development (NWDACERD, 2008) who state that: “Sustainable development means the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations”.

In order to reach the overall objective, specific objectives need to be reached, which include:

- i. To review the literature on “New Institutional Economics”, which will serve as a guideline to develop an institutional framework that will facilitate sustainable rural agricultural development in the province,
- ii. To present an overview of the study area,
- iii. To identify the main opportunities as well as challenges and factors inhibiting growth and development in the province,
- iv. To recommend an institutional framework and support structure that will improve the rate of success for sustainable rural agricultural development in the province,
- v. To quantify the impact of the proposed institutional changes on the economy.

In achieving the above mentioned objectives, the study will add to the knowledge on institutions and institutional arrangements needed to ensure that rural development is conducted in a sustainable way in the NWP. Moreover, it will address the concerns of researchers that theory is outstripping empirical research to an excessive extent in the field of institutional economics. Hence, by simulating the impact of the proposed institutional framework, in-depth knowledge on the economic impact of rural agricultural development will be gained.

1.4 Motivation

The picture portrayed of the institutional framework supporting rural agricultural development in the NWP reflects a situation of ineffective institutions and institutional arrangements. This is mainly due to a failure in institutional design and failure to properly adapt to the wider institutional environment. Valentinov and Baum (2008) argue that improper adaptation could be due to the fact that small-scale farmers require alternative institutional structures to those used in urban areas to satisfy their needs. They further believe that rectifying the institutional environment is the only means of addressing agricultural development in a successful manner. Moreover, the OECD (2006) is of the same view, suggesting that there is ample room for institutional innovation and change which could positively affect the process of development, especially in rural areas.

Kherallah and Kirsten (2002) suggest that the NIE is a useful framework that could help to determine and initiate the institutions required to improve economic performance and agricultural development in developing countries. Omamo (2006) is of the same view, arguing that the NIE is well-suited to farming and answers the “how-questions” that relate to institutional development. Besides, Pande and Udry (2005) highlight the need for a precise description of the institutional arrangements required for successful development. It is therefore clear that getting the institutional framework right forms an integral part of ensuring successful development.

Moreover, Hubbard (1997) highlights that in the economics of institutions, theory is outstripping empirical research to an excessive extent. He elaborates by stating that because economic institutions are complex, they do not lend themselves easily to quantitative measurement. There

is thus a challenge to economists, which entails the complex task of measuring the effect of prevailing institutions on development. The study will therefore also attempt to quantify the impact of the proposed institutional framework on the economy of the NWP.

1.5 Methodology and Data Used

In order to reach these objectives, the study employs three different methodologies. Firstly, the New Institutional Economics (NIE) approach is applied to serve as a guideline to develop an institutional framework that will facilitate sustainable rural development in the province. Secondly, a SWOT analysis was conducted throughout all regions of the province to determine the challenges and factors that inhibit growth and sustainable development in the province. In addition, results from the SWOT analysis also revealed the agricultural development opportunities present in the province. Participants in the SWOT workshops included small-scale and commercial farmers, governmental officials, members of cooperatives, farmers unions, private companies, banks, NGO's, etc. The findings from the SWOT analysis are considered as part of developing an institutional framework under the guidance of the principles of the NIE, with the proposed institutional framework that seek to address the main challenges and factors inhibiting growth and sustainable development. Addressing the challenges that oppose sustainable development in the proposed institutional framework is a prerequisite for success in the province.

Thirdly, the study employed a Social Accounting Matrix based model (partial macroeconomic equilibrium model) to quantify the impact of the proposed institutional framework. This will be done by using the land reform policy as a proxy. The North West SAM (NW SAM), as developed by Conningarth Economists with a 2006 base year, serves as the database for the empirical analysis. The original NW SAM database did not give a descriptive analysis of the North West agricultural sector. As the study is primarily concerned with rural development in the agricultural sector, the agricultural sector for the NW SAM was disaggregated by using the input structure of other provinces (i.e. Mpumalanga and the Northern Cape Province) that contained disaggregated detail for their respective agricultural sectors. This approach of disaggregating the agricultural sector for the North West assumed that agricultural production practices in the provinces under consideration are conducted in a similar way. Moreover,

secondary data from the NW SAM database, provincial household income and expenditure as published by the Reserve Bank Quarterly Bulletin, numbers of unskilled, semi-skilled and skilled labourers by ethnic group, salaries, etc. was used to disaggregate the agricultural sector of the NW SAM. The newly derived structure serves as input data for the partial macroeconomic equilibrium model used to quantify the impact of the proposed institutional framework.

1.6 Outline of the Study

The study is partly concerned with the development of an institutional framework that will facilitate the process of sustainable rural agricultural development in the NWP. The proposed institutional framework will be based on the principles provided by the NIE. Thus, in order to sufficiently address this objective, a literature review on the framework and principles of the NIE is provided in the next chapter. Chapter 2 also gives details of the institutional environment in developing countries, the relevance of the NIE in agricultural development, the application of the NIE framework as well as studies that combined the NIE framework with other methodologies to reach their objectives.

Chapter 3 provides an overview of the study area. This includes a detailed discussion on the socio-economic and economic climate of the NWP. Moreover, the chapter will identify and quantify the different products and economic sectors that contribute to the North West's economy. A detail description of the current infrastructure needed by the agricultural sector to function effectively is also provided. Finally, the chapter provides an overview of the current institutional framework supporting agricultural development in the province.

In Chapter 4, the results from the SWOT analysis are depicted, highlighting the main challenges and factors that inhibit growth and sustainable rural agricultural development in the NWP. The chapter also provides an overview of the agricultural opportunities in the province that could be unlocked once the institutional framework allows it.

The proposed institutional framework and arrangements required to facilitate the process of sustainable agricultural development is discussed in Chapter 5, whereas Chapter 6 deals with the methodology used to quantify the impact of the proposed institutional framework. The latter

contains a detailed discussion of the functioning of a SAM as well as the SAM database that was used in this study. The basic algebra underpinning the partial macroeconomic equilibrium model as well as multiplier analysis is also supplied in the chapter.

Chapter 7 reports on the formulation of the different scenarios required to quantify the impact of the proposed institutional environment. The results from these scenarios, as determined by the SAM based model, are also reported in the chapter. Finally, a summary of the findings and some concluding remarks are made in Chapter 8.

CHAPTER 2

Background and Literature Review

2.1 Introduction

According to Bardhan (2007), institutional economics is a thriving subject in development, as it should be, since the major difference between the economics of rich and poor countries is arguably in the different institutional frameworks we implicitly or explicitly use in understanding or analysing them. Coase (2000), as cited by Herrera, Van Huylbroeck and Espinel (2005), is of the same view, stating that institutions are the key to explaining economic performance. The institutions of a country can therefore be seen as the mechanism that shapes its economic performance and subsequently influences rural agricultural transformation. Herrera Van Huylbroeck and Espinel (2005) suggest that it is these beliefs that give institutional economics its importance. They elaborate by arguing that while institutions provide a basic structure by which human beings created a framework to reduce uncertainty in change, it is also clear that they determine transaction and transformation costs, and hence the profitability and feasibility of engaging in economic activity. This implies that institutions are designed to achieve efficient outcomes, which means that they cannot be ignored in economic analysis because they play a key role in economic performance. Moreover, economic performance is in the forefront of achieving successful rural agricultural transformation.

However, rural transformation in the North West Province (NWP) has been fraught with difficulties, with the reincorporation of the old Bophuthatswana homelands adding another dimension to the institutional environment of the province. Francis (2002) reports that since the reincorporation of the former homelands, institutional transformation has been slow. This includes the institutional frameworks governing natural resource management, land tenure systems, farming and grazing management practices, conservation measures, etc. (Francis, 2002). Moreover, some of the most important institutions shaping livelihoods in the former homelands are those governing land access and enforcing property rights and contracts; capital

and commodity markets, the labour market and institutions governing access to social welfare (in which the Tribal Authority also plays an important role). Moreover, inequalities in access to land may be paralleled by continued inequalities in access to resources for which the Traditional Authorities are currently the gatekeeper in the former homelands. In addition, the study by Francis (2002) reveals that most people in the homelands believe that “everything should be governed by a constitution”. This reveals that they sense that government at local level is characterised by arbitrariness (Francis, 2002). Local institutional failure, especially lack of accountability and legitimacy in local government institutions, generates severe collective action problems around the management of natural resources and local economic development (i.e. rural agricultural transformation) in this region.

Moreover, despite the liberalisation of agricultural markets in the 1990s, inequalities are still very much in place among rural community markets, and similarly so for those people residing in the former homelands. Investments in small-scale trading and other enterprises have often failed, with retailers finding it hard to compete with the highly concentrated South African retail sector. Other obstacles to business development for these people include crime and access to formal-sector finance. Informal credit is also not easily obtainable, with informal credit schemes and sources like stokvels, etc. being less common than in the past (Francis, 2002). This may be a reflection of low levels of trust and social capital in the area.

As for informal institutions, people are likely to rely on kinship relations and other social networks for information. Not much is known about the informal institutions that have been constructed within rural areas and that link rural areas with towns and cities and the ‘hidden livelihoods’ they may sustain. Such informal institutions may include patron-client relations, social networks arising from membership of churches and other organisations, ‘gangs and criminal networks’, etc. (Francis, 2002).

Thus, some of the major problems that people, throughout the NWP, experience relate to the institutional environment. Government should therefore be aware that failure to address institutional shortcomings will have serious consequences for rural agricultural transformation in the province.

This chapter therefore tackles aspects of institutional economics related to the way in which it can be used to improve the institutions required to ensure improved rural agricultural development. The chapter will start by defining institutions, and then give a detailed discussion of the theories and framework of the New Institutional Economics (NIE). This will be followed by an appraisal of the institutional environment in developing countries, the application of the NIE framework, the relevance of the NIE in development and finally the application of the NIE framework in this study.

2.2 What is an Institution?

The word “institution” is often used in a quite different sense to mean an organisation. Therefore, it might be useful to distinguish institutions from organisations before entering the field of institutional economics. North (1990) was one of the first economists who suggested that a distinction must be made between institutions and organisations. According to North (1991), organisations refer to universities, extension services, and co-operatives that carry out specific missions in society. Organisations can thus be defined as a structure of roles (Kherallah and Kirsten, 2002). Kherallah and Kirsten (2002) explain further that many institutions can be regarded as organisations; for instance, households, firms and co-operatives. Other types of institution, such as money or the law, on the other hand, are not organisations but institutions. North (1991) describes institutions as “the humanly devised constraints that structure political, economic and social interactions”. They consist of both “informal constraints (sanctions, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)”. Elsewhere North argues that institutions consist of a set of constraints on behaviour in the form of rules and regulations; and, finally, a set of moral, ethical, behavioural norms that define the contours and constrain the ways in which the rules and regulations are specified and enforcement is carried out (North, 1984). North (1990) thus defines institutions as the rules (the legal system, financial regulations, and property rights) that nurture, protect, and govern the operations of a market economy.

Schmid (1972), as cited by Williamson (1996), defines institutions as a set of ordered relationships among people that define their rights, exposures to the rights of others, privileges, and responsibilities. Other definitions cited by Williamson (1996) include:

- Bromley (1989), who contends that institutions fall into two classes namely conventions and rules or entitlements;
- Schotter (1981), who views institutions as regularities in behaviour which are agreed to by all members of a society and which specify behaviour in specific recurrent situations, and
- Furuboth and Richter (1991) who are of the view that modern institutional economics focuses on the institution of property, and on the system of norms governing the acquisition or transfer of property rights.

In addition, Matthews (1986) suggests that the definition of institutions might be dependent on the angle of thought. He elaborates by arguing that although the thinking around institutions are from a number of different angles, the approaches might converge, but the emphasis has rather been on differences, resulting in differences in the underlying definitions of an institution. He explains this through the following four different approaches:

- The first approach identifies alternative economic institutions with alternative systems of property rights laid down by law;
- The second approach includes institutions in the sense of conventions or norms of economic behaviour, regarded as a supplement to law and in some circumstances one that is more effective than law because it is less subject to transaction cost. This approach has affinity with moral philosophy;
- Following conventions, the third approach regards types of contract in use as a subject concerned with institutions. These include whether insurance is available for a given class of risk, whether labour is employed on a lifetime basis or by the hour, or whether companies are liable to takeover bids, etc.;
- Similar to this, the final approach pertains to what kind of contracts are in use, and authority, or who decides what.

According to the arguments of Matthews (1986), the concept of institutional economics is based on a set of rights and obligations affecting people in their economic lives. Matthews (1986) defines institutions in the parlance of economics as:

- What markets exist, taking market in the broadest sense, to include all voluntary exchanges, and
- How economic relations are regulated in areas where markets do not exist.

From the above, it is clear that literature provides a wide variety of definitions for institutions, illustrating the difficulty in defining this field. However, according to Kherallah and Kirsten (2002), the most commonly agreed upon definition for institutions is: a set of formal (laws, contracts, political systems, organisations, markets, etc.) and informal (norms, traditions, customs, value systems, religions, sociological trends, etc.) rules of conduct that facilitate co-ordination or govern relationships between individuals or groups. This definition will be adopted for the purposes of this study.

Moreover, the study will focus on the institutional environment and governance structures (which are regarded as branches of the New Institutional Economics) and how they relate to economic development specifically in the NWP. Therefore, the following section will provide an overview of NIE and its underlying framework or thoughts.

2.3 New Institutional Economics

From literature it is evident that a body of thinking surrounding institutional economics has evolved over the past few decades. This body of thinking has brought the economic discipline (i.e. institutional economics) closer to a number of other disciplines within the social sciences, and is called the “New Institutional Economics”. Williamson (1996) states that NIE is different from but not hostile to orthodoxy with its interdisciplinary combination of law, economics, and organisation in which economics is the first among equals. The phrase “New Institutional Economics” was coined by Williamson, but it is argued that the NIE emerged with Coase’s 1937 article “The Nature of the Firm” (Coase, 2000). This article and his other famous essay “The Problem of Social Cost” (1960) started what many, including North (2000), considered to be a

revolution in economics. According to Kherallah and Kirsten (2002), Williamson coined the phrase “New Institutional Economics” to distinguish it from the “Old Institutional Economics” pioneered by Commons and Veblen. The old institutional school argued that institutions were a key factor explaining and influencing economic behaviour, but with little analytical rigour and outside the framework of neo-classical economics. Neo-classical economics, on the other hand, ignored the role of institutions. Under the theory of neo-classic economics, agents were assumed to operate almost in a vacuum (Kherallah and Kirsten, 2002). Moreover, Herrera (2005) argues that the main difference between the NIE and neo-classical economics is the way each approaches and conceptualises the performance of economic systems. The NIE is therefore primarily based on two propositions: the fact that institutions do matter and that the determinants of institutions are susceptible to analysis by the tools of economic theory (Matthews, 1986).

Kherallah and Kirsten (2002) are of the view that although NIE emphasises the important role of institutions, the framework of neo-classical economics can still be used to analyse institutions. Thus, under NIE, some of the unrealistic assumptions of neo-classical (i.e. perfect information, zero transaction cost, full rationality) are relaxed, but the assumption of self-seeking individuals attempting to maximise an objective function subject to constraints still holds. Furthermore, as mentioned, institutions are incorporated as an additional constraint under the NIE framework. The NIE therefore tries to provide economics with both theory and institutions (Kherallah and Kirsten, 2002). Nalebi and Nugent (1989) elaborate by stating that the purpose of the NIE is both to explain the determinants of institutions and their evolution over time, and to evaluate their impact on economic performance, efficiency, and distribution. Kherallah and Kirsten (2002) further suggest that a two-way causality exists between institutions and economic growth, with institutions having a profound influence on economic growth, on the one hand, and that economic growth and development often result in a change in institutions, on the other.

However, as an expansion of economics into other social sciences, NIE is by definition a multidisciplinary field, with several branches of thought or research fields. Figure 2.1 reflects a graphical depiction of what can be included in the field of NIE. These branches cover both macro and micro aspects, with fields such as the so-called “New Economic History” and the public choice school informing the institutional environment at the macro level, while

transaction cost economics and information economics, for example, inform the more micro analytical aspects of transactions and the forms of governance. Kherallah and Kirsten report that the New Economic History was pioneered by North in an attempt to explain how economics has evolved and developed through time. North (1990) highlights the importance of path dependency and history as a means of explaining institutional development or change. He further considers changes in relative price and technological innovations as the main catalyst for institutional change. More recently, Kherallah and Kirsten (2002) have suggested that technological change and changes in the cost of information have become the major sources of institutional change. Moreover, New Economic History is considered the more macro aspect of the NIE, looking at the role of institutional change in fostering overall economic growth and explaining the divergence in the development of various countries (Kherallah and Kirsten, 2002).

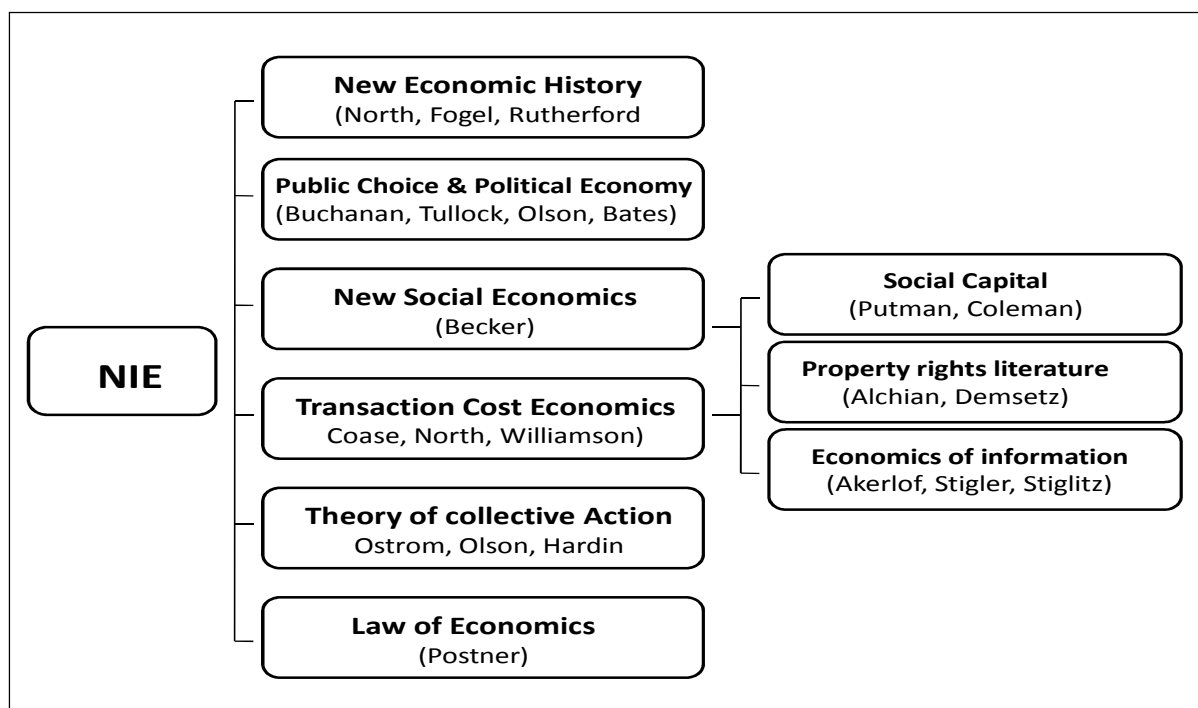


Figure 2.1: Branches of the New Institutional Economics

Source: Adopted from Kherallah and Kirsten (2002).

The second branch of NIE (i.e. public choice and political economy) reflects on the economic analysis of political systems and political decision-making. New social economics is the third branch of thought and deals with intra-household analysis, family economics and human capital.

The work by Putnam (1993), as cited by Kherallah and Kirsten (2002), on social capital falls within this framework, but social capital is also incorporated in transaction cost economics as an important element in cutting down the cost and uncertainty of market exchange (see Figure 2.1). Transaction cost economics is another branch of thought under the NIE. Central to transaction cost economics is the hypothesis that market exchange is not costless. Falling within the framework of transaction cost economics are property rights and the economics of information.

The fifth branch of thought entails the theory of collective action, which includes analysis on the manner in which interest groups use collective action to reach a common goal. The final branch of thought highlighted by Kherallah and Kirsten (2002) is the law of economics. This work was pioneered by Postner, who studied the use of various legal instruments such as regulations, litigations, and legal decisions, using a theoretical economic approach, and viewing players in the legal system as rational actors who attempt to maximise their returns from legal action and regulations (Kherallah and Kirsten (2002)).

However, these branches of thought are all captured within the social analysis framework as presented by Williamson (2000). The social analysis framework portrays four levels or types of institution that shape transactions and play an important role in understanding economic behaviour in a country or specific region. The following section will provide a more detailed discussion of the social analysis framework that the research will draw upon.

2.4 Framework of New Institutional Economics

The new institutional economics framework consists of four levels or institutions of social analysis: the level of social embeddedness, the institutional environment, governance structures, and finally resource allocation and employment. These four levels refer to the branches of thought/research fields as mentioned in the previous section, with each of these levels addressing a specific social issue. To get a better perspective, the four levels of social analysis are depicted in Figure 2.2.

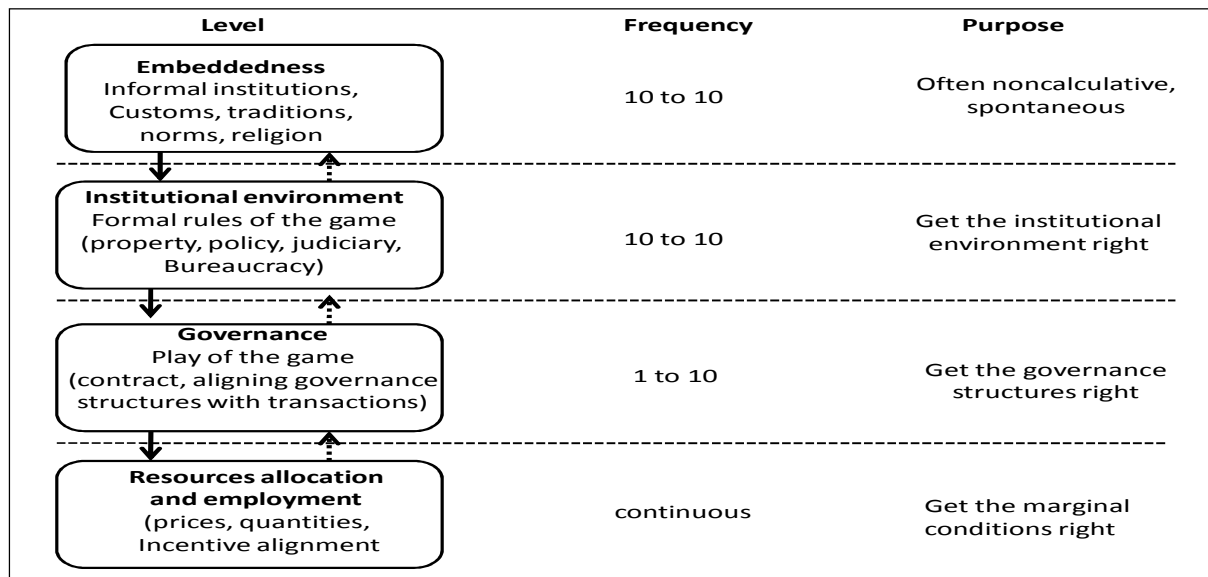


Figure 2.2: Economics of Institutions

Source: Williamson (2000) as adopted from Williamson (1998)

The four levels or institutions are fully interconnected with each other. This can be seen by the solid arrows that connect the higher with the lower levels to signify that the higher levels impose constraints on the level immediately below. The reverse arrows that connect lower with higher levels are dashed and signal feedback (see Figure 2.2).

Williamson (2000) notes that the NIE has been concerned principally with the institutional environment and governance structures. This does not imply that the other two levels are not important. Besides, these four levels are integrated with each other, with the one influencing developments within the other. The following sub-sections will therefore detail a discussion on all four levels to highlight the institutional aspects that each of these levels addresses.

2.4.1 Social Embeddedness

Social embeddedness is regarded as the first level of social analysis and refers to customs, societal norms and traditions (Jordaan, Grovè and Khaile 2008; Slangen, 2005 and Williamson, 2000). This levels of analysis is mostly regarded as a given, with the rate of change being remarkably slow. Jordaan, Grovè and Khaile (2008) underline that the slow rate of change is understandable considering the components out of which social embeddedness consist.

According to Williamson (2000), it might take decades or even centuries to change. The level of embeddedness, however, has been advanced to explain why informal constraints have such a major influence upon the long term characteristics of economies. Besides, Putnam (1993), as cited by Jordaan, Grovè and Khaile (2008), is of the view that economists are increasingly interested in the role of culture as an explanation for why some countries and regions are rich and others remain poor. Beugelsdijk and Schaik (2001) are of the same view, stating that social capital is considered an important factor in explaining economic success. Jordaan, Grovè and Khaile (2008) regard culture as of major importance in the South African context, and this is especially true for the NWP, which is host to the old Bophuthatswana regions. Thus, although the social embeddedness of a society changes at a very slow rate, it remains important to consider in order to understand the behaviour of the society under consideration.

2.4.1.1 Social Capital Theory

The level of social embeddedness can be analysed using social capital theory (Jordaan Grovè and Khaile, 2008; Milagrosa, 2007 and Slangen, 2005). Putnam (1993), as cited by Jordaan Grovè and Khaile (2008), defines social capital as being “features of social organisations (for example trust, norms and networks) that can improve societal efficiency by facilitating co-ordinated action”. Other definitions include that of Coleman (1998), who suggests that social capital is “a variety of different entities with two common elements: some aspect of social structure, and the capability to facilitate actions of actors within the structure”, as well as North (1990) and Olson (1982), who define social capital as a “social structure plus the social-political environment including formalised institutional relationships that enables norms to develop”.

Moreover, social capital consists of observable but non-contractual elements such as trust, which is also considered by many social-economists as the most important social capital element. Beugelsdijk and Schaik (2001) define trust as the perception and interpretation of the other’s expected dependability. Moreover, Beugelsdijk and Schaik (2001) highlight several studies that have shown the importance of trust in economic transactions, which include amongst others: Williamson’s (1975, 1985, 1998) transaction cost theory; Ring and Van de Ven (1992) who have shown that informal, personal connections between and across organisations play an important

role in determining the governance structure; and Gulati (1995) who points out that both transaction cost elements as well as social factors are relevant and important in studying inter-firm relationships and co-operation. Trust is normally engendered in the form of a contract between two parties or alliances. Therefore, should trust serve as a substitute for the legal systems, transaction cost and the cost of running the economic system will be reduced.

Another function of trust within the context of social capital relates to information. Uzzi (1996) suggests that trust facilitates the exchange of resources and information that are crucial for rural transformation but are difficult to value and transfer via market ties. In addition, Malecki (2000), as cited by Beugelsdijk and Schaik (2001), proposes that through the economic and social relationships in the network, diverse information becomes inexpensive to obtain. Gulati (1998) elaborates by stating that “trust not only enables greater exchange of information, but it also promotes ease of interaction and a flexible orientation on the part of each partner”. Thus, it is evident from the literature that trust needs to be regarded as a very important part of ensuring successful rural transformation, as it serves as a mechanism that facilitates communication and co-operation between different groups and role players. This is especially true for the NWP, where trust seems to be lacking between the different groups and role players involved in rural transformation (i.e. government, industry bodies, commercial and emerging farmers, etc.).

The absence of trust in the NWP could partly be ascribed to institutional systems that are not functioning properly. Fukuyama (1995) states that in the case where institutions are functioning properly, the function of trust could be seen in the light of facilitating complex transactions. From this view, trust will lower transaction cost and contribute towards flexibility, which will assist with rural transformation. Moreover, Fukuyama believes that trust allows for the dis-embedding of social relations and for co-operation without the influence of power and markets. Korczynski (2000), as cited by Beugelsdijk and Schaik (2001), elaborates, arguing that the functions of trust are of crucial importance to advance economies (and subsequently rural transformation in the case of the NWP), given the increase in globalisation and the turbulent nature of most economies.

Other elements of the social capital theory include shared norms and social networks (Slangen 2005). According to Milagrosa (2007), the elements mentioned above also include volunteerism, reciprocity, associatedness, formal and informal organisations, traditions and beliefs. Thus, social capital can be either complex or simple, depending on its definition and the dimensions observed.

Furthermore, Beugelsdijk and Schaik (2001) note that social capital is acknowledged as being an important factor behind economic development, since trust, norms, and networks “boost economic and institutional machinery”. Putnam (1993), as cited by Jordaan, Grovè and Khaile (2008), adds to this by arguing that voluntary co-operation is necessary in order to facilitate contracting and monitoring among participants. Voluntary co-operation can be drawn from trust, while trust on the other hand develops from reciprocity and networks of civic engagement. It is also argued that social capital through social networks has proven to positively or negatively influence economic performance and aggregated productivity (Arrow, 1993; Solow, 1999, as cited by Slangen, 2005; and Milagrosa, 2007).

Jordaan, Grovè and Khaile (2008) suggest that the importance of social capital is complemented by research that shows that social networks influence economic performance and aggregate productivity. Such research includes that of Putnam (1993) who found that social capital has a major influence on horizontal networks, which in turn were found to play a major role in economic growth in Northern Italy. Jordaan, Grovè and Khaile (2008) are also of the view that within the South African context, the consideration of social capital remains of major importance, since co-ordination and co-operation between emerging farmers are advocated as a solution to include emerging farmers in the mainstream agricultural economy. Including emerging farmers in the mainstream agricultural economy will adhere to the national imperatives, as it will contribute towards reducing economic hardship and subsequently improved welfare for those involved.

Chuzu (2005), as cited by Jordaan, Grovè and Khaile (2008), highlights the link between co-operation, co-ordination and welfare. He argues that group activity may reduce transaction cost by improving the flow of important information between members. He further suggests that

group activity may promote consultative decision making as well as collective action, and lastly that it contributes to the “fostering of time-sensitive exchanges for mutual benefit by developing norms of civil behaviour, trust and reputation dissemination”. Murray (2005) further suggests that there is a reciprocal relationship between participation in group activities and trust, meaning that the more people participate in their community, the more they learn to trust each other and vice versa.

It is also important to note that the influence of social capital can be negative. This is noted as exclusionary social capital, meaning that the exclusion of others from entering the network is high. This might result in the network being sparse and exclusive. Milagrosa (2007) argues that this might specially be the case in tribal communities where communities are strongly tied by their culture, or in elite societies that are highly selective of members. Another negative social capital effect is the build-up of community pressure on individuals to perform or conduct activities that they would normally not do or the creation of conflicts among people of different networks with strongly distinct social capital. This is especially of relevance to the old Bophuthatswana regions within the NWP, with the majority of these lands being communally owned and ruled by Tribal Chiefs.

Murray (2005) has highlighted other negative aspects of social capital, which include, amongst others, “excess claims on individual network members due to free-riders; restrictions of the freedom of individual members of the network; and ‘downward levelling’ (in networks which are considered undesirable or sub-optimal)”. Moreover, the negative consequences of social capital are rather a result of “the structure of interactions and distribution of power within networks” than the theoretical construct of social capital (Murray, 2005). The fact that there is consensus that social capital affects economic development (albeit positively or negatively) emphasises the importance of considering the influence of social capital when making suggestions with regard to institutional arrangements. This is especially true for the NWP, as negative effects from social capital might seriously impact initiatives for improving the livelihoods of people residing in the former homelands of the old Bophuthatswana regions.

2.4.2 The Institutional Environment

The institutional environment is regarded as the second level of analysis in NIE, and refers to the formal rules and informal constraints that regulate the way transactions are carried out. Note that this level goes beyond the constraints of sanctions, taboos, customs, traditions, or codes of conduct of social embeddedness, by introducing “formal rules (i.e. constitutions, laws, property rights)” (Williamson, 2000). North (1991) elaborates by arguing that on the formal side, the institutional environment consists of private and public orders, policies, regulations, and property rights issues, while conventions, customs, traditions, common values and norms comprise the informal side. Thus, according to North, the institutional environment’s informal rules overlap with aspects of social capital. Ostrom and Ahn (2001), as cited by Milagrosa (2007), are of the same view, arguing that informal sanctions in the institutional environment that consist of non-political, non-economic and unwritten conventions such as taboos, traditions, customs and norms are also embraced within the social capital context. They suggest that the two are related because institutions establish incentives for people to act trustworthily by means of reward and punishment. Thus, similar to the social embeddedness level, institutions can supply information, advice and provide alternative conflict resolution mechanisms that encourage parties to cooperate.

As mentioned previously, the institutional environment is also one of the levels that the NIE is principally concerned with. It is often referred to as the rules of the game, with the institutional environment regulating transactions that aim to facilitate economic transactions and that have to be respected by all actors in the market (Hai, 2003). This is also the level on which the study will draw heavily in drafting institutional arrangements that could serve as guideline for successful and sustainable rural agricultural transformation in the NWP.

This level also plays a significant role in shaping events at the downstream or governance level. Good institutions will contribute towards a more favourable environment in support of economic growth and rural transformation (Milagrosa, 2007). Slangen (2004) has a similar view, arguing that well-organised institutions translate into good governance structures. Moreover, economic development and good institutions are mutually occurring reciprocal phenomena, with economic

development that demands and contributes towards good institutions and good institutions that create economic development (Milagrosa, 2007).

As mentioned previously, the institutional environment refers to the formal rules and informal constraints that regulate the way transactions are carried out, and which is the level from which the research will draw mostly.

2.4.2.1 The Formal Rules and Regulations

The formal rules referred to as the institutional environment encompass a variety of concepts. For instance, the agents involved in the production, marketing and distribution of agricultural products might need protection against opportunistic behaviour. These types of protection mechanisms and the manner in which the local government arranges these for the parties involved translate into the formal rules of the institutional environment. Milagrosa (2007) and Jordaan, Grovè and Khaile (2008) suggest that most of these interventions are price and pricing strategies, although some extend to the rules and regulations of governing transactions. Moreover, it is not only government that can arrange these protection mechanisms. This especially accounts for the field of rural agricultural transformation, where various role players (i.e. industry bodies, corporations, input suppliers, etc.) could co-operate in assisting and protecting new entrants against opportunistic behaviour. One often finds that small-scale or emerging farmers fall victim to opportunistic behaviour due to their lack of access to credit, product markets, infrastructure, etc.

Milagrosa (2007) argues that the amount of institutional support in terms of policies and regulations towards the production and marketing in a specific industry or sector reveals the extent of government's assistance to the sector. However, it is important to realise that for various reasons, government in South Africa is not always able to provide or commit the required resources to a specific industry. It is therefore necessary that the private agricultural sector should join government to assist in implementing and enforcing the formal rules of transactions within the agricultural sector. This is especially true for agricultural transformation, as new entrants are prone to exploitation, which will subsequently result in them being

unsuccessful. Moreover, Jordaan, Grovè and Khaile (2008) argue that formal rules have the purpose of ensuring that transactions are conducted in an efficient manner from society's point of view. They are imposed on the market and should be enforced by government with the co-operation and support of the role players within the agricultural sector.

The formal rules of the institutional environment consist mainly of private and public orders, policies, regulations and property rights issues. Jordaan, Grovè and Khaile (2008) suggest that of all the formal rules that affect the way transaction are conducted, property rights could be regarded as the most important. This is also especially true for the NWP, the province that is host to the former homeland of Bophuthatswana. As mentioned, most of this former homeland is owned and ruled by Tribal Chiefs, which makes access and rights to production on these lands very difficult. The Chiefs could therefore be regarded as the governing bodies that formulate and institute the formal rules and regulations on these lands. This might require that the institutional arrangements surrounding the former homelands should be reviewed to ensure access or rights to the land, which might contribute towards better social capital and improved trust in the region. King (1973), as cited by Ault and Rutman (1979), believes that the institutional structure of the traditional tribal village economy is an outdated anachronism. He argues that the traditional system impedes economic progress and should therefore be changed by external political means in order to eliminate all its vestiges. Improving social capital and trust could reduce transaction cost, which will contribute towards higher levels of success in rural agricultural transformation.

2.4.2.2 Property Rights

Property rights refer to the formal and informal rules that determine access to tangible and intangible assets and also the way those assets can be used (Herrera, 2005). Jordaan, Grovè and Khaile (2008) point out that the tangible assets referred to by Herrera (2005) include assets such as land, water, or buildings, while intangible assets include contract rights or patents, etc. Moreover, the formal and informal rules as defined by the property rights give the holder of those rights the right to derive value from the asset by using it as he sees fit; the right to exclude

others from using the specific asset under consideration; and the right to transfer ownership of the asset to another party (Jordaan, Grovè and Khaile, 2008).

The economics of property rights therefore address issues regarding the institutional environment. Coase (1960), as cited by Herrera (2005), argues the importance of property rights centred around the fact that externalities can be internalised if property rights are well-established. Coase elaborates that two private parties may internalise an externality through bargaining and negotiation if property rights are well established. This argument is generally known as the “Coase Theorem” and implies that in the presence of well-established property rights government involvement may be unnecessary. The outcome will be efficient regardless of who owns the property rights. Jordaan, Grovè and Khaile (2008) suggest that this argument is true since the initial allocation of property rights influences only the distribution aspects of the outcome.

Moreover, Herrera (2005) argues that the importance of property rights can be explained by two fundamental aspects of the economic system, namely: the condition of open access to resources (absence of exclusive rights), and common (or communal) property arrangements. In the presence of an open access form of property rights, nobody has decision-making power over the underlying resource (Challen, 2000, as cited by Jordaan, Grovè and Khaile, 2008). Thus, anyone may use the resource under consideration without the need to consult with another person. Moreover, Herrera (2005) suggests that open access as a form of property rights is broadly used as a point of reference when analysing property rights. Where open access is associated with a lack of decision-making power, common property refers to the situation where a collective entity such as a co-operative group owns the decision-making power. This will also be the case for communal lands, where the decision-making authority lies with the Tribal Chief. Herrera (2005) concludes that the study of property rights refers to “how people organise in society to design exclusion systems and governance structures”.

In South Africa, the concept of property rights, especially with regard to land, extends beyond the above. Challen (undated), as cited by Jordaan, Grovè and Khaile (2008), includes state property as well as private property in the equation. State property refers to the situation where

government has the power of decision-making. As for individual property, the decision-making power lies with the individual that owns the property. In general, property rights thus refer to the individualisation of ownership. Herrera (2005) describes the individualisation of ownership along a spectrum, with open access, where no individual has the decision-making power over the asset under consideration, at the one end. At the other end of the spectrum lies individual or private property, which gives the holder of the private property rights to the decision-making power. He concludes that “common property is the first step on the long and complex path from open access to individual ownership”.

Jordaan, Grovè and Khaile (2008) argue that although property rights can take a variety of forms, it is important to note that the relative efficiency of alternative property rights regimes is situation specific. Thus, institutions can be analysed based on the impact certain types of existing institutions have on the way human agents in the specific situation behave, and thus also on the way the economy performs.

Moreover, in South Africa, property rights are closely related to land tenure, which is a very sensitive topic. Land tenure refers to the right of an individual or group to use a certain piece of land. Tenure systems are normally divided into four broad categories: open access, communal, private and state, where the exclusivity of use defines the degree of tenure security (Tlou *et al.*, 2006). However, within the South African context, four different land tenure systems have evolved over time (Tlou *et al.*, 2006): freehold tenure, quitrent tenure, communal tenure, and trust tenure. With freehold tenure the owner of the land has full ownership and freedom in decision-making with regard to the way the land should be used. Note that most commercial farmers' land tenure in South Africa and the NWP relate to the freehold system. Under quitrent tenure, a person is allocated a piece of land with the right to commonage. Compared to freehold tenure, the holder of the quitrent tenure has to pay annual rent for this right. This type of tenure is also employed in the NWP, especially for emerging farmers, where rentals well below market value are charged for land. These lands are owned and managed by local authorities. Moreover, Tlou *et al.* (2006) cites Cross and Haines (1988), who argue that this form of tenure is still in use in many small rural towns.

The third form of land tenure is communal tenure, which is characterised by members of a settlement sharing certain rights to the land attached to their settlement. This type of land tenure is becoming a common sight in the vicinity of towns throughout the NWP. It is in these regions where the slow transformation of institutions in the NWP is most noticeable. Institutional frameworks have not contributed towards the governing of natural resources, which has led to unacceptable farming and grazing practices, and no conservation measures, etc. in these regions.

Another type of land tenure present in the province is the so-called trust tenure. According to Tlou *et al.* (2006), land under trust tenure consists of formerly white-owned land which is situated in proclaimed native areas. From the alternative land tenure systems (which assign certain property rights to individuals or groups) in South Africa it is clear that the type of land tenure that applies to the specific situation under consideration should influence decision-making. Thus, it is important to take into account the land tenure system that applies to a specific situation when drafting recommendations with regard to institutional arrangements and structures for improved rural agricultural transformation. Note that other formal and informal regulations also need to be taken into account in the process of improving the institutional environment.

Kherallah and Kirsten (2002) further report that property rights issues are also embedded in incomplete contract theory. The authors suggested that incomplete contract theory predicts that asset ownership should influence the incentives for a decision as to whether or not parties will invest. The effect refers to the impossibility of writing a contract that provides for all possible contingencies or outcomes, which increases the potential for opportunistic behaviour and hold-ups. Kherallah and Kirsten (2002) suggest that a solution for the hold-up problem might be achieved by changing the allocation of asset ownership between trading parties.

From the above, it is evident that property rights should be regarded as an important part of the institutional environment. In addition to the allocation of property rights, the institutional environment also consists of a set of other formal rules and regulations that impact on the production and marketing of agricultural products. Moreover, these formal rules and regulations are more important nowadays, given that producers are competing in a global environment

where consumers are becoming increasingly more sophisticated. Consumers not only demand choice, they also want quality, consistency and value (Kherallah and Kirsten, 2002). In order to produce competitively, producers need to meet the requirements specified in the formal rules and regulations of the institutional environment.

2.4.2.3 Informal Regulations

The informal rules of the institutional environment are known to overlap with aspects of social capital. Milagrosa (2007) reports that informal sanctions in the institutional environment consist of non-political, non-economic and unwritten conventions such as taboos, traditions, customs and norms. This is where the informal rules of the institutional environment and social capital embrace each other. As mentioned previously, the two levels are linked because institutions provide incentives for people to be trustworthy by means of reward and punishment. Institutions can provide information, advice, and alternatively, conflict resolution mechanisms that encourage parties to co-operate and behave trustworthily.

Milagrosa (2007) further argued that it is difficult to reform informal rules that have evolved and embedded themselves in society. This is especially true in communities that are culture-rich – including the former homeland regions of the NWP, which has customs that could be detrimental to economic growth. Remember, in certain traditions, small actions that do not appear to have any affect when done individually, may have potentially damaging effects when done by the whole community. However, Saleth and Dinar (2004), as cited by Milagrosa (2007), warn that institutions that try to establish a formal system that repels informal rules almost always produce negative results because of tension between altered formal rules and existing informal rules. This is because some negative customs might be sustained and upheld by powerful stakeholders in the region who live off the inefficiencies of the system. One should thus carefully consider recommendations made with regard to institutional arrangements, as they might have a negative impact on rural agricultural transformation in the NWP.

Finally, this description of informal regulations concludes the discussion on the theoretical framework for assessing the institutional environment. The following section will focus on the

theoretical framework of the third level of institutional analysis, namely governance structures. Recall that the NIE is also principally concerned with this level.

2.4.3 Governance Structures

As mentioned, the third stage of the institutional analysis framework is concerned with an assessment of governance structures. Mènard (1997), as cited by Milagrosa (2007), defines governance structures as “the ways to implement and operationalise the rules of the game as defined by the institutional environment”. Jordaan, Grovè and Khaile (2008) add to this by arguing that governance structures refer to the institutional framework in which firm’s structure and manage the exchange of goods and services. Thus, while the institutional environment sets out the rules of the game, the third level (governance structure) could be referred to as the “play or organisation of the game”. In essence, the governance structure refers to the way in which a transaction is organised within the rules and regulations defined by the institutional environment.

Herrera (2005) points out that it is important to remember that a transaction can be organised in a number of different ways, with different costs being incurred by each of the respective ways. He argues that the mere fact that different modes of governance exist implies that one should analyse and compare the alternative governance structures in order to choose the right one. Caution should however be taken when conducting these analyses, since transactions are known to be costly and Herrera (2005) therefore suggests that such analyses be done comparatively. Jordaan, Grovè and Khaile (2008) elaborate on this, stating that the comparison is based on the cost associated with the respective modes of governance. It is the consideration of this cost that furthermore proves to be a major benefit of using NIE to assess and develop potential governance structures, instead of neo-classical economics that assumes zero transaction cost (Jordaan, Grovè and Khaile, 2008).

2.4.3.1 Transaction Cost Economics

Transaction cost economics is one of the branches of the NIE with the underlying hypothesis that institutions are transaction cost-minimising arrangements (Kherallah and Kirsten, 2002). A firm is thus expected to choose the governance structure that will minimise the transaction cost

associated with the specific transaction. Coase (1937), as cited by Kherallah and Kirsten (2002), pioneered this work when he argued that market exchange is not costless. Milagrosa (2007) suggests that transaction cost economics can be used to analyse governance structures. The fundamental argument in transaction cost economics is that economic governance is a prerequisite for using resources in an economically optimal manner, and thus also for enhancing economic efficiency. Transaction cost economics as it relates to governance structures will therefore play an important part in ensuring sustainable rural transformation in the NWP.

The basic unit of analysis is another important concept of transaction cost (Williamson, 1998; Kherallah and Kirsten, 2002; Milagrosa, 2007 and Jordaan, Grovè and Khaile, 2008). Thus, before the transaction cost can be minimised it needs to be clarified what costs are considered to make up the transaction cost. Hai (2003) states that marketing and transaction cost is regularly mixed up in the literature, which might cause confusion. He elaborates by arguing that transaction costs include both the direct cost of managing relationships and the possible opportunity cost of making inferior governance decisions. Thus, transaction costs for example include the cost of obtaining relevant information before concluding a contract, bargaining cost, the cost of policy and enforcing contracts, etc. Transaction cost can thus be defined as the cost of running the market system (Hai, 2003).

In addition, North and Wallis (1994), as cited by Jordaan, Grovè and Khaile (2008), distinguish between transformation cost and transaction cost. According to them, transformation cost refer to those costs that are used to physically transform inputs into outputs, while transaction cost on the other hand refer to the costs associated with the transfer of property rights from one person to another. Compared to North and Wallis (1994), who distinguish between marketing and transaction cost, other researchers again include all the costs involved in trade, cost of intangibles, contract, monitoring and enforcement in their definitions of transaction cost (North, 1990; Kherallah and Kirsten, 2002; and Herrera, 2005). Although the definition that Kherallah and Kirsten (2002) attach to transaction cost differs somewhat from that of North and Wallis (1994), they too conclude that transaction cost is primarily concerned with the cost associated with the transfer of property rights (Jordaan, Grovè and Khaile, 2008). It is evident that transaction costs do exist and relate to the transfer of property rights. Williamson (1985), as

cited by Jordaan, Grovè and Khaile (2008), argues that it is important to understand what factors cause transaction cost. Moreover, reviewing these factors is especially important for the development of institutions that will assist in rural transformation.

2.4.3.2 Factors Causing Transaction Cost

According to Williamson (1985), as cited by Jordaan, Grovè and Khaile (2008), transaction costs have three main causes, with two that relate directly to the behaviour of the human agents who participate in the transaction, and the third that relates to the attributes of the transaction under consideration.

Bounded rationality is regarded as the first cause of transaction cost (Williamson, 1985, as cited by Jordaan, Grovè and Khaile, 2008). Williamson argues that although the intention of any agent who participates in a transaction is to behave rationally, the rationality of his/her behaviour is limited. This may be attributed to the fact that participants in the transaction are not able to foresee all the possible things that may occur or affect the transaction. Milagrosa (2007) elaborates by arguing that the inability of mankind to foresee all the possible things that may occur or affect the transaction implies that no contract can be created that would include contingencies for all forthcoming events.

The second cause of transaction cost relates to opportunistic behaviour, with people tending to behave in an opportunistic manner (Williamson, as cited by Jordaan, Grovè and Khaile, 2008). Herrera (2005) suggests that opportunistic behaviour has to do with deliberately making incomplete or distorted information available in calculated efforts to purposely mislead, distort and disguise contractual specifications. This is done to increase own benefits from the transaction. In this regard, asymmetric information, and thus also transaction cost, is a major outcome of opportunistic behaviour. Milagrosa (2007) states that the bounded rationality and opportunism as discussed above are considered to be the two behavioural assumptions of transaction cost economics.

The third cause of transaction cost relate to attributes of the specific transaction under consideration. Williamson (1985), as cited by Hai (2003), states that there are three attributes of transactions that determine transaction cost namely asset specificity, transaction uncertainty and transaction frequency.

Asset specificity relates to the ability of the specific asset to be transferred to alternative uses, or thus the opportunity cost that assets have for alternative use (Williamson, 1996). Asset specificity itself again can take a variety of forms. Those include amongst others physical asset specificity, human asset specificity, site specificity, dedicated assets, brand name capital, and temporal specificity (Williamson, 1998).

The second attribute relates to transaction uncertainty, which can take various forms. Hai (2003) distinguishes between primary and secondary uncertainty, while Milagrosa (2007) cites Verhaegen and van Huylenbroeck (2002), and Rindfleisch and Heide (1997), who distinguish between exogenous and endogenous uncertainty. According to Hai (2003), primary uncertainty arises from “random acts of nature or unpredictable changes in consumer preferences”. Relative to the definition of primary uncertainty, Milagrosa (2007) refers to exogenous uncertainty as uncertainty in either the institutional environment (changes in market policy, practices and regulations), or the market environment (variation in demand, changes in the price of complementary of substitute products). Thus from the definition of exogenous uncertainty there seems to be a link between exogenous and primary uncertainty as referred to by Hai (2003).

With regard to secondary uncertainty, Hai (2003) argues that it is the result of the lack of communication or the fact that it is impossible to control whether tasks are carried out strictly as specified in the contract. According to Milagrosa (2007) endogenous uncertainty refers to behavioural uncertainty and comes in the form of actions of key market players that affect how transactions are conducted. Thus, secondary and endogenous uncertainty again refer to the same type of factor.

Williamson (1985), as cited by Jordaan, Grovè and Khaile (2008), suggests that the last attribute refer to the frequency of transactions. Hai (2003) believes that the more frequently transactions

occur, the more justifiable it is to employ an expensive governance structure to reduce transaction cost. Milagrosa (2007) expands on this, arguing that frequent transactions require specific contract agreements in order to reduce risk, avoid opportunistic behaviour and prevent hold-ups.

Thus, it is clear that alternative transactions are exposed to different levels of transaction cost due to differences in the attributes of the specific transactions. The differences in attributes result in the need for different modes of governance in order to minimise transaction cost. The debate on governance structures will therefore conclude with a discussion on the alternative governance modes to reduce transaction cost. Reviewing these modes is also important for developing institutions that will assist rural agricultural transformation in the NWP.

2.4.3.3 Modes of Governance

Depending on the attributes of the transaction, a distinction is generally made between three types of governance structures (Williamson, 1985 as cited by Jordaan, Grovè and Khaile, 2008). These include the anonymous market and the hierarchy or vertical integration. However, Shelanski and Klein (1995) argue that between these two modes of governance lies a variety of hybrid modes such as contracts and partial ownership.

The market form of organisation is referred to as the default mode of governance, with market price providing the incentive for the exploitation of profit opportunities (Jordaan, Grovè and Khaile, 2008). Once a signal is received that the market price is going to change, market participants can quickly respond to this signal without having to consult with anyone else. The second mode refers to hierarchy or vertical integration. Shelanski and Klein (1995) argue that bilateral co-ordination or even joined ownership may be more desirable whenever more specialised assets are at stake in the transaction, or in the presence of thin product and input markets. The movement from market governance to hierarchy entails trading off high-powered incentives and autonomous adaptive properties of the market for added the safeguards and centralised co-ordinating properties of internal organisation (Macher and Rishman, as cited by Jordaan, Grovè and Khaile, 2008). Thus, in the presence of hierarchy governance structures, no

party can act on signals without consulting with the other party within the hierarchy relationship. Jordaan, Grovè and Khaile (2008) argued that the movement from market to hierarchy will only occur in the event of contracting hazards which cause the cost of procuring via market to be higher than that of internal production.

Thus from the discussion of market governance and hierarchy, the need for some intermediary governance structure is evident. As such, intermediary governance structure, Williamson (1985), as cited by Jordaan, Grovè and Khaile (2008), identifies a hybrid form of governance. The hybrid form of organisation deals with bilateral dependency without going so far as vertical integration. According to Jordaan, Grovè and Khaile (2008), the hybrid mode preserves ownership autonomy, which means that in the presence of a hybrid governance structure one party still act on signals without consulting the other party. Williamson (1985), as cited by Jordaan, Grovè and Khaile (2008), argues that long-term contracts are supported by added contractual safeguards and administrative apparatus such as information disclosure and dispute settlements machinery due to the existence of bilateral dependency. Thus, although the hybrid mode of governance still allows participants to benefit from the level of autonomy there are some safeguards to guard parties from opportunistic behaviour by other trading parties.

In conclusion, the number of modes by which the transaction can be organised emphasises the importance of selecting the right governance structure in rural transformation. Thus, when identifying the most efficient government structure for rural transformation, one should consider the specific attributes of the different transactions, given that the agents in the transaction may exhibit bounded rationality and behave in an opportunistic manner.

2.5 Resource Allocation and Employment

The fourth and final level of the NIE framework entails resource allocation and employment. Recall that this level is one of the two remaining levels that the NIE is not principally involved in. Moreover, Williamson (2000) states that this level is analysed with neo-classical economics in the form of marginal analysis where the firm is again described as a production function rather than a governance structure. This level, however, tackles the aspects that evaluate market

performance. Milagrosa (2007) argues that the evaluation process makes special reference to quantities produced and marketed, production and marketing cost, and price analysis in the form of farmers' and traders' shares of total market sales.

Weintraub (1985), as cited by Jordaan, Grovè and Khaile (2008), summarises the framework of neo-classical economics as follows: "Buyers attempt to maximise their gains from getting goods, and they do this by increasing their purchase of a good until what they gain from an extra unit is just balanced by what they have to give up to obtain it. In this way they maximise 'utility' -- the satisfaction associated with the consumption of goods and services". Similar to the view from buyers, producers again attempt to produce respective units of a good until the cost of producing the incremental or marginal unit (marginal cost) is just balanced by the additional or marginal revenue it generates (marginal revenue). At the exact level where the marginal cost equals the marginal revenue profit is maximised.

Weintraub (1985), as cited by Jordaan, Grovè and Khaile (2008), concludes that "The neoclassical vision thus involves economic 'agents', be they households or firms, optimising (doing as well as they can), subject to all relevant constraints. Value is linked to unlimited desires and wants colliding with constraints, or scarcity. The tensions, the decision problems, are worked out in markets. Prices are the signals that tell households and firms whether their conflicting desires can be reconciled." Neoclassical economics thus is concerned with the allocation of resources in an optimal manner, which is the level where profit and/or utility is maximised. By definition, the optimal allocation of resources implies that the resources are allocated efficiently.

2.6 The Institutional Environment in Developing Countries

Following the discussion on the different levels of the NIE and how they could relate to rural transformation or development, it seems appropriate to review the institutional environment in which development is taking place in low-income or developing countries. The FAO (2007) makes it clear, however, that developing countries are characterised by a lack of proper

institutions when it comes to rural development. In fact, the FAO (2007) attributes the failure of agricultural development in most developing countries to lack of proper institutions.

The FAO (2007) argues further that unsuccessful agricultural development in developing countries is due to several institutional shortcomings, which include among others a lack of structures that insure the timely and adequate supply of inputs to small-scale and rural farmers, a lack of credit, difficulties in obtaining foreign exchange, a lack of risk management and price formation mechanism, poor transport infrastructure and, sometimes, marketing and management insufficiencies. Moreover, the FAO (2007) reports that in many developing countries, weaknesses in basic infrastructure (such as for transport, utilities and communications) are major constraints for agricultural development. Infrastructure constraints affect the cost of continuity of production and the quality of products. Good infrastructure is also known to promote better information flows between communities and the rural and urban areas, and thus has the potential of linking farmers to markets for goods, input supplies and agricultural services (FAO, 2007).

In most developing countries, the institutional capacity for research and extension is also weak. As a result, the technology available is insufficiently adapted to local conditions and research results do not come up with a variety of technological solutions adapted to the range of socio-economic and agro-ecological conditions existing in the country. Lack of technology alternatives is often a constraint to irrigation development. Where techniques and technologies developed by research are available, their dissemination is faced with a number of difficulties, such as poor delivery of extension and training services that are not necessarily targeted to the appropriate users (FAO, 2007).

Valentinov and Baum (2008) are of the same view, arguing that development initiatives are often faced with markets that are characterised by a “weak institutional environment”, which inflicts high transaction cost, significant business risk, weak information flows, poor infrastructure, and weak enforcement of property rights. Kydd and Dorward (2004) elaborate by stating that the rural areas in developing countries, by virtue of their rurality, often exhibit poor roads and telecommunications; lack of a well-developed and diversified monetary economy; thin markets for agricultural inputs, outputs, and finance; weak flows of market information, difficult and

weak contract enforcement, and high risk of opportunistic behaviour from contractual partners of agricultural producers. Terluin (2001), as cited by Valentinov and Baum (2008), suggests that the level of transaction cost due to insufficient governance in rural areas is much higher than in urban areas, making it the single biggest cause of failure.

The picture portrayed of the institutional environment in developing countries reflects one of inefficient governance structures and arrangements. The situation seems similar to that of South Africa and especially the rural regions of the NWP. Valentinov and Baum (2008) suggest that rectifying the institutional environment is the only means of addressing agricultural development. Moreover, Terluin (2001), as cited by Valentinov and Baum (2008), is of the view that institutional structures alternative to those of urban areas need to be put in place to satisfy the needs of rural farmers and dwellers. He further argues that these alternative institutional structures might take the form of mutual self-help groups, rural and agricultural co-operatives, rural partnerships, community-base organisations, producers' associations or NGOs. The primary function of these structures should be to lower transaction costs for those farmers involved.

2.7 Application of the New Institutional Economic Framework

Institutional economics has its roots at the start of the previous century, as do the applications of these principles. Table 2.1 reflects some recent studies that employ the concepts and principles of the NIE framework and derivatives thereof.

Table 2.1: Studies employing the concepts and principles of the NIE framework

Authors and Year	Method	Objective	Findings and suggestions
Kherallah and Kirsten (2002)	New Institutional Economic Framework	Summarise potential contributions of the NIE to agricultural policy in developing countries	NIE well suited to analyse economic problems in agricultural industry, from highly sophisticated food supply chains to informal governing grading systems and standards.
Hai (2003)	Structure Performance Conduct, Marketing Channel Approach	Examines the rice marketing system and channels of distribution in Vietnam	Market structure can be characterised by competition, Non important barriers to entry exist, Degree of trader concentration is low,

Authors and Year	Method	Objective	Findings and suggestions
	and New Institutional Economic Framework		Products marketed are homogenous, Market information easy to obtain.
Slangen, van Kooten and Suchanek (2004)	New Institutional Economic Framework	To demonstrate that institutions and social capital play an important role in agricultural success in central and eastern Europe	Substantial improvements in economic institutions and social capital is still required in most central and eastern European countries.
Herrera (2005)	Four-step generic institutional model	Assessment of the governance of irrigated agricultural in Santa Elena Peninsula, Ecuador	Lack of sound institutional structures led to failure in irrigational system; Institutional framework can be applied for guiding reform process of institutional structures.
Murray (2005)	New Institutional Economic Framework	Investigating the relevance of social capital to central and eastern Europe	Social networks are becoming more important in light of accession to the EU, particularly when opportunities within and access to rural and region development programmes are dependent on existing networks.
Milagrosa (2007)	New Institutional Framework and Structure Conduct Performance approach	Analyse the vegetable production and marketing of indigenous people in Benguet, Philippines	Low social capital levels; Traditional marketing practices influence vegetable trade; Missing formal policies; Underdeveloped agricultural credit system; Governance structures optimally evolved (modes of organisation, terms of contracts etc.) Dual market structure.
Triantafyllopoulos (2008)	New Institutional Framework	Investigate whether land property structure affects local development patterns in Greece	Socially dispersed landownership is a structural resource that influences local development patterns.

As mentioned, the studies portrayed in Table 2.1 highlight only a few of the latest studies that employ the NIE framework or derivatives thereof to achieve their objectives. However, interesting to note from Table 2.1 is that certain authors employ methodologies that could be seen as derivatives from the traditional NIE framework or where they combine the NIE with other methodologies which also relate to the traditional NIE. Such work includes that of Herrera, Van Huylenbroeck and Espinel (2005) who employ a four-step generic institutional model to analyse

irrigated agricultural on the Peninsula of Santa Elena, Ecuador (PSE). The model was based on the NIE framework as developed by Williamson. However, adjustments to the traditional NIE framework allowed the authors to view institutions from a game-theoretic perspective as opposed to the traditional rules-based view of institutions. The difference between the viewing approaches is primarily captured in the way they define institutions. The traditional way refers to institutions as the rules of the game in society, or more formally, the human devices that constrain the ways humans interact. North (1990) suggests that this defines structured incentives in human exchange whether political, social, or economic. On the other hand, the definition of institutions stemming from the game theoretic approach implies that institutions are in an equilibrium situation as a result of repeatedly played games. Thus, the difference between the two concepts of institutions is the causal connection between both constraints and interactions. Mittenzwei and Bullock (2004), as cited by Herrera Van Huylbroeck and Espinel (2005), argue that the institutions-as-equilibria view studies how equilibrium behaviour leads to the establishment of human-made-constraints, while proponents of the institutions-as-rules view seems to focus on the impact of human-made-constraints on the (equilibrium) behaviour of individuals.

Another study listed in Table 2.1 is that of Milagrosa (2007), who conducted an institutional economic analysis of vegetable production and marketing in Northern Philippines. In the study she combined the traditional NIE framework and a Structure Conduct Performance (SCP) approach by positioning the SCP to operate within the traditional NIE framework of Williamson. The basic premise of SCP is that structure (number of farmers and traders, number and composition of markets, quality and quantity of infrastructure support) affects conduct (production and marketing practices including pricing) and finally, conduct affects performance (prices, quantities and income). The procedure provided a good reference framework for the study of Milagrosa as it allows a straightforward measure of market efficiency. The SCP was combined with the NIE as follows: analysis of structural aspects was combined with the institutional environmental level; conduct is situated in the governance structures level while performance was brought into the resource allocation level.

The traditional NIE framework and SCP as used by Milagrosa are similar in several ways namely: both work on the premises that levels affect each other by providing constraints or by influencing the outcome of the next level; individual components of the two approaches were similar in their analytical function (institutional environment comparable with structural aspect of SCP), and at the last level (resource allocation and performance), the objective of both levels is to measure efficiency. Despite the similarities, differences also exist between the two approaches, which, in short, reflect on the institutional environment, which deals with formal rules and informal norms, compared to structure that deal with a specific number and size of farms and farmers, etc. Similarly so for the governance structures of the NIE framework, which refers to the manner in which production and marketing activities are organised, conduct analysis include both governance structures as well as more detail such as the cropping practices of the farmer, marketing practices etc.

The study by Hai (2003) is another example where the traditional NIE framework was combined with other methodologies to reach the research objective. In this study Hai (2003) applied the SCP and marketing channel approach, together with insights drawn from the theory of institutional economics. The approaches were used as a guideline, to identify the different issues of the organisation of a liberalised rice market in Vietnam. Hai (2003) suggests that the model is a useful instrument to order the myriad of market features (marketing cost and margins).

In addition, several other studies which include that of Ault and Rutman (1979); Beugelsdijk and Schaik (2001); Slangen, van Kooten and Suchanek (2004); Murray (2005); and Triantafyllopoulos (2008) have used the NIE in its original form as depicted by Williamson (1998) to investigate institutions, institutional arrangements and governance structures on economic growth. However, Omamo (2006) argues that few contributions have been made by authors using the NIE framework to deal with the problems afflicting agricultural development in Africa. The relevance of the NIE framework to address problems that afflict agricultural development will therefore be discussed in the following section.

2.8 The Relevance of the New Institutional Economics for Agricultural Development

In Europe, the principles of the NIE are widely used in a developing context, especially with regard to economic growth and the impact thereof on agricultural development. Moreover, Menard (2001) suggests that the characteristics of NIE are based on a small set of concepts that are logically coherent and that provide powerful tools for delineating questions to be explained and for shedding light on a large set of facts and relationships among these facts. He notes that transactions and their related cost are the core of the NIE theory, especially in developing countries. North (2000), as cited by Kherallah and Kirsten (2002), shares this view and argues that:

“The cost of transacting, to put it in its bluntest form, is the key to economic performance. When I go to third world countries and look why they perform badly and examine how factor and product markets, one observes that the cost of transaction is high. The cost of transaction results in the economy performing badly because it is so costly for human beings to interact and engage in various kinds of economic activity that the result is poor performance and poverty and so on. Where this takes us, of course, is to try and understand why the cost of transaction is so high”.

From the statement of North (2000), it is clear that transaction cost is one of the key factors that highlight the relevance of the NIE in the field of development. Kherallah and Kirsten (2002), furthermore, argue that the NIE framework provides a mechanism to analyse and explain why the cost of transaction is so high in developing countries. One could elaborate by arguing that once the reasons for high transaction cost are identified in developing countries, rectifying these institutional flaws will provide an incentive for efficient production and for people to engage in economic activity. Kherallah and Kirsten (2002) are also of the view that the frequent occurrence of market failure and incomplete markets (because of high transaction cost and informal asymmetries) in developing countries cannot be explained by conventional neo-classic economics and require an institutional analysis. Many of the institutions or formal rules of behaviour that are taken for granted in developed countries and that facilitate market exchange are absent in developing countries. Therefore, the NIE is a useful framework that could help to

determine and initiate the institutions required to improve economic performance and development in low-income countries (Kherallah and Kirsten, 2002). Omamo (2006) is of the same view and argues that neo-classical economics is good at identifying and explaining problems such as diversified subsistence orientated agriculture, and what needs to be done about those problems, but it is largely silent on how to go about it. He suggests that the NIE is well-suited to formulating and answering “how?” questions.

Valentinov and Baum (2008) are of the same view, using the NIE framework to re-examine institutional response to rural market failures. The approach followed by the authors recognises that market failures can be addressed by different institutions in different ways. The work of Grosh (1994) complements this suggestion by using the NIE framework in a slightly different manner to examine market failure and incomplete markets through contract farming and vertical integration as a means of reducing transaction cost. This enables the author to develop theories which can explain why contract farming practices are seen as a mechanism for facilitating market exchange in developing countries. Grosh (1994) also argues that capital market failures, complex information and production risk may be the main reasons why contracting is used as a mechanism for market exchange, especially in Africa. He furthermore suggests that contract farming has the potential to provide good governance, and can be used to increase the income available to the rural sector. Other studies using the NIE to determine the role that contracts and vertical integration can play to overcome market failure in developing countries include amongst others: Hubbard (1997); Dorward, Kydd, Morrison and Poulton (2005); and Sartorius, Kirsten and Masuku (undated).

A study by Cook and Iliopoulos (2000) on co-operatives and other farmer organisations highlights another application of the NIE in developing countries, answering the “how?” questions noted by Omamo (2006). Advantages of organising farmers into groups include, amongst others, a reduction in the transaction cost of accessing input output markets, as well as improving the negotiation power of smaller farmers (Cook and Iliopoulos, 2000). However, Kherallah and Kirsten (2002) argue that the history of traditional co-operatives has not always been successful in serving the needs of its members. Cook and Iliopoulos (2000) share this view, arguing that co-operatives in developing countries have suffered from various

organisational problems and a lack of clearly defined property rights assignments that result in opportunistic behaviour, bureaucratic inefficiencies, and under-investment. However, they found that the NIE, especially through property rights and collective action, transaction cost, and the organisation or contracting theories, can inform the design of such organisations and co-operatives to prevent failure. Cook and Iliopoulos (2000) and Staal, Delgado and Nicholson (1997) conducted research in this area, focusing specifically on dairy cow co-operatives in Kenya and Ethiopia. They found that the new type or “new generation co-operative” is able to address the weaknesses of traditional co-operatives by strengthening the assignments of property rights to its individual members and reducing the incentives for opportunistic behaviour.

It is clear from the above that transaction cost plays an important role in economic growth, which emphasises the relevance of applying the NIE framework in studying transaction cost as a means of enhancing development. However, the level of transaction cost in an economy is also affected by other components of the NIE framework, i.e. institutional environment and social embeddedness. The study by Hubbard (1997) suggests that the formal and informal rules (institutional environment) that societies evolve or fail to evolve in order to reduce transaction cost, are argued under the framework of the NIE to be a key factor, determining the differences in economic performance among societies and subsequently their level of development. Moreover, findings from the study of Triantafyllopoulos (2008) suggest that property rights have a significant influence on transaction cost and subsequently on development patterns.

A study by Slangen, van Kooten and Suchanek (2004) further highlights the relevance of the institutional environment and social capital to agricultural development. The authors conclude by arguing that the institutional environment and social capital play an important role in economic development. This is based on their findings, which suggest that the protection of private property and freedom of exchange, consistency in monitoring environmental laws, governments that act neutrally and are not corrupt, and trust in government and people all contribute to agricultural success and economic growth. Beugelsdijk and Schaik (2001) elaborate, stating that the contribution of social capital to regional economic success is not only in the existence of social networks, but also the level of involvement. Therefore, transaction cost

(which reflects on the level of governance) is connected with the other levels of the NIE and should be treated accordingly.

It is thus evident from the literature that the NIE framework provides a mechanism that could be used to study the factors that inhibit economic growth and development in developing countries. In addition, Kherallah and Kirsten (2002) also suggest that the NIE provides a framework that could help to determine and initiate the institutions required to improve economic performance and development in developing countries. However, Casson, Della Giusta and Kambhampati (2008) argue that recent applications of the NIE are mainly used to determine the impact that institutions have on economic growth as a mechanism for development. Pande and Udry (2005) further suggest that although literature explaining the impact of institutions on development by focusing on economic growth is of fundamental importance for development economists and policy practitioners in that it suggests that institutional quality may cause poor countries and people to stay poor, it is also plagued by the endogeneity of institutions to growth. The authors therefore suggest that the need exists to provide a precise description of the mechanisms through which institutions play a role in determining development outcomes. Moreover, Casson, Della Giusta and Kambhampati (2008) suggest that from a development-orientated institutional perspective, one also needs to emphasise more explicitly the role of informal institutions in shaping formal ones, especially in developing countries. They argue that informal institutions shape formal institutions in developing countries through the operation of markets, and can emerge as the preponderant rules of interaction when formal institutions and markets fail. This is especially true for the NWP, with large parts of the province consisting of the former homelands, where informal institutions are the governing structures. These informal institutions (customs) shape the actions and interactions of the people in all social organisations (households, groups, villages as well as firms and governments). It is therefore important that informal institutions are considered when formulating institutional arrangements within a developing context.

Casson, Della Giusta and Kambhampati (2008) are also of the view that existing literature on institutions and development is limited in three ways, namely:

- It does not precisely define the prospective roles of formal and informal institutions in the development process. Institutions are seen in very broad terms as relating to certain political or economic rules and behaviour.
- It concentrates on the impact that institutions have on growth, rather than on development in the broader terms. Thus, concentration is more towards growth-ignition institutions rather than on growth-sustaining institutions.
- The literature accepts the reverse causality that is from development to the quality of institutions within a country in the context of cross-country regressions and therefore attempts to instrument for such endogeneity. It is unable to analyse the impact of institutions on the quality and sustainability of other institutions and through them on broader development goals like poverty, inequality, or general well-being.

Adding to the limitations of Casson, Della Giusta and Kambhampati (2008), to my knowledge, no literature has turned the traditional use of institutional economics to measure the impact on economic growth, to one where the concepts of the NIE framework and lessons learned internationally are used to develop an institutional framework that will ensure sustainable economic growth and development in a specific country or region. The need for such a study has been identified by Pande and Udry (2005), who suggest that the need exists to provide a precise description of the roles that institutions play in determining development outcomes. Moreover, Kherallah and Kirsten (2002) are of the view that NIE provides a useful framework that could help to determine and initiate the institutions required to improve economic performance and development in developing countries. The study will therefore pursue an alternative path, developing an institutional framework that will address the specific challenges that inhibit growth and development in the NWP.

2.9 Employing the New Institutional Economics Framework

Institutions are the key to achieving economic growth and subsequently rural transformation. However, most studies in the past have used the concepts of the NIE framework to analyse and understand the functioning of economics and the impact thereof on development. This study will follow a different path, using the framework of the NIE as a guideline to develop an institutional

framework that will address both the institutional limitations as described by Casson, Della Giusta and Kambhampati (2008) as well as the challenges inhibiting growth and development in the NWP. The following includes a few of the principles that will be considered in the formulation of the proposed institutional framework:

- **Social capital:** Several economists consider trust as the most important element of social capital. As already discussed in this chapter, trust is of utmost importance in ensuring successful development as it is able to reduce transaction cost, improve information flows, and facilitate the exchange of resources and information. Moreover, trust not only enables greater exchange of information, but it also promotes ease of interaction and a flexible orientation on the part of each partner (i.e. a mechanism that facilitates communication and co-operation between different groups and role players). Other elements of social capital that need to be considered include norms and networks, as these concepts are known to boost the economic and institutional machinery. The proposed institutional framework should therefore ensure that institutions and institutional arrangements are in place that will promote trust amongst the various participants in the NWP,
- **Institutional environment:** Formal rules and informal constraints that regulate the way transactions are carried out. This primarily involves all rules and regulation among the value chain (production, marketing and distribution) to ensure that the necessary protections are provided against opportunistic behaviour. As noted in this chapter, emerging farmers are prone to fall victim to opportunistic behaviour due to lack of access to credit, product markets, infrastructure, etc. Thus, the development of an institutional framework should be conducted in such a way that the institutions and institutional arrangements within the framework oppose potential opportunistic behaviour, ensuring access to credit, inputs, product markets, etc.
- **Governance:** Primarily concerned with transaction cost. High transaction cost is also regarded by several economists as the single most important factor causing agricultural development initiatives to fail. Moreover, it is argued that economic governance through transaction cost should ensure the optimal use of resources to ensure successful development. Thus, to ensure successful rural development, one needs to develop institutions that will reduce transaction cost. This could be done through institutional arrangements (modes of governance) that will address the factors causing transaction cost (bounded rationality, opportunistic behaviour, attributes of different transaction) in a specific region.

In addition, lessons from other studies and international experiences with regard to agricultural development programmes will also be used. One such study includes that of the FAO (2007), which argues that for development to be successful in most low-income or developing countries with large rural regions, a number of factors need to be in place that will address the “handicap” of the rural sector in terms of infrastructure, social services, technology, marketing infrastructure, and seasonal credit. The FAO study further suggests that these handicaps could be overcome with the development and implementation of a functional institutional environment, one that will address these handicaps.

However, substantial controversy surrounds the validity of NIE in providing an analytical framework to design institutions that would lead to economic efficiency in countries where markets perform well and economic efficiency is reached by efficient economic institutions (Herrera, 2005). This is surely not the case for the NWP, where the lack of appropriate institutions has produced incorrect incentives that have led to a perverse path of rural transformation. Thus, the high occurrence of development failure due to the functionality of the current institutional environment cannot be explained by conventional neo-classical economics and requires institutional analysis.

Moreover, concepts that originate from the NIE framework will therefore be carefully considered in the development of an institutional framework. The newly proposed institutional framework would attempt to stipulate institutional arrangements that will enhance rural development through the improvement of social capital, lowering transaction cost and ensuring that the institutional environment (rules of the game) supports the overall objective of improving rural development in the province.

2.10 Conclusion

This chapter deals with the framework of the NIE as well as its application. It is clear from the literature that the NIE framework consists of several research fields, each approaching their concerns at different levels and with different tools. Moreover, the NIE with its different fields is extensively used by economists to measure the impact or to determine the role of the NIE on

economic growth and the impact thereof on development. Results from these analyses suggest that the different aspects of the NIE play an important role or have a significant impact on the different levels of development. This is evident from the picture of development in low developing countries. Institutions in these countries are mainly characterised by improper governance structures which lead to low levels of success in agricultural development.

Moreover, the study will follow a different approach than that of recent literature that has used the NIE framework to quantify the impact that institutions have on economic growth and how this relates to agricultural development. In this study, the concepts of the NIE framework, together with lessons learned from studies in other countries will be used to develop an institutional framework that will address the specific challenges that inhibit agricultural development in the NWP. In this study, the NIE would therefore be regarded as a robust guideline that could help to determine the sort of institutions needed (either formal or informal) to improve economic performance and rural development. The challenge is to integrate all these research fields (NIE concepts) into an overall paradigm that will serve as the basis from which institutions can be formed to improve rural transformation in the NWP.

CHAPTER 3

Overview of the Socio-Economic, Economic and Institutional Profile of the North West Province

3.1. Introduction

The North West Province (NWP) is spatially a medium-size province, covering 116 320 km² or 9.7 % of the total surface of South Africa. The province was created in 1994 by the merger of Bophuthatswana, one of the former homelands, and the western part of the Transvaal, one of the four former South African provinces. The medium-size province is mostly rural in nature with much of the area consisting of flat areas of scattered trees and grasslands. The province is also host to a wide array of plant and animal species, ecosystems and habitats, which is largely due to the diverse nature of the province's landscape and variation in climate (Tswelopele Environmental, 2008).

The rural regions of the NWP accommodate 65 % of the inhabitants and have a low population density and a deprived infrastructure, especially in the remote rural areas. The province is also regarded as one of the poorest in South Africa. The mainstay of the economy of the NWP is mining, which generates more than half of the province's gross domestic product and provides jobs for a quarter of its workforce. In addition, the diverse nature of the province and its proximity to major metropolitan markets, with the province of Gauteng to the east and the country of Botswana to the west, creates vast opportunities for economic growth and agricultural development. However, in achieving its growth and development targets, the province is facing several challenges, foremost amongst which are the social imbalances in the province, the unsatisfactory performance of its municipalities, and a degree of financial instability.

The overview provided in this chapter is important for understanding the interrelated linkages between the socio-economic, economic and institutional profiles of the province when it comes to the development of an institutional framework that will promote agricultural growth and

development in the province. It will also provide important information for understanding the sectoral linkages between the different economic sectors involved when a shock (i.e. change in agricultural production due to changes in the institutional framework supporting agricultural development) is imposed on the economy or a specific sector of the province.

In the next section, the socio-economic status of the province will be discussed to provide a better understanding (contextualisation) of the current level of development in the province. Moreover, the socio-economic overview of the province will also provide valuable information on the state of social structures and institutions that will support agricultural development initiatives in the province. This will be followed by a discussion of the primary infrastructure that supports agricultural development as well as an economic overview of the province. The latter will provide a better understanding of the relative importance of the different economic sectors in the province. In the third section, the current institutional environment supporting agricultural development is dealt with, due to its importance in the study.

3.2. Socio-economic demographics

The structure of the population in relation to the province's economy is an important building block in understanding the reasons for agricultural development and underdevelopment. The structure of the population is discussed below, with specific reference to its profile, poverty, health, and social security indicators.

3.2.1 Population profile

The total population of the NWP in 2006 was estimated at between 3.3 million and 3.9 million. It is important to note that the change in the provincial boundaries due to the municipal demarcation process of 2005 saw the province lose an estimated 4 805 km² of its surface area, resulting in a population decline of between 499 700 and 825 977, depending on the source.¹ However, despite the reduction in the total population between 2005 and 2006, the province

¹ Both StatsSA and Global Insight are reputable sources of population figures.

reported a fairly moderate average annual population growth rate of 0.56 % from 1996 to 2006 (see Table 3.1).

Table 3.1: Population of the North West Province (1996 – 2006)

Source	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
StatsSA	3.35	3.40	3.48	3.56	3.53	3.66	3.68	3.79	3.80	3.82	3.37
Global Insight	3.49	3.53	3.58	3.63	3.68	3.73	3.77	3.82	3.87	3.91	3.09

Source: Tswelopele Environmental (Pty) Ltd (2007)

The moderate growth rate can be ascribed to several factors, with the prevalence of HIV/AIDS being one of the foremost contributors. In addition to this pandemic, tuberculosis (TB), which is more prevalent due to HIV/AIDS, along with a high infant mortality rate and a deficient healthcare system, have also contributed towards the low population growth rate experienced in the NWP.

However, despite the impact of health issues on population growth over the past decade, it is important to note the industrial and mining developments that are taking place in the province. These two sectors are showing tremendous growth, especially in the Bojanala Platinum and Dr Kenneth Kaunda district municipalities of the NWP. Growth in these sectors might in due time have the opposite effect, with potential migration affecting population growth in the future. Lehohla (2004) reported that the highest level of migration in the five years prior to the 2001 census was from the Gauteng Province to the Bojanala Platinum District Municipality (BPDM). This phenomenon was driven by growth in the mining and industrial sectors, with more employment opportunities being created.

Figure 3.1 shows the province's four district municipalities (Dr Ruth Segomotsi Mompati, Ngaka Modiri Molema, Kenneth Kaunda, and Bojanala Platinum) and 21 local municipalities. According to statistics from the Development Bank of Southern Africa (DBSA, 2008), the BPDM reported a 20 % decrease in its population from 2001 to 2006. Despite this, however, it remains the region with the largest population in the province. Most BPDM residents live in the former Eastern District region, which is also the most densely populated region in the province (208 people / km²) compared to the provincial average (29 people / km²).

Comparable to the BPDM, the Dr Ruth Segomotsi Mompati District Municipality (RSMDM) reported a 22.6 % decrease in its population, thus remaining the region with the lowest population and lowest demographic density of 10.43 people / km². In contrast to the aforementioned two regions, the Ngaka Modiri Molema District Municipality (NMMDM) and the Dr Kenneth Kaunda District Municipality (KKDM) reported a population growth of 9.4 and 27.7 % respectively. Growth in the population of these two regions has been stimulated by the mining and industrial sectors. However, this has also had a direct impact on the agricultural sector, with especially the agricultural and mining sectors competing for the same natural resources, i.e. land, water, etc. In addition, the migration of people into the region exerts increasing pressure on provincial resources to meet their food and social demands. This might further contribute to the migration of rural farm workers into urban areas, as these labourers seek increased levels of wealth and prosperity through employment opportunities associated with higher wages in the mining and industrial sectors.



Figure 3.1: District and local municipalities of the NWP
Source: ARC (2008)

Of the total NWP population in 2006, the Black (African) population group accounted for the largest proportion with 90.3%, followed by Whites (8.0 %), Coloureds (1.2%) and Asians (0.2%).

3.2.2 Age distribution

Figure 3.2 shows a breakdown by age group of the total population of the NWP for 2001 and 2006. From Figure 3.2 it is evident that the population of the NWP had a high proportion of people aged between 10 and 14 years in both 2001 and 2006. However, the highest proportion of the NWP population was in the age group 5 to 24 years, with an estimated 65.7 % of the population falling in the category 15 to 64 years, which by definition can be regarded as the economically active portion of the population.

However, the age distribution seems to have been entirely different for those involved in the primary industries and specifically in the agricultural sector. It is believed that this sector is aging at a rapid rate, mainly due to the inability of this sector to provide lucrative opportunities for the youth to participate in and remain employed within this sector (Provincial SWOT Workshops / Personal Interviews, 2008). Most of the youth tend to disconnect themselves from this sector to seek employment opportunities in other sectors. This is mainly driven by the environment within which the agricultural sector of the province operates, i.e. high levels of crime, political insecurity with regard to land ownership, poverty, etc. Moreover, technological developments have further contributed towards farming practices being more technologically advanced and oriented, resulting in fewer people being employed in the sector. Despite technological advancements that will result in fewer people being employed by the agricultural sector, improving the institutional environment will result in more lucrative opportunities and subsequently more people deriving an improved livelihood from the agricultural sector.

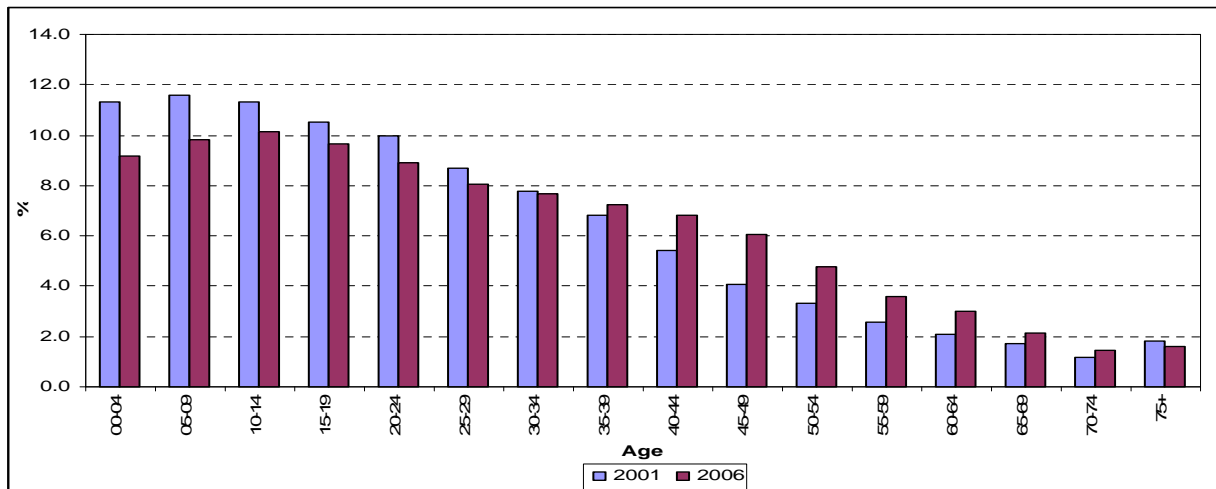


Figure 3.2: Total population by age group (2001 – 2006)

Sources: StatsSA (2003); DBSA (2008)

Furthermore, the RSMDM is the region in the NWP with the largest dependency group, with 41 people out of every 100 being economically dependent. People younger than 15 and older than 65 years are by definition included in the dependency group. Within the milieu of the region being the least populated and with the lowest population density, some concern might be raised with regard to the availability and accessibility of labour. The potential inability of the agricultural sector to access labour will strongly affect the productivity of the sector, and will indirectly influence the level of poverty and economic hardship experienced by the population of the region.

This is followed by the NMMDM (38), BPDM (31) and KKDM (30) in terms of the number of people out of every 100 who are economically dependent. Dependency ratios for the NWP seem high, which might raise concerns within the province. However, when compared to the 2001 national ratio of 59 out of 100, one might argue that the NWP’s ratio is reasonably moderate.

3.2.3 Economically active population

The potentially economically active population (EAP) is defined as the total population between 15 and 64 years of age. In 2006, 65.7 % (1.7 million) of the total NWP population could be classified as economically active.

A breakdown of the total EAP per district municipality for the NWP is shown in Figure 3.3. The KKDM is the region with the highest EAP (53 %) followed by the BPDM (49 %), NMMDM (39 %) and RSMDM (39 %).

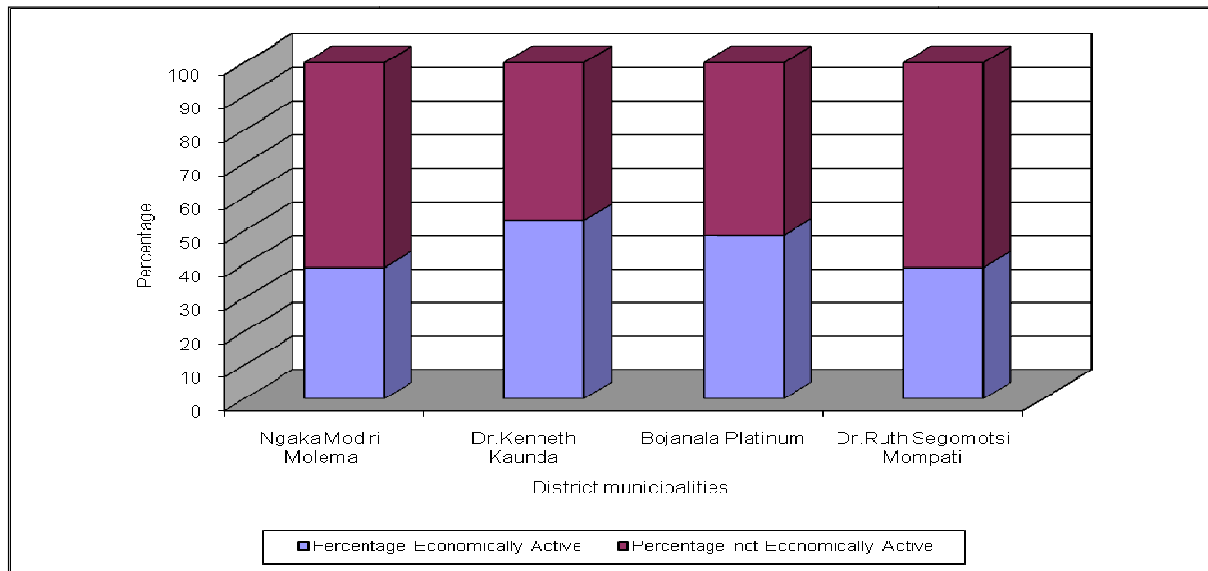


Figure 3.3: Economically active population per municipal district (2006)

Source: DBSA (2008)

Furthermore, it appears that the EAP per district in the NWP is fairly evenly distributed between the male and female population (see Figure 3.4). The highest levels of differentiation are evident in the BPDM and KKDM where the proportion of the male EAP remotely outstrips that of the female EAP. This can be ascribed to the employment dominance of the mining sector in these regions.

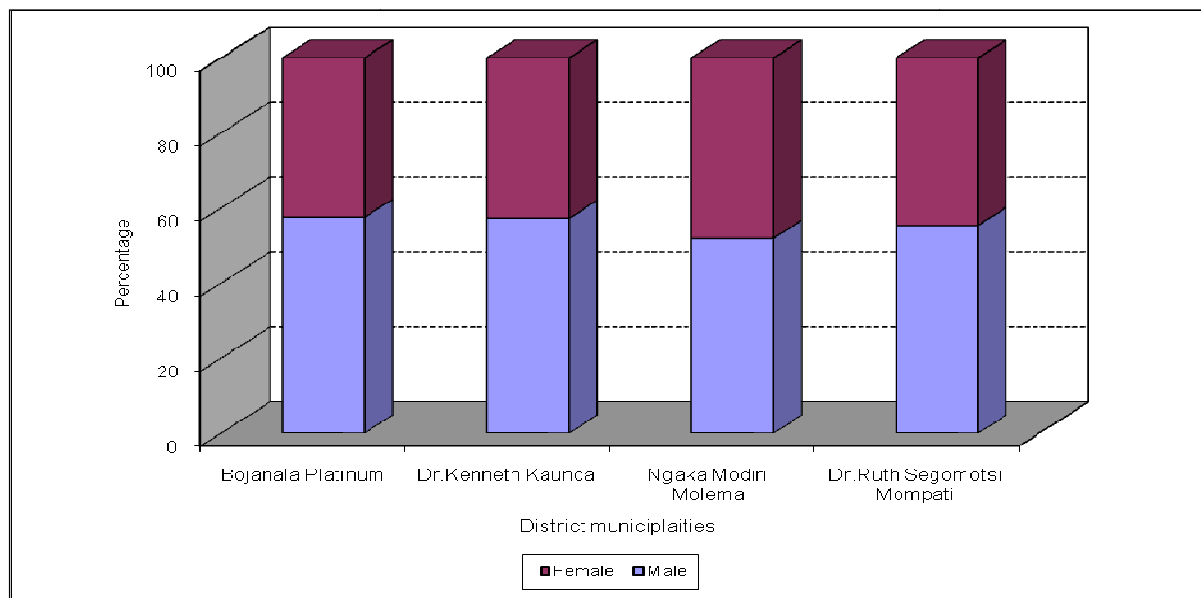


Figure 3.4: Economically active population distribution between males and females (2006)
Source: DBSA (2008)

The composition of the economically active population per race group compares closely with the provincial population composition, with 75 % of the Black (African) population being economically active, followed by the White (67 %), Coloured (92 %) and Asian (64 %) population groups.

3.2.4 Poverty

The high level of poverty in the NWP impacts on a wide range of interrelated issues, including the level of education, the level of employment, household income, disparities between urban and rural residents, population density, health concerns, and access to basic services. Moreover, poverty levels relate directly to the institutional framework present in the province. Thus, alleviating poverty has the potential to address a wide range of other social disparities within the province. This could be achieved through an improved institutional environment.

Moreover, agricultural development, against the backdrop of the rural nature of the province and its diverse natural resource base, makes it the ideal vehicle through which poverty alleviation initiatives can be instituted. However, the current environment of economic pressure, deprived

infrastructure, time-consuming and unsuccessful land reform and redistribution programmes, etc. within the agricultural sector needs to be improved. Such improvement could be brought about by an improved institutional environment which will form the basis of the successful alleviation of poverty through agricultural development.

Table 3.2 reflects the percentage of people in the province living in poverty. An estimated 52.7 % of the NWP population lives in poverty, and although relatively small fluctuations have occurred over the past five years, the 2006 level was 8.4 % higher than what it was ten years earlier.

Table 3.2: Number and percentage of people in the NWP living in poverty

Description	1996	1999	2001	2003	2004	2005	2006
Number of people	1 547 000	2 017 957	2 000 398	1 996 422	2 160 722	2 195 356	1 629 556
% of population	44.3	55.5	53.6	52.2	55.8	56.0	52.7

Source: Tswelopele Environmental (Pty) Ltd (2007)

This rate would have been even higher had the municipal demarcation in 2005 not reduced the population. This is a matter of concern, as it means that poverty reduction initiatives and policies that have been implemented over the past 10 years have not met the targets in terms of alleviating poverty in the province.

3.2.5 Unemployment

Unemployment can be seen as a central mark for poverty levels in the NWP. Figure 3.5 shows the levels of unemployment from 2001 to 2006. These levels are based on the expanded definition of unemployment, which includes people within the economically active population who had not worked during the seven days prior to the interview, those who want to work and were available to start work within a week of the interview, and discouraged jobseekers (those who were unemployed but had not taken steps to find work in the four weeks prior to the interview).

The rate of unemployment gradually increased from the late 1990s to a high in 2004, with a slight decrease to 41.7 % in 2006. This relates closely to the economic trends that were experienced in the province, with unfavourable macro- and micro-economic conditions in 2001 that negatively affected economic growth, leading to a 3.8 % increase in the level of unemployment. However, the provincial economy recovered in 2003, generating a 4.2 % increase in the number of job opportunities. Although the economy was growing at a slighter higher rate (6.3 % per annum) in 2004, it was unable to create sufficient job opportunities to sustain the same growth rate, which resulted in a moderate increase in the level of unemployment. In 2005, overall growth increased by 11.1 %, mainly due to the mining sector and associated enterprises. This growth contributed towards the moderate decrease in unemployment levels from 2005 onwards. However, despite the drop in unemployment between 2004 and 2006, the level of unemployment in the NWP remains around 1 to 2 % higher than the national average, ranking it as the province with the third highest unemployment level in the country, behind the Eastern Cape and Limpopo provinces.

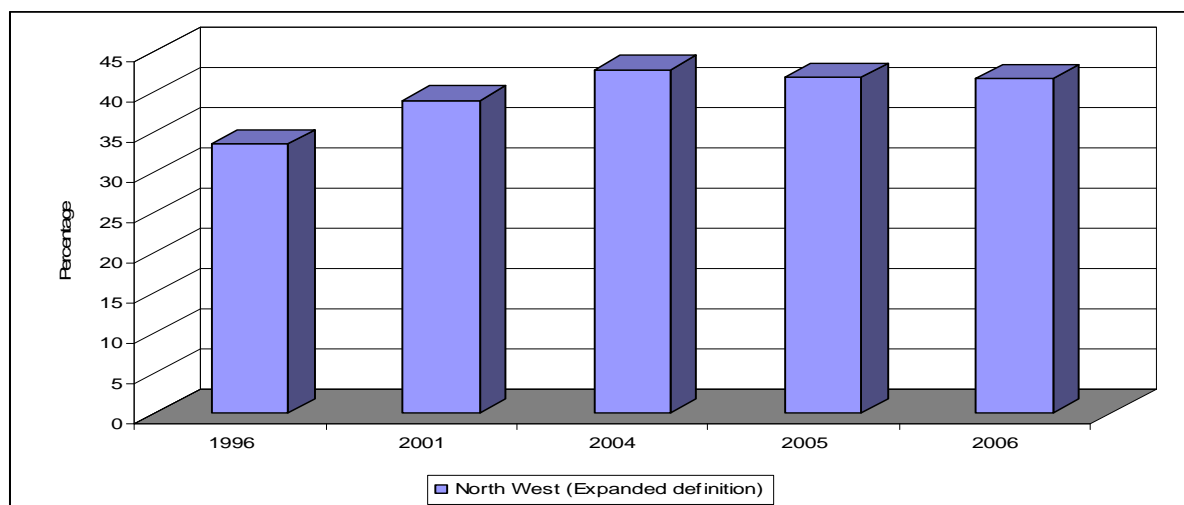


Figure 3.5: Unemployment in the NWP (1996 – 2006)

Sources: Tswelopele Environmental (Pty) Ltd (2007); DBSA (2008)

At provincial level, major inequalities exist between unemployed males and females, with the male population accounting for 78 % of the total unemployed population during 2006. In addition, based on 2001 data from Wharton Econometric Forecasting Associates (WEFA), PPT (2004a) estimated that the unemployment rate amongst the White female population of the NWP

was the highest in the country at the time, at an estimated 10 %, while that of the Black (African) female population of the NWP was second highest at 62 %.

The unemployment rate per district municipality amongst the various population groups is shown in Table 3.3. The unemployment rate amongst the Black (African) population is significantly higher than amongst the other population groups in the province. Furthermore, the unemployment rate amongst the female population far outstrips that of the male population in all districts of the province, with the highest unemployment rate present amongst Black (African) females. These discrepancies relate to the high level of dependency on the industrial and mining sectors as sources of employment (especially in the BPDM and KKDM), and these industries are known to predominantly employ males.

Table 3.3: Composition of the unemployed population by race and gender (2006)

Region / District	Black		White		Coloured		Asian	
	Male	Female	Male	Female	Male	Female	Male	Female
	%							
Bojanala Platinum	36.99	60.95	0.60	0.81	0.24	0.32	0.03	0.06
Ngaka Modiri Molema	40.84	57.13	0.25	0.28	0.58	0.84	0.03	0.04
Dr Ruth Segomotsi Mompati	41.23	53.65	0.28	0.36	1.91	2.47	0.03	0.07
Dr Kenneth Kaunda	32.84	59.84	1.60	2.36	1.33	1.95	0.03	0.06

Source: DBSA (2008)

Figure 3.6 reflects the share of employment per sector in 2006. Mining accounted for the largest percentage of employment, at 23 % of the NWP population. This was followed by trade (20 %), community services (19 %) and the agricultural sector (8.7 %). Together, trade and community services accounted for almost 39 % of employment in the NWP during 2006. However, it is important to bear in mind that although the mining sector employs just a quarter of the NWP population, other sectors such as manufacturing, electricity, construction and transport are highly dependent on the mining sector for their survival. Thus, any upsets and challenges in the mining sector could potentially affect other sectors in the NWP as well.

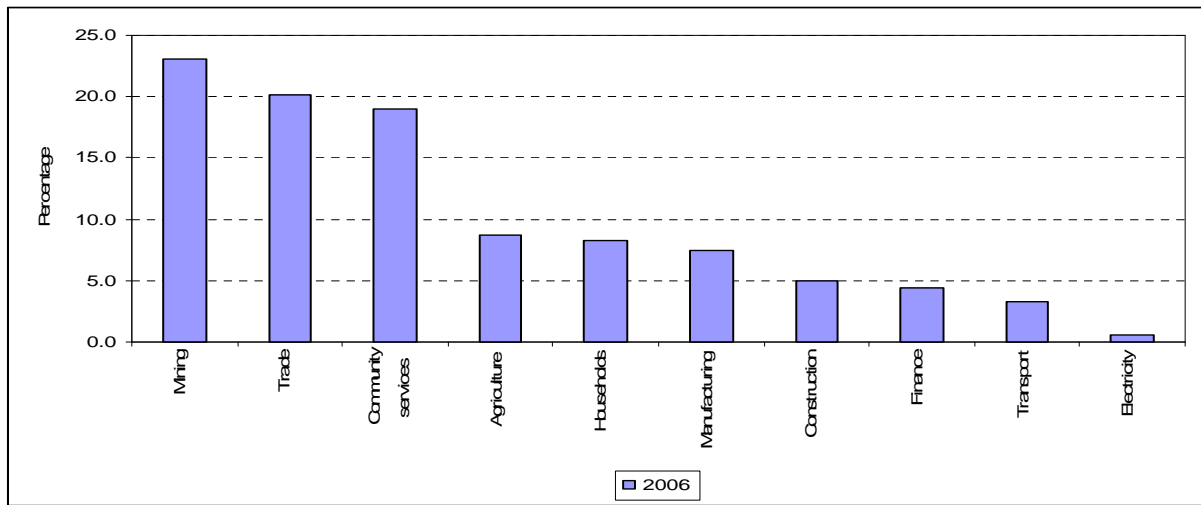


Figure 3.6: Employment per sector (2006)

Source: DBSA (2008)

Furthermore, although agriculture only accounted for 8.7 % of total employment in the province in 2006, it remains an important source of employment especially in the remote rural regions. Moreover, the agricultural sector is also more likely to play an even bigger role as an employer, with government targeting the sector as one of the main sectors for its development initiatives.

3.2.6 Education and literacy

Table 3.4 reflects the percentage of the population aged 20 years and older, by their highest level of education. In 2006, 12.6 % of the total NWP population had no education, with the Black (African) population accounting for 97 % of these individuals. In addition, an estimated 24.1 % of the NWP population had only primary schooling (Grade 0 to Grade 7) as their highest qualification, with 36.7 % of the population having no education or only a Grade 7 education and below. On the contrary, almost 30 % of the population had a Grade 12 or Standard 10 qualification or higher, with 63 % of this figure being accounted for by the Black (African) population and a further 35 % by the White population in the province.

Table 3.4: NWP population aged 20 years and older, by highest level of education (2002 – 2006)

Level of Education	2002	2003	2004	2005	2006
	Percentage				
None	15.06	14.29	14.83	14.07	12.66
Grade 0 / R to Grade 3 / Std 1	5.62	6.36	4.88	5.84	6.55
Grade 4 / Std 2	3.44	3.57	3.36	3.39	3.01
Grade 5 / Std 3	4.32	4.4	4.1	3.71	4.32
Grade 6 / Std 4	5.9	5.86	6.26	5.2	4.36
Grade 7 / Std 5	6.83	6.68	6.95	5.84	6.29
Grade 8 / Std 6	9.43	9.16	7.87	7.92	8.08
Grade 9 / Std 7	6.55	7.1	6.95	6.52	6.68
Grade 10 / Std 8	9.43	9.11	8.15	8.1	9.12
Grade 11 / Std 9	6.46	6.78	6.31	7.65	8.03
Grade 12 / Std 10	19.7	18.45	22.1	21.36	20.25
NTC I - NTC III	0.51	1.33	0.51	0.59	0.87
Diploma / Certificate with less than Grade 12 / Std 10	0.7	0.5	0.51	1.04	1.09
Diploma / Certificate with Grade 12 / Std 10	3.16	3.62	4.28	5.07	3.75
Degree and higher	1.95	1.97	1.93	2.9	3.97
Don't know / Unspecified	0.84	0.92	1.1	0.63	0.87

Source: Tswelopele Environmental (Pty) Ltd (2007)

The functional literacy (which indicates the percentage of the population over 15 years of age, who have completed grade 7 or higher) of each population group per district municipality is shown in Figure 3.7. In general, functional literacy for the province is estimated to be 58.5 %. This indicates the level of racial imbalance in terms of functional literacy, with only 40.8 % of the Black (African) population being regarded as functionally literate compared to the White (74.5 %), Coloured (53.5 %) and Asian (65.3 %) populations.

At district level, the RSMDM population has the lowest average functional literacy in the NWP, with 52.9 % of its population being regarded as functionally literate compared to 63.1 % in the BPDM, which is the region with the highest average functional literacy.

The level of functional literacy, especially in the RSMDM, holds the potential to negatively impact on especially the operational capabilities of the agricultural sector in the region. Literate employment opportunities in agriculture predominantly exist within agri-business and input supply companies, with these forming an integral part of the agri-supply chain. The success and competitiveness of agri-producers in this vastly rural region depends on the effective and

efficient functioning of their support structures in terms of agri-business and input supply companies.

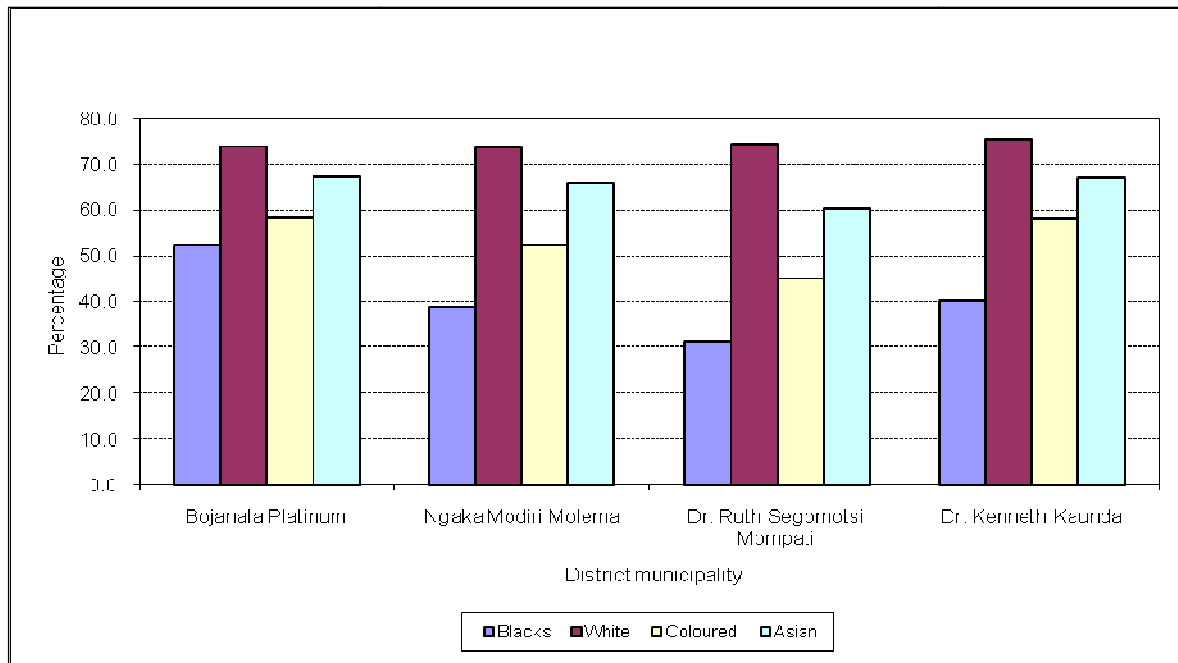


Figure 3.7: Functional literacy of each population group per district municipality (2006)
Source: DBSA (2008)

Furthermore, according to Tswelopele Environmental (Pty) Ltd (2007), functional literacy relates closely to the socio-economic differentials in the quality and quantity of education, which makes it difficult to achieve equity and empowerment in the labour market. A poorly educated population (as can be seen in the RSMDM) is limited in options and opportunities and subject to increased unemployment. Poor education also reduces the capacity of the population to meaningfully participate in society.

Moreover, low levels of education limit the percentage of the population that qualifies for tertiary education, which in turn leads to greater inequalities in the distribution of opportunities and wealth. This relates to the 69 % of the NWP population with a Grade 9 education or lower, with these people finding it difficult to find skilled employment and earn associated wages.

Thus, the poverty level of more than 50 % of the province’s population is potentially a strong driver inhibiting access to education for a large proportion of the population. Together with the high prevalence of HIV/AIDS, this is forcing many households into deprivation.

3.2.7 Income

A depiction of the annual household income per district municipality is shown in Figure 3.8. From this it can be seen that the Black (African) population is earning the least throughout all four district municipalities, with an average annual household income of R 45 787. They are followed by the Coloured (R 64 018), White (R 144 809) and Asian (R 180 204) populations. These income levels reflect a clear picture of the inequalities that exist between the different racial groups, and relate directly to poverty levels. This can also be observed from the Gini coefficient of the province, reported to be above 0.6, placing it among the most unequal regions in the world. Taljaard (2007) reported that the Gini coefficient of the province varies between 0 and 1, with countries or regions with a low degree of inequality normally ranging between 0.2 and 0.3 and those with a high degree of inequality ranging between 0.5 and 0.7.

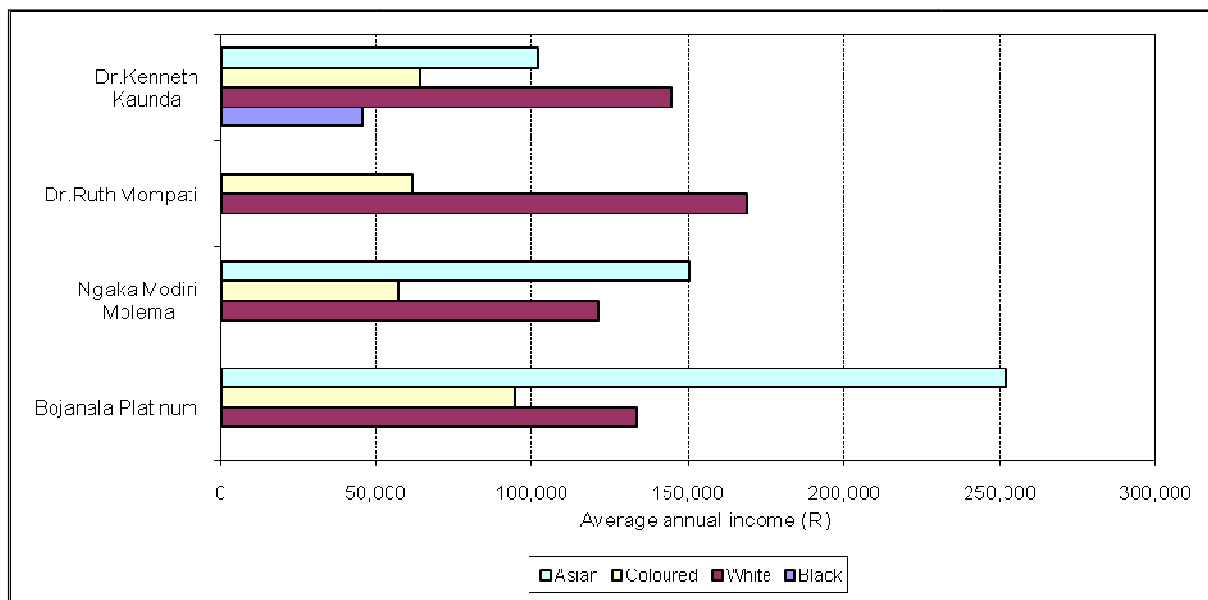


Figure 3.8: Average annual income of each population group per district municipality
Source: DBSA (2008)

Furthermore, it is estimated that in 2006, approximately 468 256 households, or 56 % of the total number of households in the NWP, were living below the minimum living level (MLL) – i.e. moderate poverty – while there was also a high number of people living in extreme poverty in the province. This suggests that the province is facing an increasing challenge in terms of absolute numbers falling in this category. However, according to Magomola (2008), targets set by the Provincial Growth and Development Strategy (PGDS) to measure the proportion of households living in poverty showed a 0.6 % decrease since 2004.

Despite the decrease in poverty levels according to the provincial PGDS targets, Magomola (2008) reported that an estimated 276 833 people were living in extreme poverty in 2006, representing 9 % of the provincial population at that time.

Before a final conclusion with regard to poverty can be formulated, indicators such as access to basic services – i.e. safe drinking-water, sanitation, electricity, education, free healthcare and shelter – must be placed in context. Figure 3.9 reflects the percentage of households that have access to the above-mentioned services. This graph was drawn up using data from the Department of Water Affairs and Forestry (DWA) and the Department of Local Government and Housing, as well as Statistics South Africa (StatsSA) data as used by Magomola (2008).

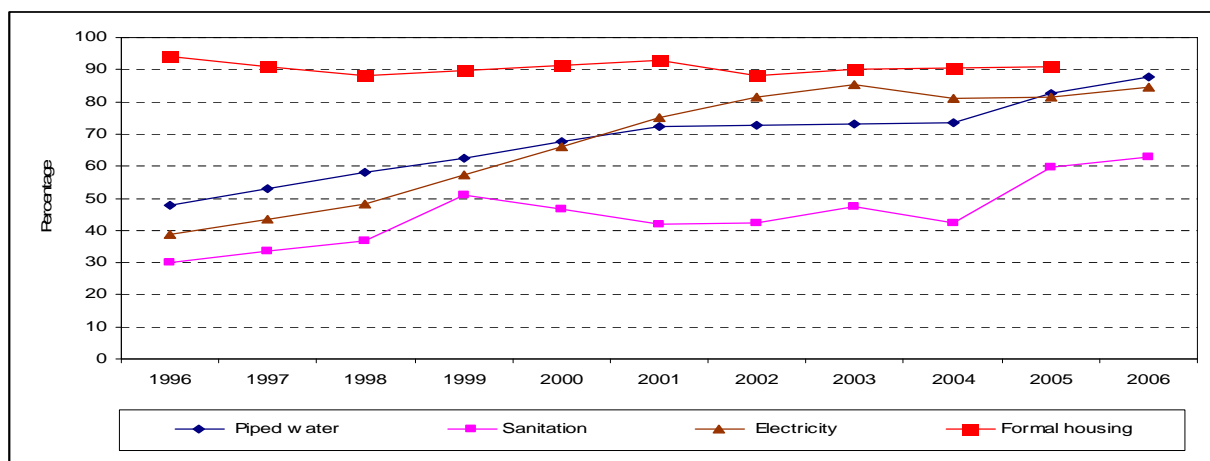


Figure 3.9: Household access to service delivery (1996 – 2006)

Source: Magomola (2008)

According to Figure 3.9, the quality of life of the provincial population has improved somewhat. This is reflected in the increasing percentage of households with access to piped water, electricity, and appropriate sanitation facilities. However, according to Mogomala (2008), household access to basic service delivery remains below PGDS targets. In addition, he stated that piped water and sanitation are the fastest improving categories, and he summarised the improvements as follows:

- Provision of piped water within a radius of 200 metres from the dwelling improved from 48 % of households in 1996 to 87.6 % of households in 2006.
- Access to sanitation improved from 30 % of households in 1996 to 62.7 % of households in 2006.
- Provision of electricity at dwellings saw rapid improvement between 1996 and 2001, although after 2001 access to electricity by households has been increasing at a much slower rate.
- A total number of 304 045 housing units had been constructed in the province by 2006.

However, a number of challenges are being experienced due to the rapid and uncontrolled establishment of informal settlements, thus exacerbating problems associated with service delivery. This also accounts for settlements in remote rural areas, where access to villages is constrained by deprived infrastructure.

3.2.8 Health and healthcare

The health of people, especially those living in remote rural areas, is predominantly influenced by environmental factors (i.e. social and natural). In the NWP, the vast majority of people find themselves in circumstances where factors such as air quality, water quality, sanitation, etc. have a direct impact on their health. This situation is further exacerbated by their everyday exposure to wood, coal and paraffin smoke from indoor cooking fires, etc. This highlights the importance of proper healthcare in the province, as it might well be one of the most important factors ensuring economic growth and a better standard of living for the people of the province.

According to Tswelopele Environmental (Pty) Ltd (2007), an estimated 25 to 33 % of the global disease burden might be related to environmental factors. This also applies to the NWP's healthcare system, its municipalities and its people, who are all being affected by environmental degradation, changes in biophysical conditions, inadequate access to basic services and healthcare, high levels of poverty, gender disparities, and structural inequalities. Furthermore, hardship has always been one of the causes of poor health, with poor people suffering from greater ill health due to multiple factors such as inadequate housing, water supply and sanitation, as well as poor nutrition.

In addition, the difficulty with which poor people access healthcare systems, which might be partly due to their geographical location and economic hardship (inability to afford transport, etc.) on the one hand, and the burden experienced by governmental support structures being unable to reach out to these people in remote areas on the other, contributes towards their already challenging socio-economic circumstances.

Table 3.5 illustrates the healthcare indicators and trends for the NWP, showing that the healthcare system experienced a 12 % decline in the number of doctors per 100 000 people of the population from 2001 to 2006. The number of nurses per 100 000 people also reported a 10 % decrease from 2005 to 2007 (previous year's data not available), with the number of hospital beds declining by 21 % (2001 – 2006).

Table 3.5: Healthcare trends and indicators (1996 – 2007)

Description	1996	1999	2001	2003	2004	2005	2006	2007
Life expectancy in years at birth	53.1		51	48.2	47.2	47.1	50.7	50
Population older than 65 years	134.9		159	194.4	156.7	190	196.1	176.8
Number of public sector doctors per 100 000 of population	10	11	15	32	14	9	10	
Number of doctors per 100 000 of population	12	17	17	10		12	15	
Number of medical practitioners per 100 000 of population						13.6	14.8	14.9
Number of nurses per 100 000 of population						90	88	81
Number of student nurses per 100 000 of population						17	20	24
Number of beds per 100 000 of population	3	2.8	2.3	1.6	1.6	1.6	1.8	
HIV/AIDS infection rate of woman attending antenatal clinics	25.1 %	23.0 %	25.2 %	29.9 %	26.7 %	31.8 %	29.0 %	
TB cases per 100 000 of population		469	528	526	560	711	702	
Number of public hospital beds	9 271	9 080	7 522	5 911	5 911	5 982	5 982	4 392
Number of private hospital beds	660	932	986	1005	1538			
Number of clinics								268

Source: Tswelopele Environmental (Pty) Ltd (2007)

However, despite the decline in overall government healthcare personnel and equipment (hospital beds), the support structures in terms of private doctors, private hospital beds, health practitioners and student nurses reported an increase in numbers for the period. Unfortunately, a large portion of the NWP population is unable to access the private health support system due to inequalities and poverty.

Additionally, in support of the health structure, numerous actions have been taken by local and provincial government to improve the health situation of the province. These actions were summarised as follows in the fifteen-year review of the province by the Premier's Office (Magomola, 2008):

- Increase in the number of public health facilities providing Voluntary Counselling and Testing services;
- Improvement of health facilities to render Prevention of Mother-to-Child Transmission (PMTCT) services;

- Creation/Improvement of the Community Home-Based Care Programme, which offers a basket of services including counselling, physical care, after-school support, provision of material relief, and prevention strategies;
- Intensified recruitment of professionals with scarce skills;
- Implementation of 24-hour Primary Health Care (PHC) services in each sub-district of the province;
- Development of a Hospital Facility Reconfiguration Master Plan;
- Construction of 23 health posts in Bojanala (15), Central (3), Southern (1) and Bophirima (4);
- Establishment of an EMRS training college to train emergency care technicians (ECTs) to meet demands;
- Design and submission of a provincial health structure for Environmental Health Services;
- Implementation of a Protein Energy Malnutrition Scheme;
- Training of doctors and nurses in clinical forensic medicine;
- Establishment of a database of key performance areas;
- Establishment of an effective labour relations environment.

3.2.9 Prevalence of HIV/AIDS

In South Africa, the public health situation is largely dominated by the HIV/AIDS pandemic, with the UNAIDS AIDS epidemic update for 2007 indicating that South Africa is the country with the highest number of HIV infections in the world. This will probably make it the single most important driver that will shape the future social and economic developments and trends within the NWP.

From Figure 3.10, the total number of people who are HIV+ and those already suffering from AIDS from 2000 to 2010 can be seen. When comparing the prevalence of HIV/AIDS in the NWP with that of South Africa during 2005, one finds that 31.8 % of people in the NWP were infected compared to 30.2 % nationally. This level of prevalence makes the NWP, jointly with the Eastern Cape, the province with the fifth highest number of infections amongst South Africa's nine provinces during 2005. In the fifteen-year review of the province 1994-2008, it was reported that HIV prevalence among pregnant woman was found to be slightly lower than

the provincial rate, at 30 % in 2005 and 29 % in 2006. In addition, a further decrease in the prevalence of HIV amongst young pregnant woman between the ages of 15 and 24 years seemed evident.

According to Figure 3.10, the infection rate continued to rise up until 2006, after which the number of HIV+ people is anticipated to decline in the run-up to 2010. The total number of people with AIDS will continue to increase due to previous infections (cumulative effect).

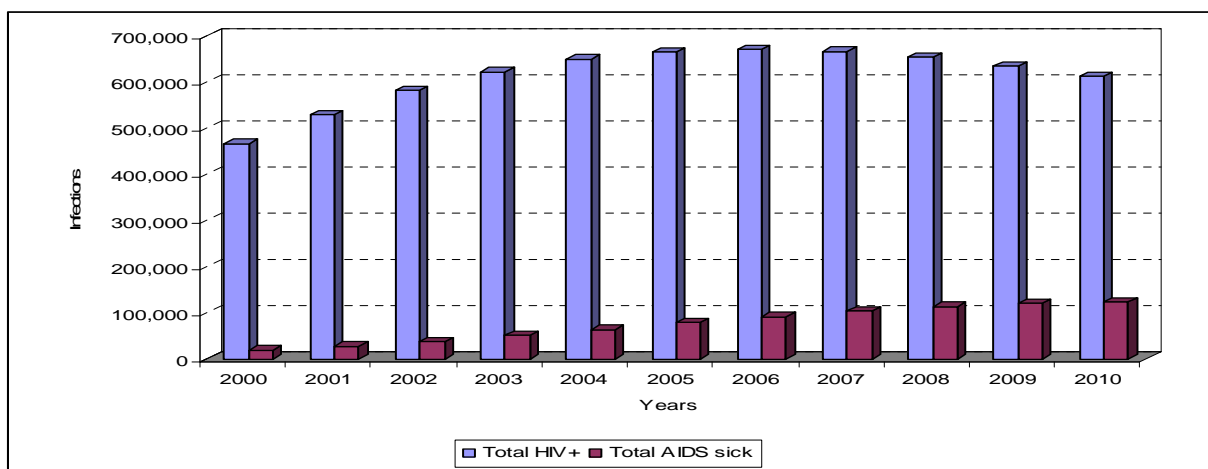


Figure 3.10: Total number HIV+ people and people sick with AIDS in the NWP (2000 – 2010)

Source: ASSA (2002)

In addition, HIV/AIDS could be seen as one of the major factors that will directly impact on the primary level of the agricultural sector. The disease negatively impacts on the productive potential of unskilled farm labourers, and subsequently on the productivity of the industry. This could lead to an increase in the rate of the adoption of technology to replace human resources, which will have negative consequences for the wealth and prosperity of rural populations.

3.2.10 Tuberculosis

Tswelopele Environmental (Pty) Ltd (2007) stated that the tuberculosis (TB) death rate is often used as an indicator of HIV/AIDS, since reduced immunity as a result of HIV/AIDS makes an individual more susceptible to contracting TB and eventually succumbing to the disease. Figure

3.11 reflects the trend of TB infections from 1999 to 2006 in the NWP. From this, it is evident that the infection rate increased substantially by almost 50 % during this period, from 469 infections in 1999 to 702 in 2006. Moreover, Tswelopele Environmental (Pty) Ltd (2007) reported that the number of deaths ascribed to TB in the NWP increased at a rate of 3.8 % from 2004 to 2005, and is similar to the rate experienced nationally.

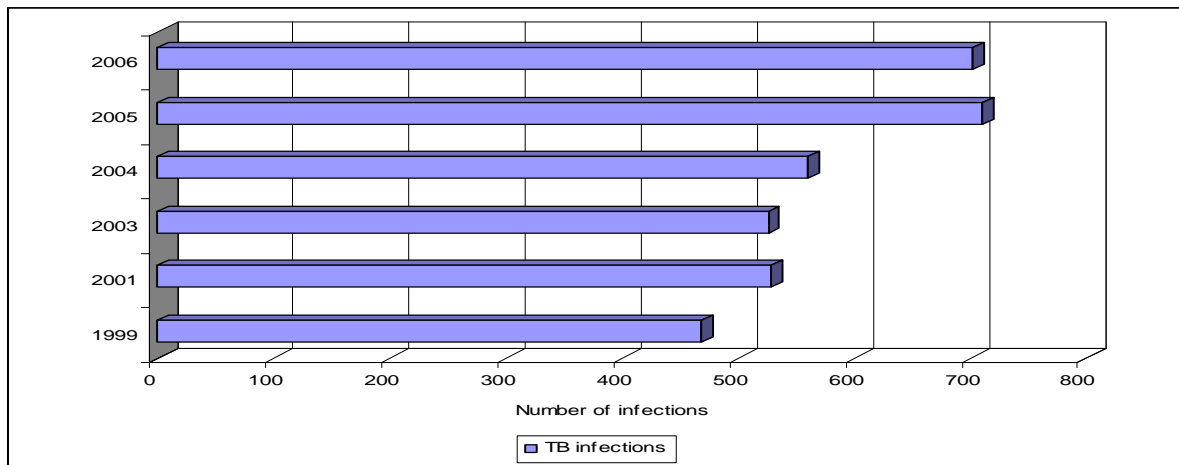


Figure 3.11: Total number of TB infections in the NWP (1999 – 2006)

Source: Tswelopele Environmental (Pty) Ltd (2007)

3.2.11 Life expectancy

In 2006, the life expectancy at birth of people residing in the NWP was 50.7 years (see Figure 3.12). This is almost the same as levels reported during 2001 (51 years). However, life expectancy at birth for the NWP population from 2002 to 2005 was significantly lower than that between 2001 and 2006. The higher life expectancy predicted for 2006 could be explained by government initiatives aimed at improving healthcare delivery in the province.

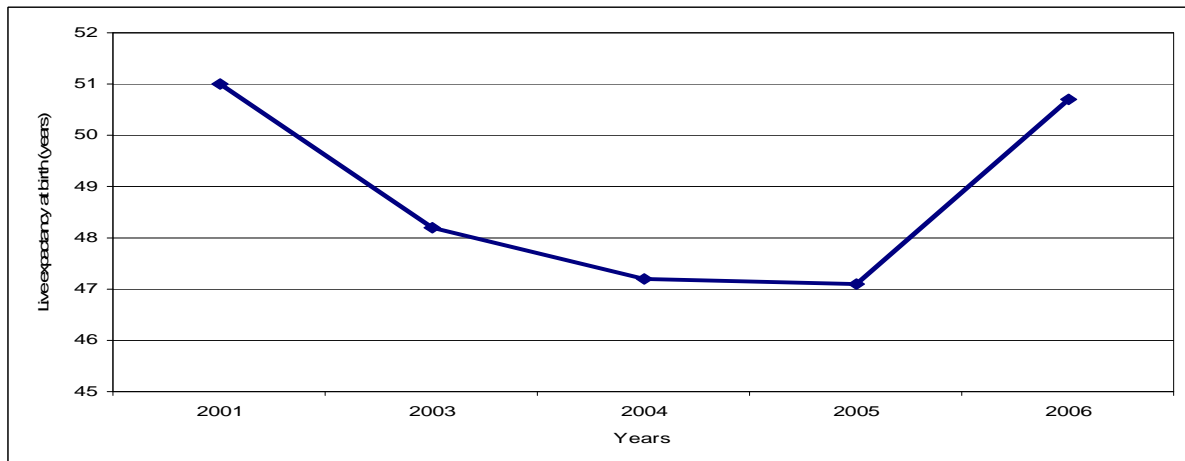


Figure 3.12: Life expectancy at birth in the NWP (2001 – 2006)

Source: Tswelopele Environmental (Pty) Ltd (2007)

3.2.12 Social security

In South Africa, the total number of people receiving grants increased from 2.4 million in 1996 to 11.2 million in 2007. The NWP reported a similar trend, with just over 1 million people in the province receiving grants, which implies that almost one third of the NWP population received some type of grant during 2007.

According to Tswelopele Environment (Pty) Ltd (2007), social grants and pensions in the NWP remain an important instrument in the fight against poverty, as they provide the “social safety nets” aimed at limiting social and economic inequality and uplifting the poor and marginalised. Provincial budgets provide increased allocations for social spending, because it is an area in which an almost immediate impact on people’s quality of life can be observed.

Table 3.6 reflects access by beneficiaries to social grants in the NWP from 1996 to 2006. During 2006 a total of 634 225 children in the NWP received care grants compared to 646 613 during 2007 (not shown in table). This reflects a 1.9 % increase from 2006 to 2007, with this number of grants being 244 times greater than in 1996.

Table 3.6: Access to social grants in the NWP (1996 – 2006)

Description	1996	1999	2001	2003	2004	2005	2006
Children receiving child grants	2 649	6 081	66 818	206 421	340 574	467 558	634 225
Elderly receiving pensions	130 083	146 845	161 019	172 046	178 676	184 016	193 446
Total beneficiaries of special grants	184 681	215 385	294 466	462 418	637 312	774 280	790 542
Old-age beneficiaries per 1 000 of the population	35.9	43.8	43.8	45.3	46.9	48.1	57.3

Source: Tswelopele Environmental (Pty) Ltd (2007)

Tswelopele Environmental (Pty) Ltd (2007) reported that the increased number of child grants could be ascribed to the significant increase (12.9 times) in the number of AIDS orphans present in the province from 2000. During 2007, AIDS orphans accounted for 3 % of the NWP population. With consideration of the prevalence of HIV, as well as the number of HIV-positive pregnant woman, it is highly likely that the number of AIDS orphans will increase in the near future, which could have a significant impact on social security (child grants).

Currently, as stated by Tswelopele Environmental (Pty) Ltd (2007), social security plays an important role in the lives of vulnerable communities. These grants have a significant impact in alleviating economic pressure on households and people associated with the recipients of these grants. However, questions might be raised regarding the long-term sustainability of the contribution of these grants, and unless other measures are put in place to create incentives for these people to participate in the economy, the number of people receiving grants will continue to increase, and the overall dependency on grants in the NWP will keep growing.

3.3 Economic structures and performance of the North West Province

In this document, the different economic sectors of the NWP are discussed to provide a better understanding of the relative importance of these sectors and the contribution of each to the provincial economy. As mentioned, it will also provide important information for understanding the sectoral linkages between the different economic sectors involved when a shock is imposed

on the economy or a specific sector. Firstly, an overview of the current provincial infrastructure is provided, followed by an economic overview. Due to the project's focus on agriculture, greater emphasis is placed on the agriculture sector of the province.

3.2.1 Infrastructure as a necessity for sustainable economic growth and development in the North West Province

The economically active population, coupled with the province's physical resources and infrastructure, is an important basic source for any economy to grow. On the supply side, the population has the potential to contribute to economic growth through involvement in labour market activities and entrepreneurship. On the other hand, physical resources provide the inputs required to produce goods, thus creating jobs and ensuring food security. Moreover, adequate and reliable infrastructure provides the physical linkages between different inputs needed for the economy to be functional. Therefore, in order to better understand the economic structure and performance of the NWP, the existing infrastructure and its conditions will be reviewed.

3.3.2 Rail and road infrastructure

In the context of the NWP economy, the rail and road infrastructure is the main connection for producers, manufactures and the mining industry to access local markets and input suppliers, i.e. physical inputs and/or human resources. At present, the absence of an international cargo airport in the NWP makes it difficult for local producers and manufacturers to unlock the potential of export opportunities. The request submitted by the Cabinet for an international trading licence for the airport in Mafikeng (capital of the province) holds vast potential in the near future for local producers to ease access to international market opportunities, contributing towards economic growth and stability in the province.

Figure 3.13 illustrates the railway infrastructure present in the province. Although an adequate rail infrastructure exists within the province, its functionality and reliability is questionable. Producers, local government and other role players within the provincial economy have strongly expressed their views with regard to the poor functionality and trustworthiness of the railway system (Personal interviews, 2008). Recently, high steel prices have contributed towards the problems already being experienced, with infrastructure (rails) being stolen and sold as scrap metal.



Figure 3.13: Railway infrastructure in the NWP
Source: ARC (2008)

Against this backdrop, the road infrastructure forms the backbone in ensuring physical linkages between the primary, secondary and tertiary economies present in the province (see Figure 3.14). Although an adequate road infrastructure exists in the province, increased pressure as a result of the railway system not being functional, along with the growth in the mining and manufacturing industries, has seen primary and secondary roads deteriorate to their current poor condition.

The poor condition of several roads and especially secondary roads in the province presents the agricultural industry with a stumbling block in ensuring economic growth and development. This is of particular significance for agricultural activities and linkages in the remote rural areas where producers are predominantly dependant on secondary roads to access their supply and product markets. Moreover, the condition of the roads – especially in the remote rural areas of the province – has far-reaching consequences that exceed the direct impact on agricultural and other industries. Poor roads have made it difficult, and in some instances impossible, for local government to assist populations residing in informal settlements in the remote rural regions of the province. Local government is not able to provide basic healthcare, education or financial assistance to these people. Their living conditions directly impact on the economic hardships they experience, with the majority being illiterate or not able to access employment opportunities that could improve their standard of living.

This situation has a significant impact on the agricultural sector, which is one of the leading employers of illiterate/unskilled people in the province. With poor roads making it difficult to reach rural settlements; producers are forced to compete for labour resources within other regions or industries, specifically the mining industry, which is the sector that accounts for the largest share of total employment. This will directly impact on wages paid for unskilled and semi-skilled labour, and subsequently on the sustainability of farming practices. The spillovers resulting from potentially higher wages will most probably not contribute towards the welfare of the rural poor, but rather towards that of people residing in the urban areas.

Thus, the operational infrastructure and especially the road infrastructure of the NWP is fundamental to the development of the provincial economy. The condition of this infrastructure will impact directly on each sector's performance in that it has a direct impact on the efficiency and sustainability of producers, manufacturers and the mining industry, as well as the socio-economic climate of the province.

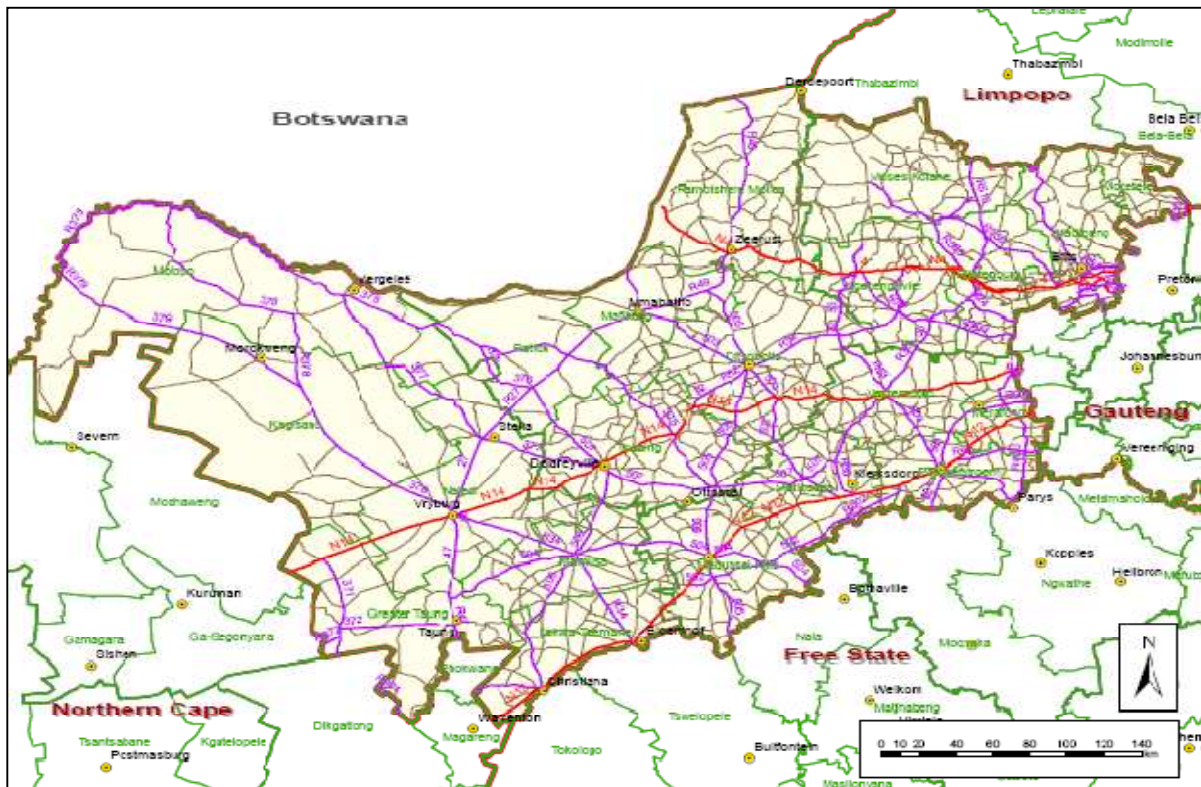


Figure 3.14: Road infrastructure in the NWP
Source: ARC (2008)

3.3.3 Electricity infrastructure and electricity supply to the agricultural sector

The electricity shortage that was experienced at the beginning of 2008 had severe consequences for both the national and provincial economies. In the NWP, electricity supply shortages contributed towards the challenges already being faced by the operational infrastructure, with most sectors in the NWP being highly dependent on electricity to remain productive and sustainable.

The mainly rural nature of the NWP and the rapid increase of informal settlements in the province make it difficult to provide electricity or access to electricity for the entire provincial population and all its economic sectors. However, using medium-voltage distribution lines and substations as a benchmark to examine infrastructure, with the red dots indicating the distribution substations (see Figure 3.15 below), it is evident that electricity availability is spread throughout most of the urban and semi-urban areas of the province, thus ensuring electricity

supply to the major economic sectors, which include the mining, manufacturing and agricultural sectors in the BPDM, NMMDM and KKDM (Figure 3.15).

However, some concern might be raised with regard to the availability of infrastructure to provide electricity to producers, manufacturers and individuals in the remote rural areas of the province. This applies especially to regions in the RSMDM, where agriculture is the foremost contributor towards the region's economy and its population's wellbeing. The inability of producers and the agro-industry to access electricity in these regions will negatively impact on the efficiency of their production practices. Multiplier effects that result from insufficient production practices could hamper potential growth and development in the agricultural sector, with producers and the agro-industry being unable to effectively utilise technology, i.e. internet, telecommunication, centre pivots, etc.

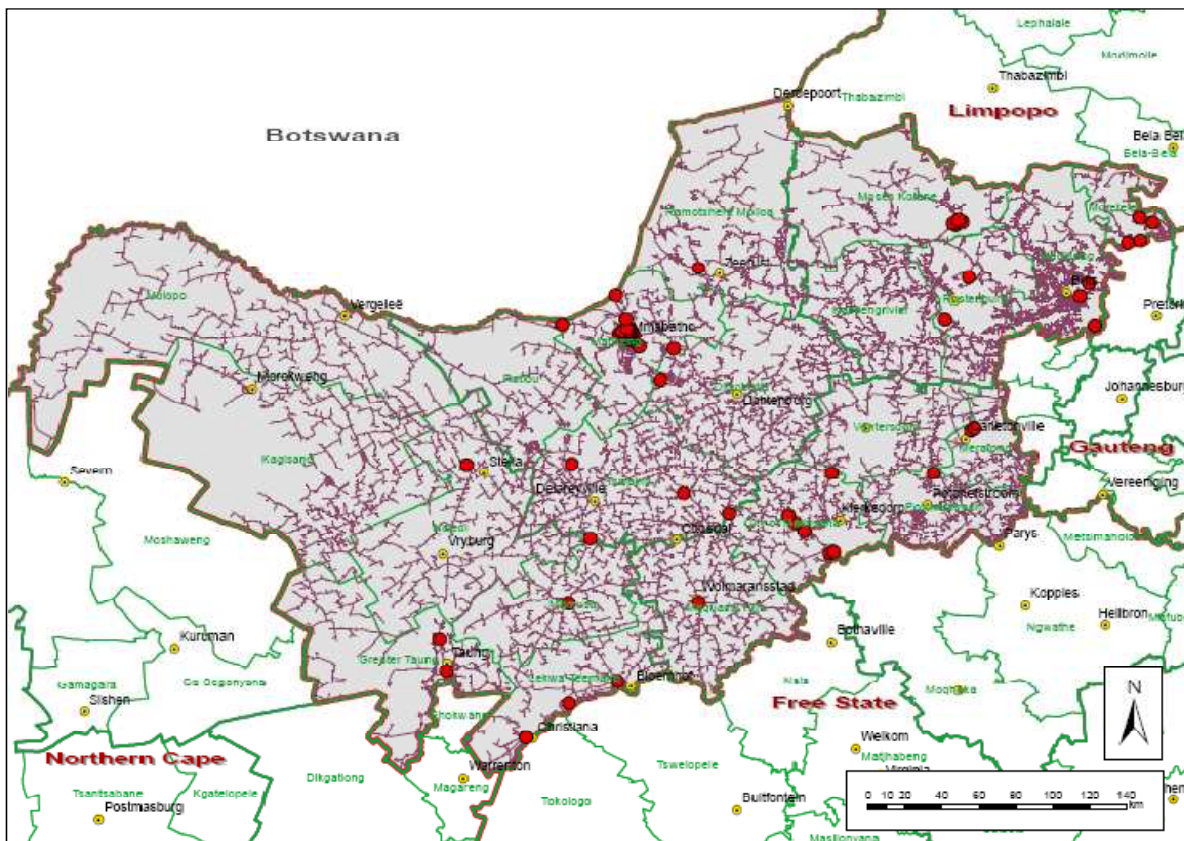


Figure 3.15: Medium-voltage distribution lines and substations in the NWP
Source: ARC (2008)

3.3.4 Agricultural markets

The NWP, with its diverse resource base and infrastructure, provides producers with the opportunity to grow and produce a wide range of products. However, crucial to the success of these enterprises is the availability and accessibility of markets and also proximity to those markets.

Livestock production accounts for a large percentage of the agricultural production practices in the province, with Vryburg, Stella and surrounding areas being classified as the region with the most suitable natural resource base for cattle production in South Africa. These areas are sweet veld which means there is less need for making hay or silage which is a major cost saving as machinery is expensive. Animal diseases are also less of a problem than in the higher rainfall areas. Other livestock enterprises are also present in the province, with a large number of mutton, dairy and goat producers (see Figure 3.28). These production activities are well supported by the availability and accessibility of livestock markets for either the live trade or slaughtering of animals. In addition, these markets are well within reach of most producers, with auction yards being situated in most of the medium to large towns. Auctions are normally held on a weekly basis throughout the province. Supportive of the livestock marketing infrastructure is the presence of several abattoirs in the province where animals can be slaughtered on a daily basis.

Markets for poultry are mostly concentrated in the metropolitan areas of Gauteng. However, the distance to these markets might be of some concern, especially for producers towards the north-western parts (RSMDM) of the province.

Similar to poultry, the major fresh-produce markets are mainly concentrated in the metropolitan areas, with markets in Klerksdorp and Welkom also being of significance to fresh-produce producers in the NWP (fresh-produce markets are indicated by the orange dots in Figure 3.16). However, only a portion of the citrus crop is marketed through fresh-produce markets, with the remaining part being packed for export markets or sold to a processing plant like that in Brits, which is owned by the Magaliesberg Citrus Cooperation (MGK).

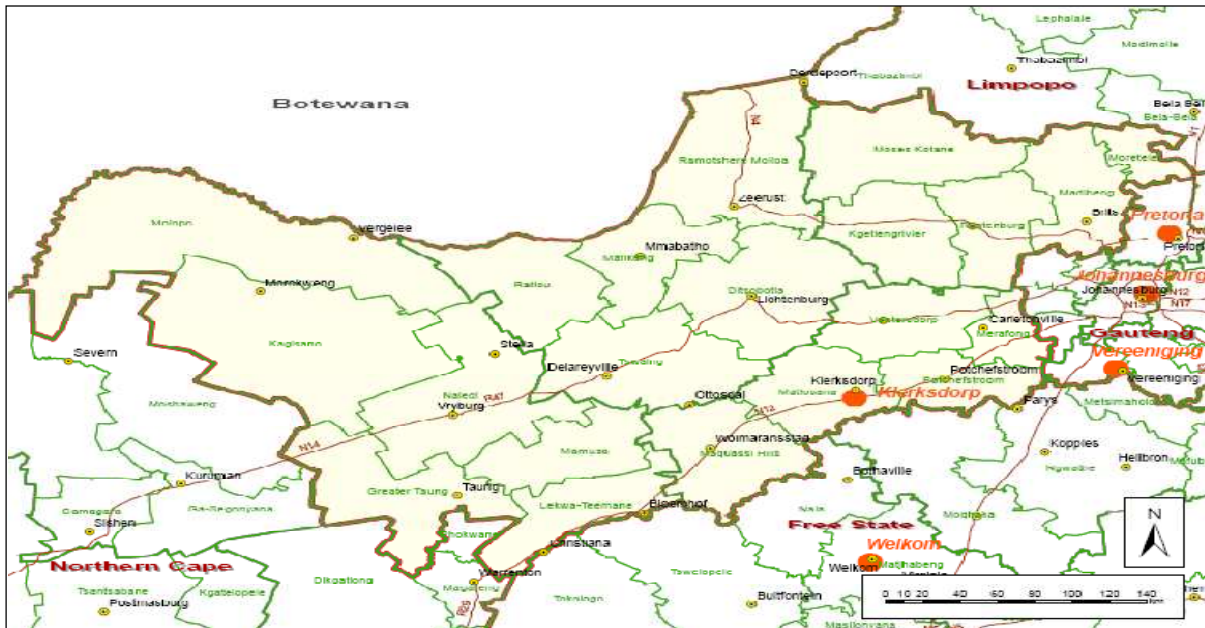


Figure 3.16: Markets for fresh produce from the NWP
Source: ARC (2008)

Furthermore, several producers throughout the province have successfully established long-term perennial enterprises (olives, pecan nuts, etc.), with producers within the proximity of fresh-produce markets (BPDM) being able to utilise this marketing channel. However, distance to these fresh-produce markets poses a problem for producers in the north-eastern parts of the province. Successful enterprises have made provision for potential on-farm processing facilities, which enable them to access higher value markets in and around their respective regions.

The predominant share of cash crops like maize, sunflower, wheat, etc. in the province is marketed through local agribusiness (co-operations). Although the marketing of these crops might be straightforward, one should bear in mind that the storage characteristics of most cash crops require that they be stored in enclosed areas. The delivery of these crops to such storage places is part of the marketing process. Therefore, the use of silo locations in the province could be seen as an appropriate barometer for cash-crop markets. Figure 3.17 shows the distribution of silos within the NWP. Most of these silos are situated within the central parts (NMMDM) of the province, with a few towards the north-eastern parts. The central parts of the province are associated with the so-called maize triangle of South Africa, with the majority of the NWP's maize and sunflower crops being produced in this region.



Figure 3.17: Distribution of silos in the NWP
Source: ARC (2008)

3.3.5 Water catchment areas

The NWP is known to have limited water resources, with the bulk of its water originating from the Vaal River system. This has resulted in water being transported over great distances, from high pumping elevations, to a number of rivers and dams, including the Buffelspoort, Hartebeespoort, Klein Marico, Kromellenboog, Marico Bosveld and Moletedi dams (see Figure 3.18). To control the distribution of water, the province is divided into 4 water management areas, namely Crocodile Marico, Lower, Middle, and Upper Vaal. From these management areas, the bulk of the water is distributed to the various municipal regions by the Rand, Botshelo, Sedibeng, Magalies and Midvaal water companies (North West Provincial Government, 2008).

Figure 3.18 shows most of the rivers in the NWP. Nearly all of the province's interior rivers can be described as seasonal and are not classified as reliable sources of water for human

consumption or productive use. Moreover, most of the rivers within the province are short in length with minimum dilution effects, and with the return flow negatively impacting on two of the major river-flow systems, namely the Vaal and the Crocodile.

The major sources of pollution in these rivers are urban/industrial effluent return flows, mining effluent and dewatering, diffuse resources, as well as non-compliant sewage works as a result of lack of financial and human resources, eutrophication, etc. Such pollution poses a threat to the urban, rural and agricultural uses of water in the province (North West Provincial Government, 2008). Furthermore, there is intense pressure on underground water resources to meet specific water demands, especially with regard to the rural, mining, and primary agricultural sectors.

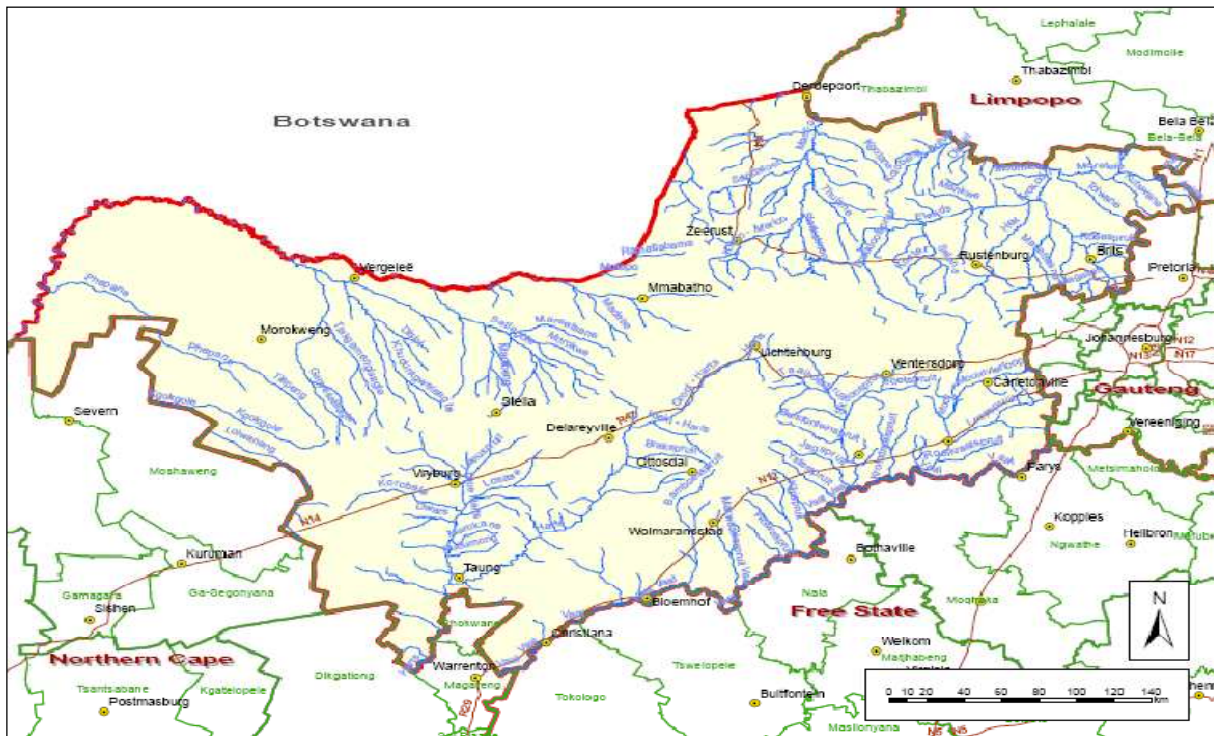


Figure 3.18: Rivers of the NWP
Source: ARC (2008)

Figure 3.19 provides an overview of the dams and irrigation schemes (the pink areas reflect cultivated land under irrigation, while the blue areas represent dams in the province). One of the major agricultural irrigation schemes, the Vaal-Harts irrigation scheme, is within the vicinity of the Bloemhof Dam, situated to the south-west of the province. The dam supplies water to

approximately 43 700 ha of irrigated land. Other major irrigated areas include the regions surrounding Brits and Rustenburg, with lands that stretch from the Hartebeespoort Dam to regions in the vicinity of the Groot Marico. Smaller irrigation schemes are present throughout the province.



Figure 3.19: Water bodies and irrigation schemes in the NWP

Source: ARC (2008)

Furthermore, several producers without access to catchment areas or rivers utilise underground water resources for the irrigation of cultivated lands. This, together with other industries that follow the same means to answer to their water needs, has put immense pressure on this resource.

Ultimately, acceptable infrastructure exists in the province for its economy to function accordingly, ensuring growth and development. Hence, some concern might be raised with regard to the functionality and conditions of specifically the road and rail infrastructure, with these providing the physical link between the primary, secondary and tertiary industries in and around the province.

3.3.6 Economic performance of the North West Province

The economy of the NWP is relatively small, having been valued at R 103 billion in 2006, thus making the province the third smallest contributor towards the national gross domestic product (GDP) with 6.4 % (StatsSA, 2007a). The NWP reported a real GDP growth rate of 4.4 % in 2007, compared to the slightly lower real GDP growth rate of 4.3 % in 2006. Despite the 0.1 % increase in the GDP growth from 2006 to 2007, the growth remained lower than the rate of 4.9 % in 2005 (see Figure 3.20).

The NWP's GDP followed a similar trend as that experienced nationally; however, the GDP growth in the province (4.3 %) remained slightly below the national GDP growth of 5.1 % in 2007 (not shown in Figure 3.20).

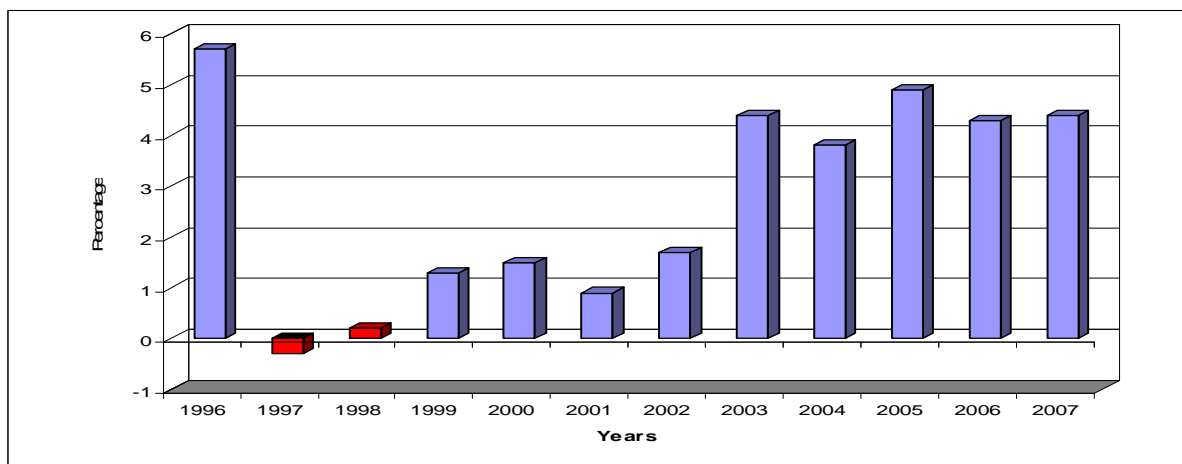


Figure 3.20: GDP growth of the NWP

Source: StatsSA (2007a)

Figure 3.21 shows the gross domestic product per region (GDPR) and the average annual GDPR growth rate (1996 – 2006) for each of the district municipalities in the NWP. In 2006, the BPDM accounted for nearly 56 % of the total contribution towards the NWP GDP (at 2000 constant prices), making this region the economic Mecca of the NWP. Moreover, the BPDM reported the highest average annual GDPR growth rate (3.3 %), followed by the RSMDM (0.9 %) and NMMDM (0.1 %). In addition, the KKDM revealed the smallest GDPR, with a negative average annual GDPR growth rate of 0.17 %, indicating that the region's economy is growing at

a slower rate than prior to 1996. The negative GDP growth rate reported by the KKDM is largely as a result of the negative 3.5 % average annual GDP growth rate reported by the City of Motlosana Local Municipality (Klerksdorp) and the negative 3.1 % reported by the City of Merafong Local Municipality. Other local municipalities in the KKDM, including the Maquassi Hills Local Municipality (Wolmaransstad, Leeudoringstad) reported a positive average annual GDP growth rate of 2.1 %.

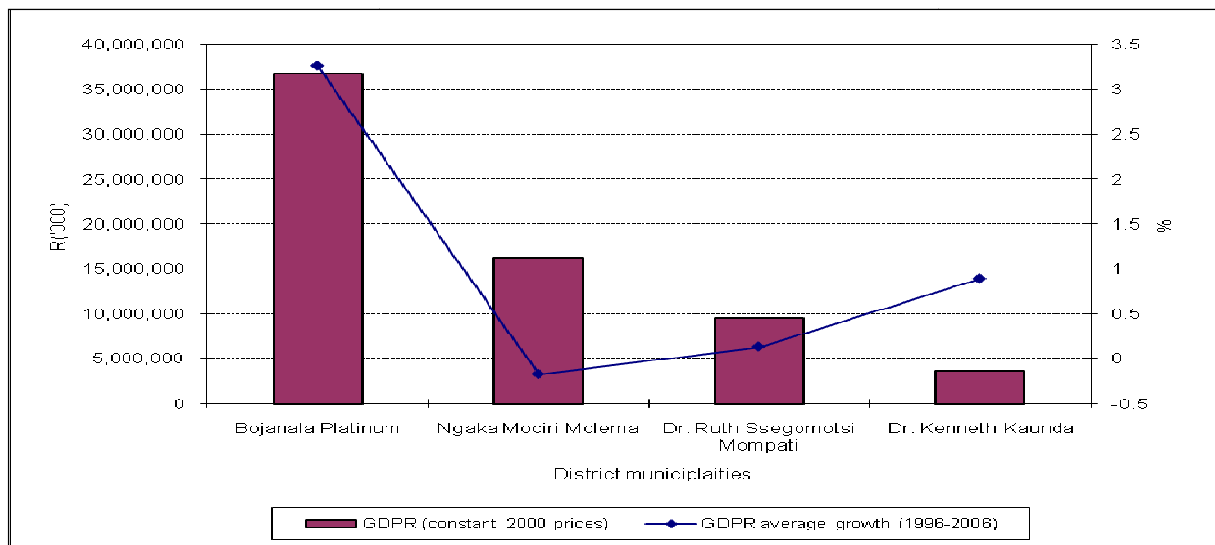


Figure 3.21: GDP per district municipality (2006) and average growth rate (1996 – 2006)
Source: DBSA (2008)

Moreover, the notable contribution of the BPDM could be ascribed to the diversification of this region amongst the primary, secondary and tertiary industries. The primary sector’s contribution towards the GDP of the BPDM is largely supported by the mineral resources present in the region. In addition, part of the region is characterised by ideal soil and climate and related infrastructure (close to metropolitan markets, dams, etc.), enabling the production of a wide variety of crops, including higher value horticultural crops. Moreover, the BPDM houses two of the largest cities in the NWP (Brits and Rustenburg), around which several of the major secondary and tertiary sectors are concentrated.

3.3.7 Economic sectors

According to the Pro-Poor Tourism Pilots Project in Southern Africa (PPT, 2004b), the main economic sectors of the NWP are the agricultural, mining, and tourism sectors, with these being seen as the main drivers for economic growth in the province.

Between 1996 and 2005, the NWP economy reported increased growth rates for all sectors in the province (see Table 3.7). Foremost amongst these were the agricultural and mining sectors, which reported an increase in their growth rates of 4.7 and 2.9 % respectively. In contrast to this, the transport sector showed a decline in its average growth rate of 7.9 % (1996 – 2001) to 2.3 % in 2005. Furthermore, compared to the national average, agricultural and mining were the only two sectors that reported higher sectoral growth rates than the national averages of 4.1 % and 2.4 % respectively. Despite growth rates for these two sectors being higher than the national averages, the 5.1 and 3.2 % growth reported by the agricultural and mining sectors respectively remained below the Provincial Growth and Development Strategy (PGDS) targets of 6.6 and 7.4 % respectively for 2005.

Table 3.7: Average annual sectoral growth rates (1996 – 2005)

Description	1996-2001	2001-2004	2005		Annual PGDS Target
	NWP		NWP	RSA	
	%				
Agriculture	0.4	2.2	5.1	4.1	6.6
Mining	0.3	1.6	3.2	2.4	7.4
Manufacturing	0.8	1.8	2.7	5.1	7.1
Construction	9.3	7.8	8.8	11.9	7.5
Trade	2.8	6.7	4.6	6.5	5.9
Transport	7.9	6.4	2.3	5.5	9.1
Finance	5.9	4.9	3.4	5.5	6.8
Community Service	0.3	2.3	4.1	4.4	4.6

Source: Tswelopele Environmental (Pty) Ltd (2007)

The contribution of the different economic sectors towards the total GDP of the NWP and South Africa as a whole is shown in Figure 3.22. It is clear that the contributions of the NWP's primary and secondary industries differ considerably from the national average.

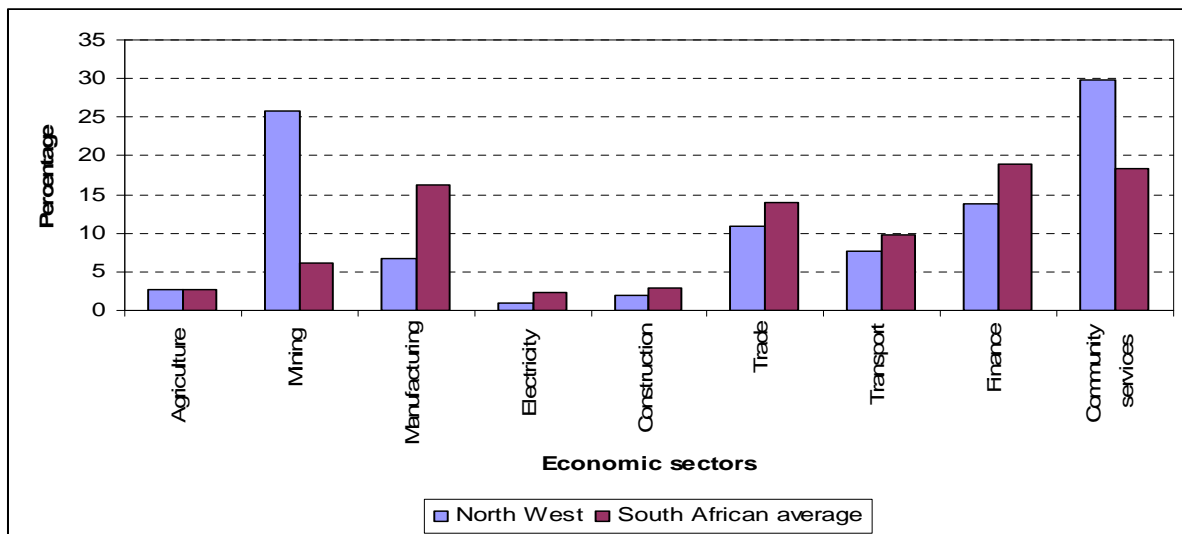


Figure 3.22: Percentage contribution of each economic sector towards total provincial GDP (2006)

Source: StatsSA (2007a)

In 2006 the NWP's primary industries (agriculture and mining) contributed 28.5 % towards the provincial GDP, compare to the national average of 8.9 %. In terms of secondary industries (manufacturing, electricity and construction), the NWP's contribution (9.5 %) was considerably

lower than the national average of 21.3 % in 2006. The contribution of tertiary industries (trade, transport, finance, and community services) towards the GDP of 62 % in the NWP compared well with the national average of 61 % in 2006.

3.3.8 Primary industries

Compared to the other provinces, the NWP's primary sector is the largest (see Figure 3.23), contributing 31 % towards the total primary sector of the South African economy. This is followed by the provinces of Limpopo (30 %), Mpumalanga (29 %) and KwaZulu-Natal (29 %). Due to the agricultural focus of this project, a more detailed overview of the agricultural sector in the NWP is provided in the next subsection.

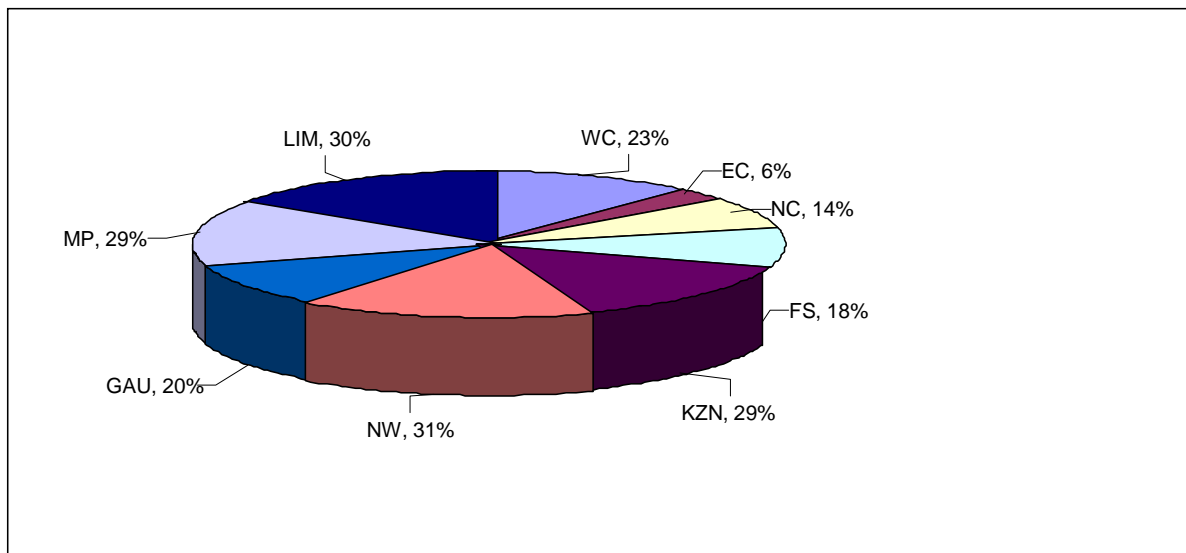


Figure 3.23: Provincial contribution to primary sector GDP (2006)

Source: StatsSA (2007a)

3.3.8.1 Agriculture, forestry and fishing

The overview of this sector incorporates all establishments that are primarily engaged in farming activities, as well as commercial hunting, game propagation, forestry, logging and fishing. The economy of the province in terms of agriculture, forestry and fishing is dualistic and comprises a well-developed commercial part and a predominantly subsistence part in the communal areas of the province. These communal regions are known to be utilised in an unproductive manner, which might be due to a combination of reasons, including the ownership of these lands (mostly owned by tribal leaders and utilised at their discretion), overgrazing, lack of government support, social environment, etc. The situation surrounding communal areas has contributed towards agriculture being secondary to the mining industry in terms of the contribution towards the primary industry of the NWP.

Figure 3.24 shows the provincial contribution towards total national agricultural production. The NWP accounts for only 6.9 % (fourth smallest) of the total national aggregate, meaning a provincial contribution of 2.7 % towards the regional economic output (see Figure 3.23).

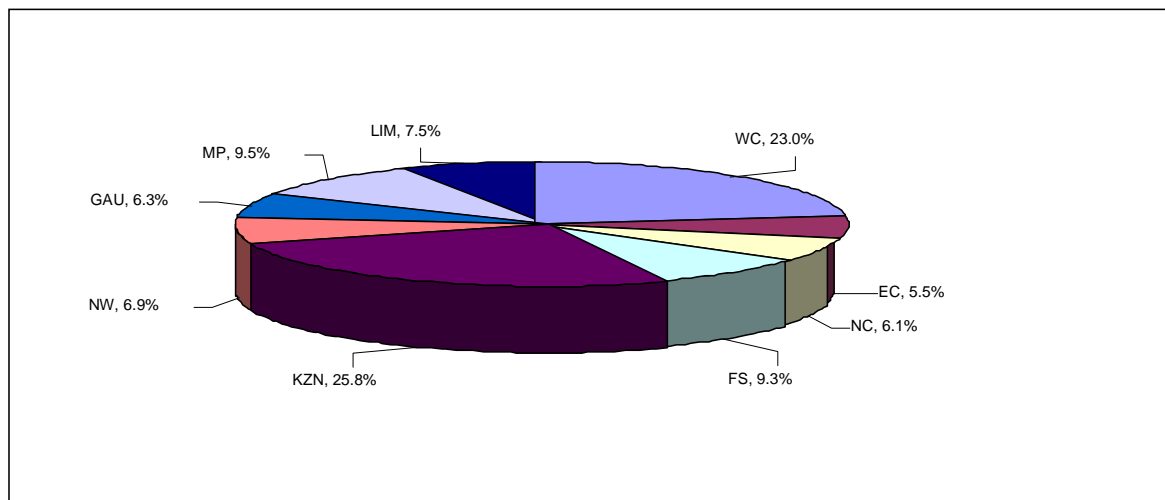


Figure 3.24: Provincial contribution towards national total agricultural production (2006)
Source: SatsSA (2007b)

Furthermore, based on the NWP's gross value added (GVA), the agricultural contribution towards total provincial GVA remained small, reaching an estimated R 1.9 billion in 2004. This reflects a decline in agriculture's contribution to GVA from 7.1 % in 1996 to 5.2 % in 2004.

Against the backdrop of the province’s relatively passable agricultural infrastructure (as discussed in sections 3.3.1 to 3.3.5), production output is largely dependent on climatic conditions and agricultural product prices. Currently, approximately 54 % of the province’s surface area has been transformed by agriculture, with an estimated one third of South Africa’s maize being produced in the province. The fertile areas in the northern parts of the province allow for extensive mixed-crop farming, which includes crops such as tobacco, citrus, paprika, wheat, peppers, cotton, groundnuts and sunflowers. Agriculture towards the eastern, wetter parts of the province comprises livestock and crop farming, while the semi-arid central and western parts support livestock and wildlife farming. The favourable geographical location close to the main hubs of Gauteng, as well as its eco-tourism potential, makes it one of the most sought-after destinations for foreign travellers visiting South Africa. The main corridors for tourism in the province include the casino and leisure resorts of Sun City and the Lost City, as well as the Pilansberg and Madikwe national parks.

Farming units and gross farm income per region

The major towns in the NWP, grouped per district municipality, are shown in Table 3.8. The use of district municipalities as a means to divide the province into different agricultural regions assists in the economic overview of the sector and is further used to facilitate cross-referencing and comparisons with the results of the study. The data on the towns included in Table 3.8 is sourced from the regional breakdown of the agricultural sector in the NWP, according to the Statistics South Africa census of 2002 (StatsSA, 2004).

Table 3.8: NWP agricultural regions

Region	District municipality	Major towns in statistical region
RSMDM	Dr Ruth Segomotsi Mompati	Vryburg, Christiana, Phokwani, Schweizer-Reneke
BPDM	Bojanala Platinum	Brits, Madikwe, Rustenburg
NMMDM	Dr Ngaka Modiri Molema	Delareyville, Huhudi, Lichtenburg, Mmabatho,
KKDM	Kenneth Kaunda	Klerksdorp, Potchefstroom, Ventersdorp, Wolmaransstad

The farming units and gross farm income (GFI) per district municipal region of the NWP are shown in Figure 3.25. According to the agricultural census of 2002 (StatsSA, 2004), a total of 5 349 farming units could be found in the province at that time, with 1 621 (30 %) of these within

the RSMDM (Vryburg, Christiana, Phokwani and Schweizer-Reneke). Although this region accounts for the highest number of farming units, it reported the second largest aggregate GFI (R 1.1 billion in 2002). In terms of the other regions, the second highest number of farming units (1 536) was to be found in the KKDM, with that region being the foremost contributor towards GFI with R 1.8 billion. This was followed by the BPDM (1 153) and NMMDM (1 039), contributing R 1.09 billion and R 1.03 billion respectively towards the provincial agricultural sector in 2002.

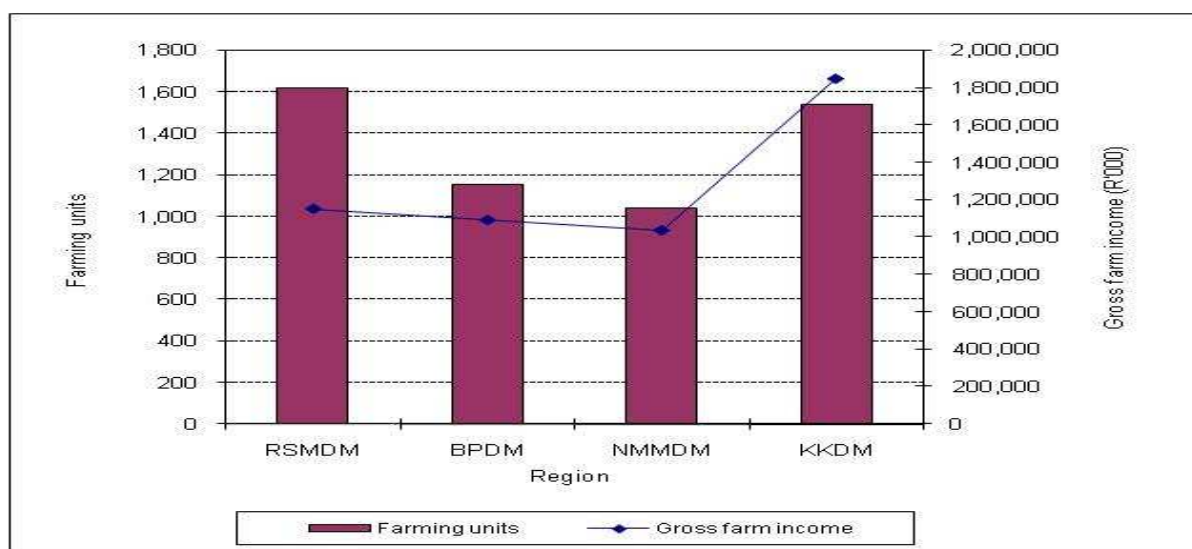


Figure 3.25: Farming units and gross farm income in the NWP

Source: StatsSA (2004)

Agricultural employment in the NWP

The agricultural sector in the NWP accounts for 8.7 % of total employment, making it the fourth largest employment sector in the province (see Figure 3.5). Table 3.9 shows the number of paid employees per gender and occupation in the agricultural sector per region. From this, the BPDM (Brits, Rustenburg and Madikwe) is the most important employment region, accounting for nearly 29 % of total employment in the agricultural sector in the NWP. Of the 24 729 employees, 10 003 (or 40 %) are casual or seasonal workers. This is followed by the NMMDM, with 27 % of total employment, of which nearly 66 % are casual or seasonal workers.

Table 3.9: Number of paid employees per agricultural occupation in the NWP

Region	Total			Farm managers / foremen		Full-time employees		Casual and seasonal workers	
	All	Male	Female	Male	Female	Male	Female	Male	Female
RSMDM	23 353	15 526	7 827	362	25	6 818	664	8 345	7 138
BPDM	24 729	14 634	10 095	532	113	10 022	4 056	4 079	5 924
NMMDM	15 093	10 261	4 832	263	27	4 555	303	5 441	4 502
KKDM	22 819	15 479	7 340	468	28	9 388	2 289	5 624	5 023
Total	85 994	55 900	30 094	1 625	193	30 783	7 312	23 489	22 587

Source: StatsSA (2004)

The remuneration paid to full-time, casual and seasonal agricultural workers is shown in Figure 3.26. The part-time employees in the BPDM (40 % from above) earn 17 % (R 138 million) of the total regional remuneration paid to agricultural workers. This is slightly higher than the average of 14 % paid to seasonal or casual workers in the other three regions.

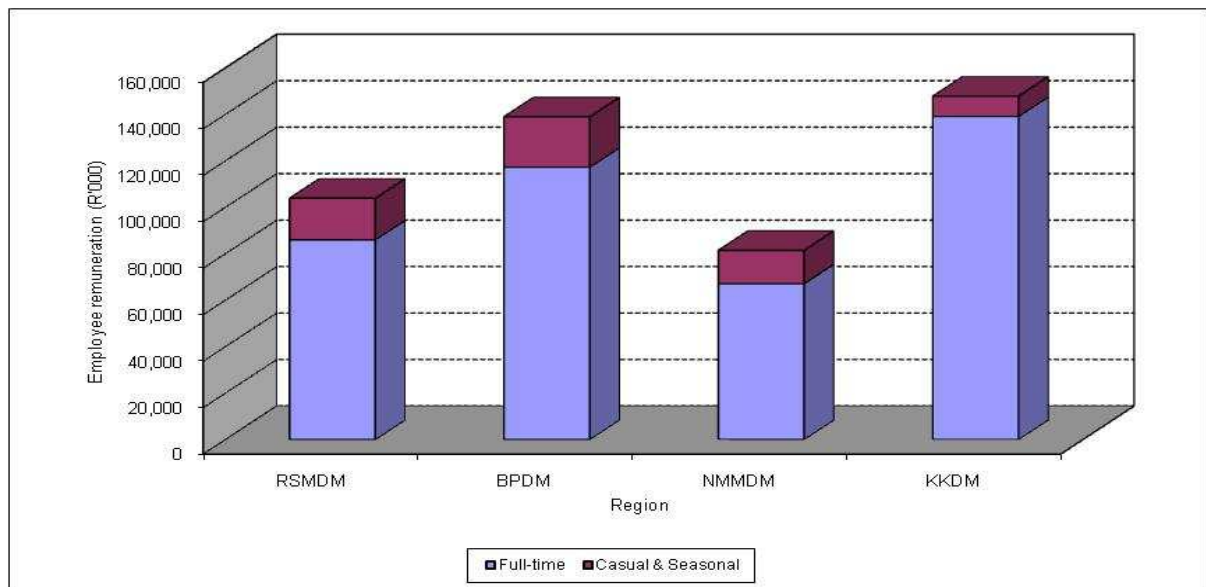


Figure 3.26: Total employee remuneration in the NWP (2002)

Source: StatsSA (2004)

Gross farm income (GFI)

Figure 3.27 shows the gross farm income for the main division “agricultural commodities” per region in the NWP. Field crops and livestock are the foremost contributors towards gross farm

income in all regions of the province. The contribution of horticulture to gross farm income is fairly moderate in most regions in the province, with the exception of the BPDM, where it accounts for an estimated 26 % of gross farm income earned.

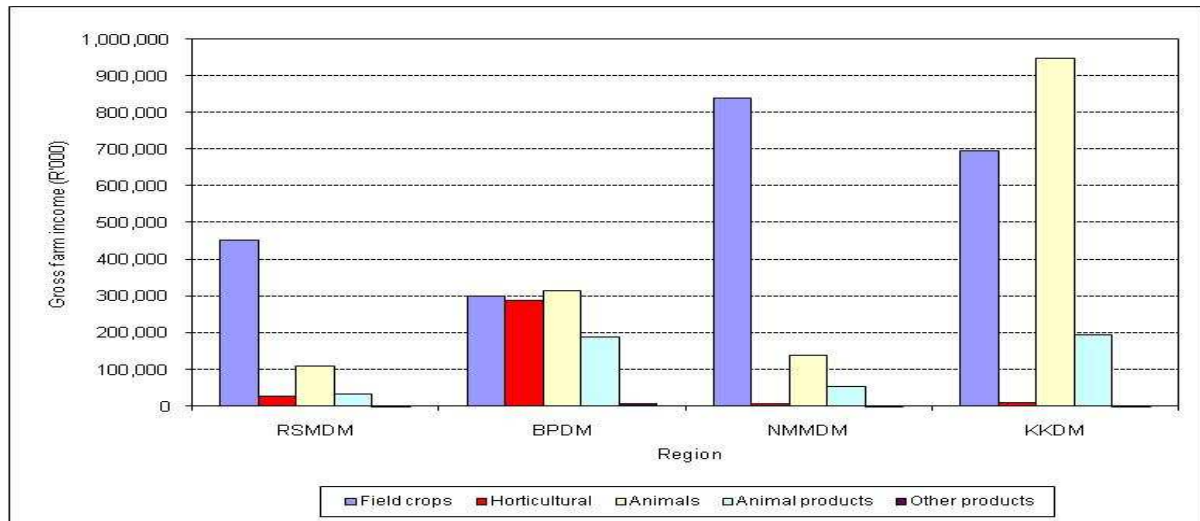


Figure 3.27: Gross farm income by agricultural division and region in the NWP
Source: StatsSA (2004)

Livestock

The estimated cattle, sheep and goat numbers per province are shown in Figure 3.28. Based on the quarterly average number of animals from May 2002 to May 2004, the NWP livestock industry is relatively small compared to that of other provinces in South Africa, accounting for 6.6 % of the number of animals nationally. Despite the small size of the livestock industry, the province accounts for 12.9 % (fourth largest) of the total South African cattle herd. In the case of sheep, the NWP is the province with the third smallest number of sheep in the country, representing 3 % of the national sheep flock. In terms of goats, 11.4 % of the national goat herd is found in the NWP, making it the province with the fourth largest herd nationally. In terms of more intensive livestock enterprises like pig farming, an estimated 10 % of the national pig numbers are found in the NWP (not shown).

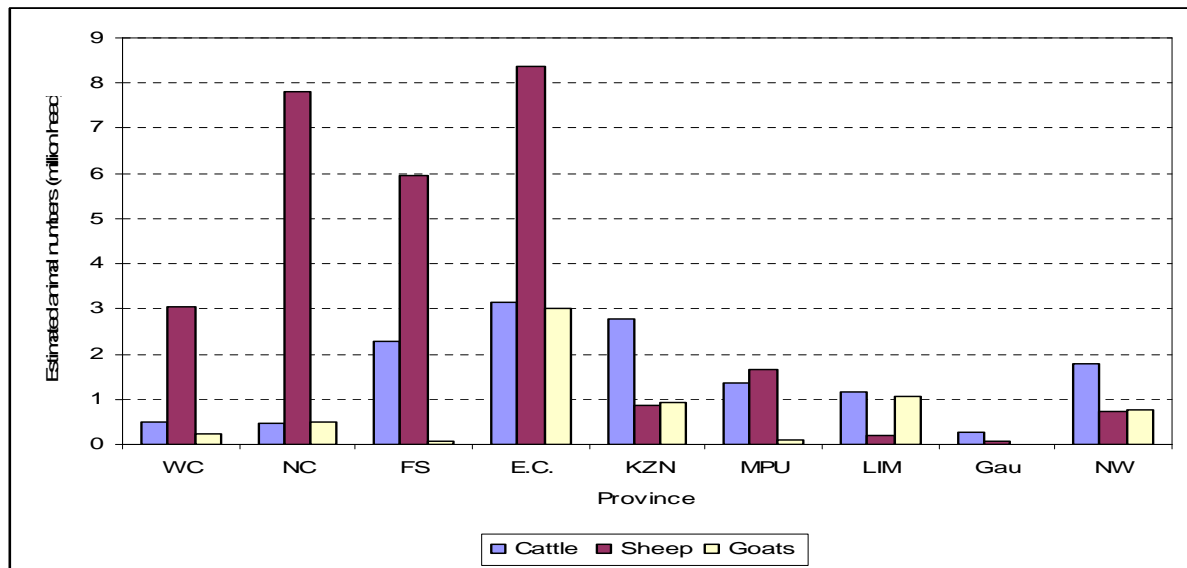


Figure 3.28: Estimated cattle, sheep and goat numbers (quarterly average May 2002 – May 2004)

Source: NDA (2004)

Furthermore, the NWP reported an 18 % increase in its total livestock numbers from 2005 to 2006, making it the province with the second highest increase in livestock numbers after the Northern Cape with 24 %. Production followed a similar trend, with the NWP reflecting a 16 % change in its livestock (animal) production from 2005 to 2006 (StatsSA, 2007b).

Figure 3.29 shows the contribution of the different livestock enterprises in terms of animal numbers marketed in the NWP. Beef cattle are the foremost contributor towards the physical livestock output of the province with 60.6 %, followed by pigs (28.4 %) and sheep (9.2 %). Beef cattle, pigs and sheep combined account for almost 98.2 % of the province’s total physical livestock output.

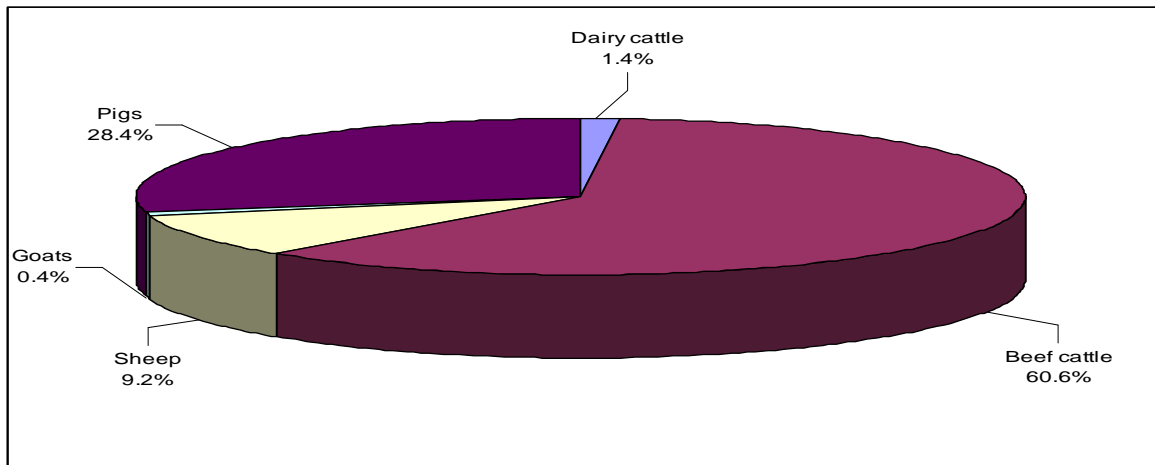


Figure 3.29: Share of livestock products in the NWP

Source: StatsSA (2004)

The major livestock production regions in terms of the number of animals sold are shown in Figure 3.30. The majority of animals are produced within the RSMDM and KKDM regions, with these two regions accounting for nearly 80 % of the province's total animal production. The RSMDM is the largest cattle-producing region (60.6 %) of the province, with 49.7 % of total NWP beef cattle being produced in the region. As for KKDM, beef cattle and pigs account for 30.8 and 77.4 % respectively of animal production in the region, making it the largest pig-producing region in the NWP.

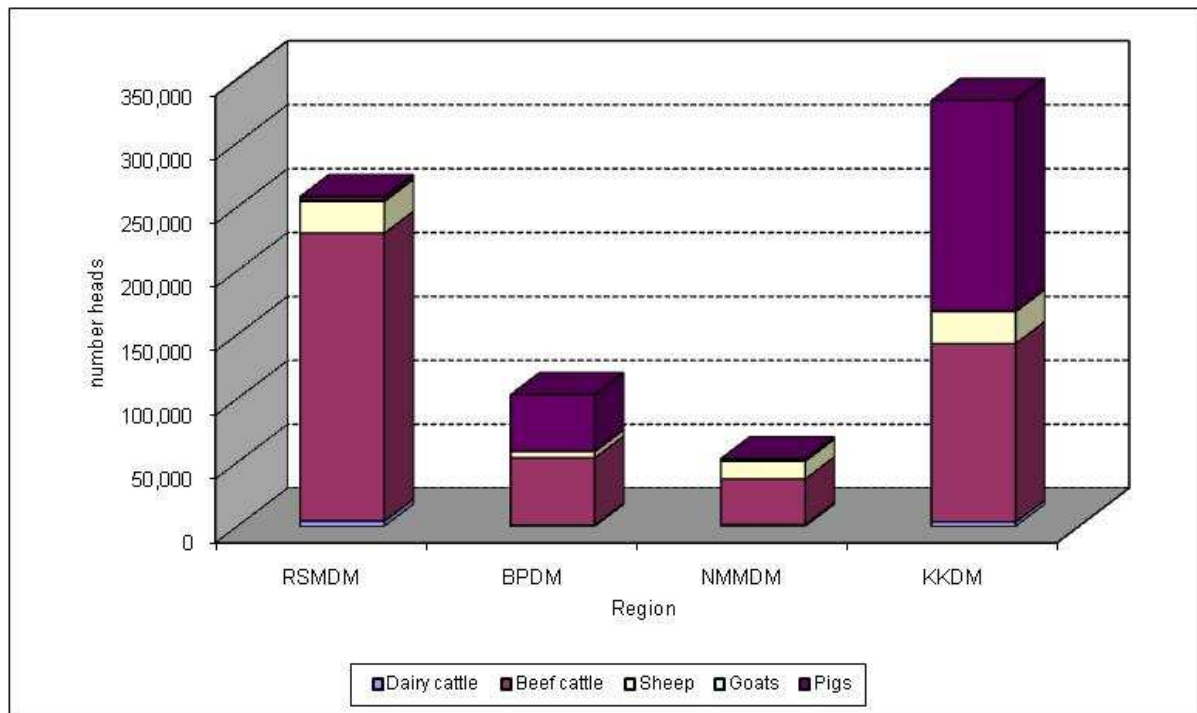


Figure 3.30: Livestock production per region in the NWP (2002)
 Source: StatsSA (2004)

Although dairy cattle only account for 1.4 % of live animals sold, these animals make a meaningful contribution to livestock products produced in the province, with fresh milk and cream accounting for 52 % of the total value of livestock products sold. Another notable contribution is from the poultry sector (not shown in Figure 3.30), with chicken eggs accounting for 45 % of the total value of livestock products sold in the NWP.

With the province being completely landlocked, its fishing and fishery resources occur largely in the provincial impoundments. This resource is predominantly utilised by the tourism and eco-tourism industry, with fishing in the dams done mostly by recreational and sport fisherman. Additionally, for many rural communities in the province, where food security is a major problem, fishing is a source of protein.

Field and fodder crops

In terms of the major field and fodder crops produced in the NWP, maize (for the purpose of grain and/or silage) and sunflower combined earned a 91.7 % share in terms of total physical output of these crops. The other major field and fodder crops making a meaningful contribution include wheat, groundnuts and lucerne (see Figure 3.31).

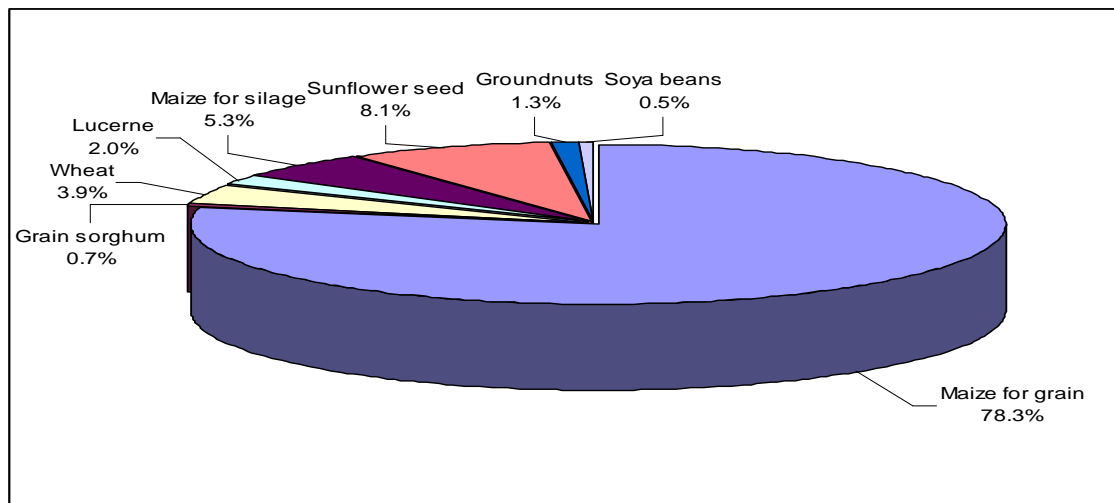


Figure 3.31: Share of most important field and fodder crops in the NWP

Source: StatsSA (2004)

Most of the arable crops within the NWP are extensively produced under dry-land conditions. Hence, only 1 % of the total hectares planted with maize for grain are irrigated. However, this accounts for 7 % of the total provincial maize yield. Sunflower and groundnut production is similar to that of maize, with 0.75 and 11 % of the land planted being irrigated. However, other major crops, including wheat (56 %) and lucerne (64 %), are predominantly produced under irrigation.

The regional distribution in terms of physical outputs of the major arable crops is shown in Figure 3.32. In terms of physical output (metric tons) the NMMDM produces the most arable crops of which maize (mostly white maize) contributes 83 % followed by sunflower (13 %) and wheat (2 %). Other regions where maize and wheat constitute a major part are the RSMDM, and

to a lesser extent the BPDM. It is important to remember that parts of the RSMDM and NMMDM fall within the maize triangle of South Africa.

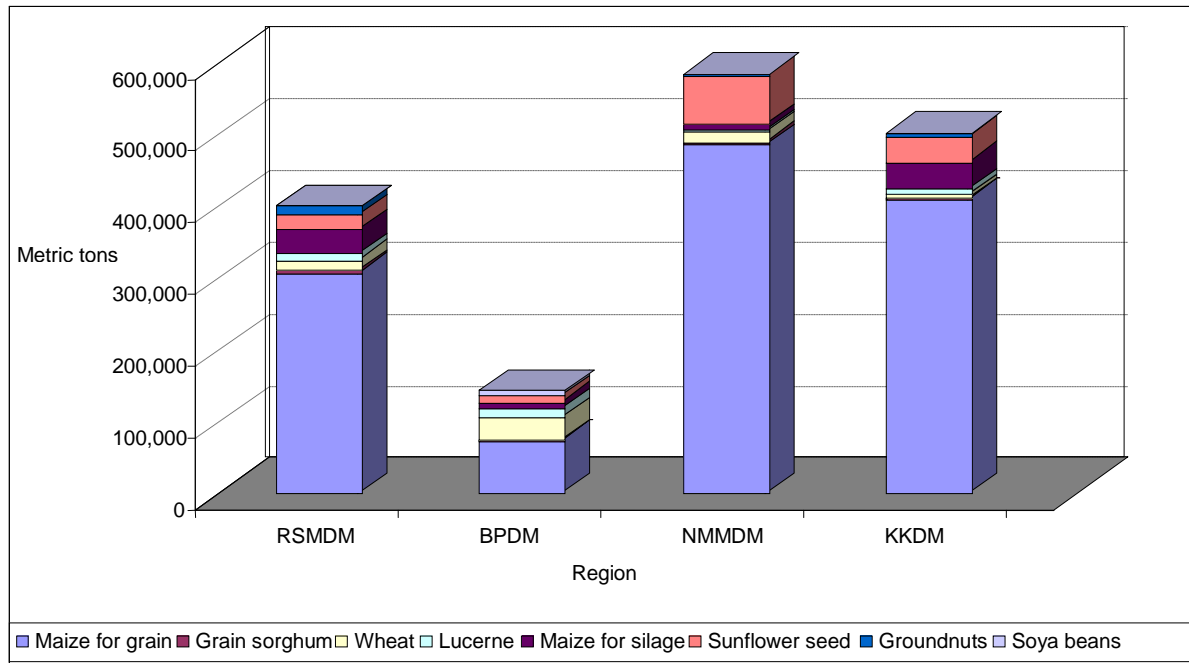


Figure 3.32: Regional arable crop production in the NWP
Source: StatsSA (2004)

Horticultural crops

The physical output share (metric tons) of horticultural crops produced in the NWP are shown in Figure 3.33. The major horticultural crops produced in the NWP are potatoes (20 %) followed by oranges (17 %), onions (17 %) and carrots (14 %).

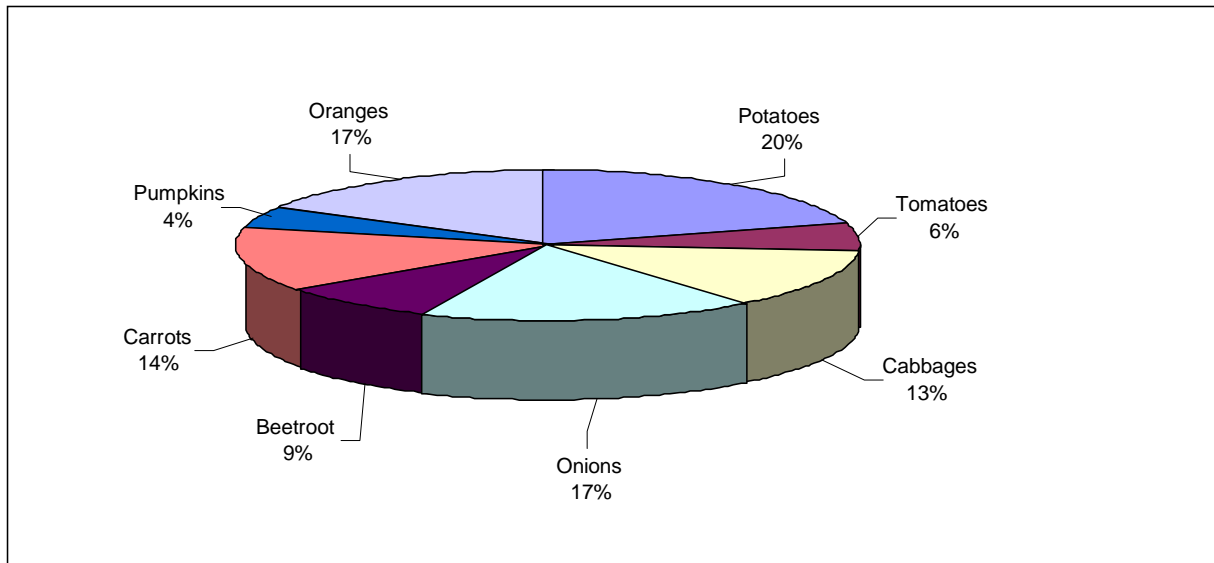


Figure 3.33: Share of selected horticultural crops in the NWP (metric tons)

Source: StatsSA (2004)

Figure 3.34 reveals the regional outputs of selected horticultural products produced in the province. Horticultural production is extremely prominent in the BPDM (Rustenburg, Brits, Madikwe). Nearly half (41 %) of horticultural production in the BPDM is made up of onions (20.8 %) and oranges (19.8 %). As for the RSMDM and KKDM, vegetable production is most prominent, with potatoes accounting for 80 and 95 % of total horticultural production respectively. Citrus production is almost entirely absent in the RSMDM, NMMDM and KKDM.

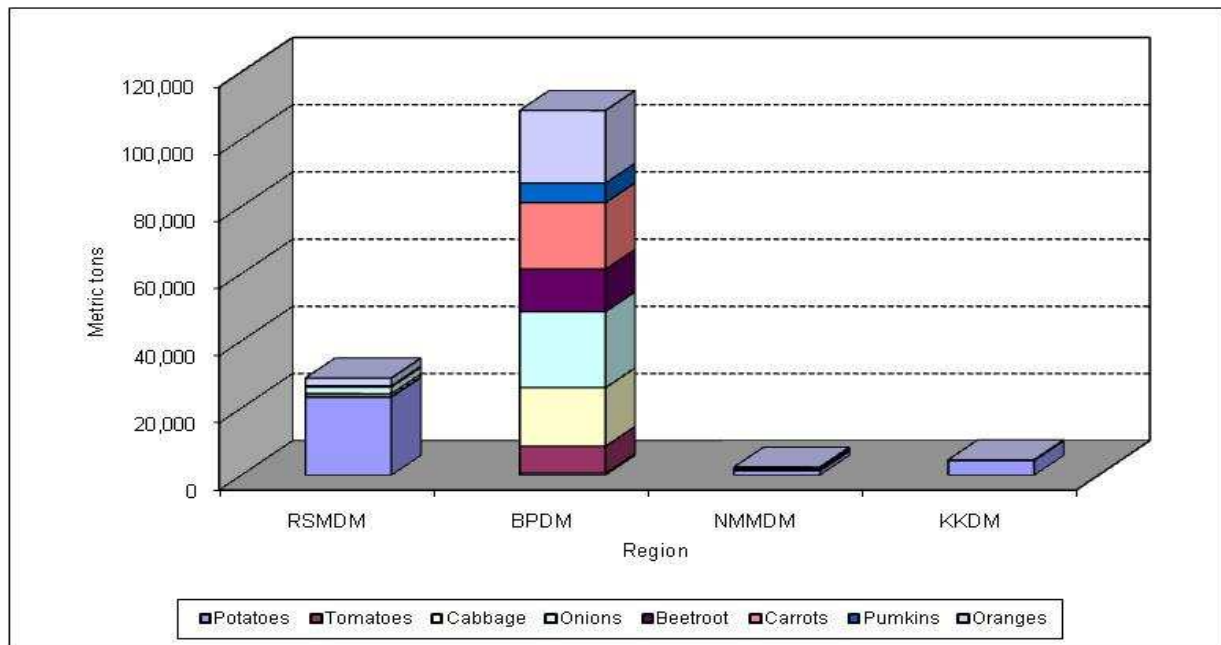


Figure 3.34: Regional production of selected horticultural products

Source: StatsSA (2004)

One should bear in mind that the production of citrus (fruit) and vegetables requires intensive cultivation, adequate water supply and suitable climate. Therefore, the areas available in the NWP for extensive horticultural production practices are limited (see Figure 3.34 above). The main horticultural production practices in the BPDM occur along the Crocodile, Harts and Vaal rivers. Production in the RSMDM and KKDM relies mainly on water from boreholes, with intensive cultivation being used to conserve the available water (North West Provincial Government, 2008).

3.3.8.2 Mining and quarrying

This section discusses the extracting and beneficiation of naturally occurring minerals, including solids, liquids, and crude petroleum and gases. It also includes underground and surface mines, quarries, and the operation of oil and gas wells and all supplemental activities for dressing and beneficiating for ores and other crude materials (Urban-Econ, 2007).

The province is host to two of the world’s largest platinum mines, extracting 94 % of the total platinum nationally in 2004. The province further accounts for 46 % of granite and 25 % of national gold production. Other mineral resources include uranium, iron, manganese, chrome, palladium, nickel and copper (Tswelopele Environmental (Pty) Ltd, 2007).

Tswelopele Environmental (Pty) Ltd (2007) stated that despite a decrease in the mining sector’s long-term contribution towards the national economy, it still accounted for 55 % of the NWP’s gross geographical product (GGP) in 2004. Figure 3.35 shows the contribution of the mining sector towards the provincial GVA, as well as the sector’s growth rate. In 2004 the mining sector grew by 9.6 %, contributing 41.5 % to the NWP’s GVA. This sector is mostly supported by the quarrying sub-sector, considering that provincial platinum production falls into this category, followed by gold and coal mining.

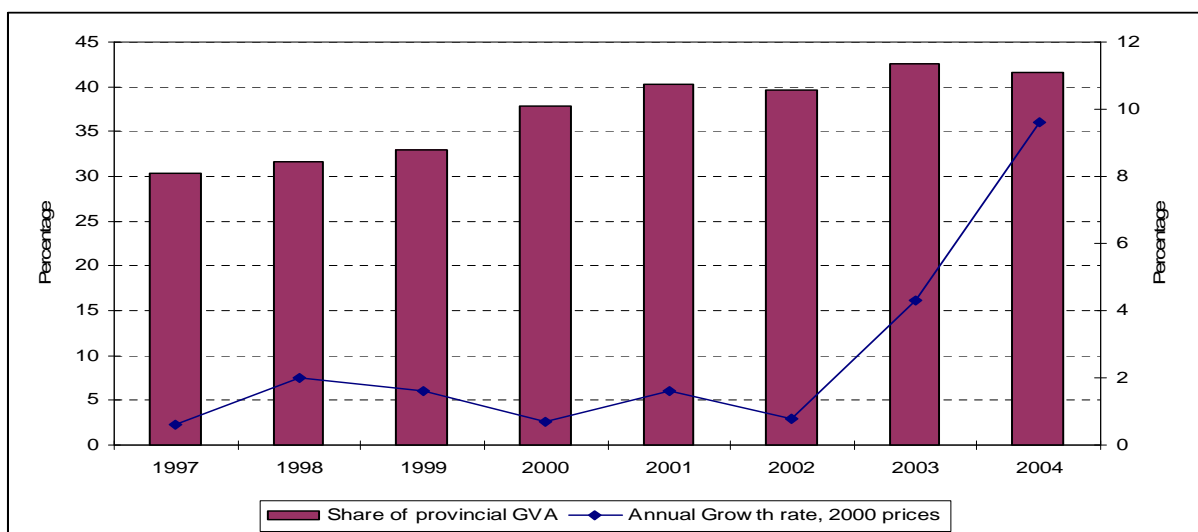


Figure 3.35: Mining sector’s contribution to provincial GVA and growth rate (1997 – 2004)

Source: North West Provincial Government (2005)

Moreover, the mining sector plays a pivotal role in improving the livelihoods of people residing in the NWP, and especially those in the KKDM and BPDM, with mining being the main economic activity of these regions. In 2006 the mining sector accounted for 23.1 % of total employment in the province (see Figure 3.5).

3.3.9 Secondary industries

The secondary industries of manufacturing and processing, utilities and construction are the smallest contributors towards the NWP's GDP, with 9.5 % overall. These industries' contribution towards the economy of the NWP has constantly declined for the past few years, with only a slight improvement in 2007 from 9.4 to 9.5 % (North West Provincial Government, 2008). A brief definition and discussion of each of these sectors' contribution towards the economy follows in the subsequent sub-sections.

3.3.9.1 Manufacturing and processing

The manufacturing sector is defined by Urban-Econ (2007) as the physical or chemical transformation of materials or compounds into new products. In the NWP, manufacturing is almost exclusively dependent on the performance of other sectors, with non-metallic mineral products (24.9 %), metal products, machinery and household appliances (18.3 %), and food, beverages and tobacco products (19.5 %) accounting for the majority of manufacturing during 2004.

The province's manufacturing sector is largely centred round the five major cities, namely Brits, Rustenburg, Potchefstroom, Klerksdorp and Mafikeng, which account for more than 50 % of total manufacturing production in the province. The sector's contribution to the national GDP increased from 18.2 % in 2005 to 18.6 % in 2006. However, the sector reported only a 7 % contribution towards the NWP's GDP in 2005, after a 1.2 % decline in sector growth from 2004. In 2006, the sector accounted for 7.5 % of provincial employment, making it the sixth largest employment sector in the NWP (see Figure 3.7).

3.3.9.2 Utilities

The utilities sector includes the supply of electricity, gas and hot water, as well as the production, collection and distribution of electricity, the manufacturing of gas and the distribution of gaseous fuels through mains (Urban-Econ, 2007). The main utilities for the NWP are electricity and

water. Throughout the province, most urban and industrial areas have access to electricity for domestic and industrial use (see Figure 3.15).

Tswelopele Environmental (Pty) Ltd (2007) identified the availability of water as being the province's most significant constraining factor in terms of provincial development. It is a region of relative water scarcity, characterised by rainfall that varies from 750 mm per annum in the east to around 400 mm per annum in the west. There are a number of dams in the province, but these are mostly allocated to agriculture and mining, and to a lesser extent to domestic and industrial use (see Figure 3.18). Therefore, it is evident that the utilities sector is one of the smallest contributors towards the NWP's economy, only accounting for 0.6 % of employment in the province.

3.3.9.3 Construction

According to Urban-Econ (2007) the construction sector includes site preparation, the building of complete constructions or parts thereof, civil engineering, building installation, building completion, and the renting of construction or demolition equipment with operators.

The construction sector increased its contribution to the national GDP from 2.4 % in 2005 to 2.6 % in 2006. This resulted in a notable 13.3 % increase in the sector's growth rate nationally. However, in the NWP, the sector reported 8.5 % growth in 2005, contributing 1.7 % to the provincial economy and employing 5 % of the provincial population in 2006 (Tswelopele Environmental (Pty) Ltd, 2007).

3.3.10 Tertiary industries

Tertiary industries consist of trade and retail, financial services, transport and community services, and government services. According to Tswelopele Environmental (Pty) Ltd (2007), tertiary industries relate to the consumption of wealth rather than the production of wealth. Growth in these industries is directly related to growth in consumer expenditure, and, therefore, growth in income. Tswelopele Environmental (Pty) Ltd (2007) furthermore stated that tertiary

industries are often associated with the knowledge economy, as knowledge and information are worth more money and drive the technological development of the country.

In South Africa, tertiary industries contribute more than two thirds to the national economy (see Figure 3.36). However, this is much lower in the case of the NWP, with tertiary industries contributing 40.3 % to the provincial economy in 2005. In 2006, the contribution of tertiary industries increased to a notable 50.6 % (not shown in Figure 3.36). Despite the increase in the tertiary industries' contribution towards provincial GDP, it still remains well below national levels. This is an indication that in comparison to other provinces, the NWP relies more heavily on its primary and secondary industries when it comes to ensuring economic growth and development.

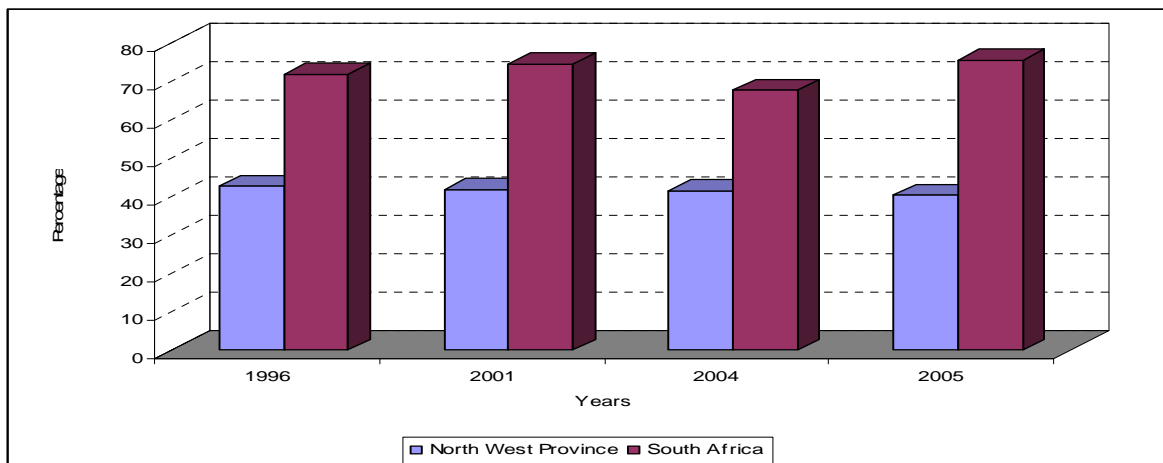


Figure 3.36: Tertiary sector's contribution to local and national economies (1996 – 2005)

Source: North West Provincial Government (2007)

Despite the province being rich in minerals, along with its diverse natural resource base in support of primary industries, the tertiary industries' contribution to the NWP is directly related to literacy levels in the province (see Figure 3.6). Hence, low levels of functional literacy might be one of the reasons why the province relies more heavily on the primary and secondary industries for growth and development.

3.3.10.1 Wholesale and retail trade; hotels and restaurants

According to Taljaard (2007), this sector entails wholesale and commission trade, retail trade, the repair of personal household goods, the sale, maintenance and repair of motor vehicles and motorcycles, as well as hotels, restaurants, bars, canteens, camping sites and other forms of short-term accommodation.

Tswelopele Environmental (Pty) Ltd (2007) reported that this trade sector is extremely sensitive to business cycle fluctuations, and consequently to global economic fluctuations, with it being an ultimate and direct reflection of consumer demand. However, the wholesale and retail trade sector increased its contribution towards provincial GPD from R 4 billion in 1995 to over R 10 billion in 2005. The same accounted for the provincial GVA, with the sector increasing its contribution by 22.6 % from R 5.3 billion in 1996 to R 6.5 billion in 2004. In addition, the sector accounted for 20.1 % of employment (second largest) in the province during 2006 (see Figure 3.5).

The growth in the wholesale and retail trade sector can be ascribed to the increase in Black purchasing power and high rates of urbanisation that are enlarging the total market, causing dramatic changes in market composition. Evident throughout the NWP is the high level of spending on education, utility payments, medical care, housing bonds, motor vehicle instalments, furniture and electrical appliances (Tswelopele Environmental (Pty) Ltd, 2007).

3.3.10.2 Transport and communication

Transport and communication as an economic sector refers to activities concerned with land transport, railway transport, water transport, air transport, pipelines, the activities of travel agencies, post and telecommunications, courier activities, as well as storage and warehousing activities (Urban-Econ, 2007).

Transport plays a multi-faceted role in the economic development of South Africa, and especially in the NWP (see Section 3.1.1). The contribution of the transport and communication

sectors towards the annual GDP in percentage terms forms a substantial part of total national GDP, while tonnages moved in South Africa increase every year. The contribution of the transport, storage and communication sector towards national GDP dropped slightly from 10 % in 2000 to 9.9 % in 2001, with the gross value of the sector increasing from R 80 million to R 88 million (Bierman, 2007).

3.3.10.3 Financial and business services

According to Urban-Econ (2007) the financial and business services sector includes financial intermediation, insurance and pension funding, real estate activities, renting of transport equipment, computer and related activities, research and development, as well as legal, accounting, architectural, engineering and other technical activities, and business activities not classified elsewhere.

During 2005, the financial and business services sector's contribution towards the NWP's GDP was a noteworthy 13.6 %, which was equal to R 13 million. This reflects a 1.8 % increase in the sector's contribution towards the provincial GDP between 1995 and 2005. In addition, the sector's contribution towards the provincial GVA grew by 4.4 %, reaching a 7 % contribution towards the economy in 2004. However, despite the sector making a noteworthy contribution towards provincial GDP, it only accounted for 4.5 % of total provincial employment in 2006.

3.3.10.4 Tourism

Urban-Econ (2007) stated that tourism is not an economic sector in its own right, but rather a part of other sectors, especially the trade, transport and finance sectors. However, due to its increasing importance as an income and employment creator in South Africa, and specifically in the NWP, it seems relevant that this sector should be discussed separately from the other sectors. The World Trade Organization defines the tourism sector as "activities of persons travelling to, and staying in places outside their usual environment, for not more than one consecutive year, for leisure, business and other purposes. The usual environment of a person consists of a certain

area around his/her place of residence, plus all other places he/she frequently visits, e.g. workplace”.

Similar to the financial and business services sector, the tourism sector accounts for 13.6 % of the NWP’s economy, while the sector’s contribution to the national economy increased by 0.6 % from 21.4 % in 2005 to 22 % in 2006. However, the growth experienced in the NWP remains well below the national level of 8.3 % (North West Provincial Government, 2008).

3.3.10.5 Community and government services

This sector includes public administration and defence activities, the activities of government, government departments and agencies, as well as public and private education, health and social work, sewage and refuse disposal, sanitation and similar activities, the activities of membership organisations, as well as recreational, cultural and sporting activities, the washing and dry-cleaning of textiles and fur products, hairdressing and other beauty treatments, and funeral and related activities (Econ-Urban, 2007).

The community and government sector reported a decrease in its contribution to the NWP’s GDP from 13.6 % in 1995 to 12 % in 2005. However, although the percentage contribution decreased, the total value contributed toward the provincial GDP increased from R 4.5 million in 1995 to R 11.6 million in 2005. This is an indication that the overall GDP of the NWP has grown faster than the community and government sector, as can be seen in the backlog present in the province. The sector has made a meaningful contribution in terms of employment, accounting for 19 % of total employment in 2006 (see Figure 3.5).

3.4 Institutional environment

Agricultural development initiatives in the NWP are primarily been implement by the different levels of government in the province. The government of South Africa is divided into three democratically elected spheres: national, provincial and local municipal. The provincial and local level development initiatives and policies are guided by the national policies and

legislation. However, local government (include both district councils and local municipal councils) is primarily concerned with the co-ordination and implementation of development initiatives in the NWP (North West Government, 2001). Thus, in reality, these governance structures have to address the development issues (poverty, income differences, aggravate social problems, uneven land distribution, etc.) in the province.

Provincial government is to co-ordinate and support the actual implementation of developmental activities at municipal levels. As such, the province needs to integrate sustainability and environmental concerns in the provincial and local level decision making system. However, the provincial departments responsible for such issues are lacking technical capacity (North West Provincial Government, 2008). Moreover, district municipalities have the responsibility to co-ordinate and support weaker local municipalities in their development efforts. Despite efforts to increase the capacity of local governments by creating larger and more resourceful entities through the merging of districts and local municipalities, they still lack the technical capacity and resources to address agricultural development in their areas (North West Provincial Government, 2008).

However, as early as 1997, government assessed their available institutions and resources and acknowledged that they have little to contribute to ensure the success of agricultural development in the province without cooperative government and public/private partnerships (North West Government, 1997). Despite the acknowledgement, few attempts have been made to engage in cooperative government or public/private partnerships. Controversially, they have tried to rectify development issues through the introduction of the Integrated Development Plan (IDP). The IDP is a five-year plan (up-dated on a yearly basis) guiding all the development activities in a specific region. The Local Government Transition Act (second amendment 1996) made the preparation of IDPs by local councils a legal obligation. The Municipal Systems Act (2000) further stipulates on this responsibility (North West Provincial Government, 2001). The IDP is a strategic management plan defining the development direction and guiding all functions of each municipality, thus, providing a tool to assist municipalities in achieving their development mandate. However, the outcomes of the IDPs do not address the problem of

insufficient resources and technical capacity needed to ensure successful agricultural development in the province.

To address the shortcomings within the institutions responsible for development, private/public partnerships need to be formed that will ensure the full development and utilisation of human and other resources for development. A few private institutions have realised the importance of successful agricultural development in the province and have launched their owned development and support initiatives (see for example Temo Agri Services, as discussed in Chapter 4). Despite these individual attempts by private industry to improve development success in the province, formal partnerships with the main development institutions (government) are still lacking. Institutional arrangements should be considered within structures of government, education, training and extension services, traditional and modern agriculture, research, culture, religion, lobby and vested interest groups, political and ideological organisations, the information sector, markets, policy makers, etc.

Moreover, provincial and local level development initiatives and policies are guided by the national policies and legislation. The Constitution however allows provinces to establish provincial legislation, and the local governments to enact by-laws. Thus, National and provincial policies, initiatives and priorities that pertain to the agricultural sector have an impact on the design and implementation of any of the province's sector development plans and initiatives, making them part of the institutional environment (rules of the game). The following sub-section will therefore detail on the broad policies and priorities that will influence agricultural development in the NWP.

3.4.1 Broad policies and priorities

The policies and priorities that will influence agricultural development initiatives in the NWP have been captured adequately by the North West Department of Agricultural, Conservation, Environment and Rural Development (NWDACERD) in 2007, and are duplicated in the next section for ease of reference.

3.4.1.1 Strategic plan for South African agriculture

The strategic plan for South African agriculture is the product of cooperation between Government, AgriSA, the Transvaal Agricultural Union (TAU) and National African Farmers Union (NAFU). The vision for the sector implies that all stakeholders will be involved in sustainable, profitable participation in the South African agricultural economy. It recognises 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. It gives a clear picture of where South African agriculture wants to be in the long-term.

3.4.1.2 Accelerated and Shared Growth Initiative of South Africa (ASGISA)

ASGISA has identified the agricultural sector as one of the economy sectors destined for accelerated growth, and thus provides a platform on which improved economic performance can be built.

ASGISA seeks to deal with the constraints that inhibit positive economic movement, aiming for a higher range of investment, job creation and thus economic growth. The current key constraints include:

- Relative volatility of the currency and interplay among main indicators,
- Barriers to entry and competition in sectors of the economy,
- Cost and efficiency of the national logistics system and some infrastructure,
- The regulatory environment and burden on small and medium enterprises,
- A shortage of suitably skilled labour and disjointed spatial settlement patterns,
- Deficiencies in state organisation, capacity and strategic leadership.

ASGISA and its interventions aim to optimise public investment and a better environment for private sector growth, and it implements a range of projects to address specific barriers. These systematic interventions should result in higher agricultural output, redistribution of income, higher exports and increased investment in agro-industries.

The National Department of Agriculture has identified five key focus areas/projects for ASGISA, including a 50 % increase in land under irrigation, improved livestock productivity, accelerated land reform, biofuels and the development of agricultural development corridors.

3.4.1.3 Provincial Growth and Development Strategy (PGDS)

The Provincial Growth and Development Strategy (PGDS) is a provincial master plan to implement the outcomes of the National Growth and Development Summit. The vision agreed upon at the Provincial Growth and Development Summit, which is also outlined in the North West 2014, identified the following national priorities for collaborative action:

- Promoting and mobilising investment and creating decent work for all,
- Ensuring economic empowerment for all, especially black people, workers, the disabled, women and youth,
- Eradicating poverty and addressing the legacy of under-development,
- Strategically engaging in globalisation to the best advantage of the province.

Moreover, the PGDS intends to specifically focus on agricultural and rural development. It is intended to address backlogs in basic needs in the sector; capacitate and empower cooperatives and emerging farmers in terms of facilitating access to markets, finance infrastructure, machinery and agro-processing technology and skills, whilst also promoting efficient land usage and environmental sustainable agricultural production. The PGDS furthermore seeks to improve agricultural and rural institutions, encourage and develop partnerships. This has seen various initiatives from the PGDS during 2009, which include the following:

- Taung Irrigation Scheme (resuscitation and expansion)
- The Western Frontier Beef Beneficiation Programme
- Land reform initiatives (redistribution and restitution)
- The Wolmaransstad goat processing project
- The Multi-Purpose Livestock Handling Facilities
- Mechanisation programmes
- The Agricultural Master Plan
- Hydro-culture (hydroponics)

- Developing cooperatives
- Small-scale dairy initiatives
- LADA (sustainable resource management)
- IWRM and Poverty Alleviation (DWAF)

3.4.1.5 Agricultural Black Economic Empowerment Programme (AgriBEE)

This programme focuses on the promotion of Black Economic Empowerment (BEE) initiatives in the agricultural sector. Its aim is to stimulate growth in agri-business, facilitate development and provide support for enterprise and entrepreneurial development in the agricultural sector, as well as to increase levels of black participation (especially of women and youth) in the ownership and control of the economy.

3.4.1.6 Micro Agricultural Finance Institutions of South Africa (MAFISA)

MAFISA is a government-supported financial intervention scheme designed for a second economy target market. Its vision is to empower and improve the livelihoods of the rural working poor, entrepreneurs and farmers within the agricultural sector, by providing micro-agricultural financial services on a large, accessible, cost-effective and sustainable basis in the rural areas. This could well be a gateway for ensuring higher success rates for development initiatives in the NWP.

3.4.1.7 Land Reform

The democratic government in 1994 opted for a three-pronged land reform policy to redress the historical injustices of the past. This includes:

- Land restitution, to restore land or provide financial compensation for people dispossessed of the land after 1913,
- Land redistribution, which is about making land available for agricultural production, settlement and non-agricultural enterprises,

- Land tenure reform was introduced to give farm workers and labour tenants security of tenure, over houses and land where they work and stay.

However, the pace of land delivery over the last 12 years has been very slow, i.e. only 3.5 million hectares have been delivered. Settlement models designed at the inception of the programme were also problematic. Government has been recommitted to the 30 % target and, more specifically, to delivering 6.2 million hectares in the next 15 years.

3.4.1.8 Agriculture Programme of Action (APoA)

The APoA consist of different priorities as set by government to accelerate growth and provide assistance to small-scale farmers in the second economy to ensure sustainable development. Moreover, MinMec has identified the following five strategic priorities to drive the Agriculture Programme of Action:

- Broad-based AgriBEE and integrated food security – consolidate and focus on efforts that empower black people in agriculture such as LRAD, IFSNP, SHGs, CASP and MAFISA.
- Sector investment, labour absorbing and competitive value chains – attract bigger investments into new and existing farming and agri-business industries in order to increase their competitiveness and profitability.
- Bio-security and disaster management – restore confidence in the capacity and organisation of South Africa’s bio-security system.
- Research, extension, education and training – develop the human and institutional capacity for service delivery.
- Cooperative government and building of partnerships – application of Intergovernmental Relations Framework Act, 2005, in the implementation of ASGISA and other government programmes.

3.4.1.9 South Africa's National Biodiversity Strategy and Action Plan (NBSAP)

NBSAP's strategic goal is to conserve and manage terrestrial and aquatic biodiversity and thereby ensure sustainable and equitable benefits to the people of South Africa, now and in the future. Its strategic objectives include:

- Achieving an enabling policy and legislative framework that integrates biodiversity management objectives into the economy.
- Enhanced institutional effectiveness and efficiency, and to ensure good governance in the biodiversity sector.
- Integrated terrestrial and aquatic management, which will minimise the impact of threatening processes on biodiversity, enhance ecosystem services and improve social and economic security.
- Enhancing human development and well-being through sustainable use of biological resources and equitable sharing of the benefits.
- Establishing a network of conservation areas that will conserve a representative sample of biodiversity and maintain key ecological processes across the landscape and seascape.

3.4.1.10 Environmental Poverty Relief Programme (EPRP)

The National Environmental Poverty Relief Programme is one of the key thrusts in the environmental sector over the five-year planning period. This programme comprises the following pillars:

- Working on waste,
- People and parks,
- Working for tourism,
- Sustainable land-based projects.

In the spirit of cooperative governance, the Department supports the national Department of Environmental Affairs and Tourism by coordinating inputs and project proposals from all stakeholders. This implies assisting with community liaison, project facilitation, monitoring the implementation of projects and reporting in terms of the Public Finance Management Act

(PFMA), the Division of Revenue Act (DORA), and the Expanded Public Works Programme (EPWP).

3.4.1.11 North West Environmental Implementation Plan

The North West Province Environmental Implementation Plan of 2002 is a statutory instrument which facilitates the development of a long-term sustainable development policy, legislative and planning framework for the province, of which the EIP will be part. The specific output of the EIP will result in the alignment of policy, legislation, plans, programmes and decision-making, which will result in a more effective, integrated and cooperative governance of environmental management functions and activities. The provincial Environmental Implementation Plan (EIP) provides for a number of recommendations on cooperative governance and environmental management for specific functions exercised in the province.

3.4.1.12 World Summit on Sustainable Development (WSSD)

The WSSD in 2002 reflected on an action plan and blueprint for sustainable development. Underpinning the WSSD is the idea that humanity has reached a turning point. The international world can either continue with present policies which increase poverty, hunger, sickness and illiteracy and cause the continuing deterioration of ecosystems on which life on earth depends, or it can change course towards sustainable development (DEAT, 2002). This saw the development of the Johannesburg Plan of Implementation of 2002 which relates to:

- Poverty eradication,
- Changing unsustainable patterns of consumption and production,
- Protecting and managing the natural resource base of economic and social development,
- Sustainable development in a globalised world,
- Health and sustainable development,
- Sustainable development of small island developing states,
- Sustainable development for Africa and other regional initiatives,
- The means of implementation,
- The institutional framework for sustainable development.

3.4.1.13 Support for Environment and Sustainable Development in the North West Province (SESDNW)

This project is aimed at developing the Legislative Framework and Mechanisms, the Provincial Spatial Development Framework, the Zone Mapping and Strategic Environmental Assessment, and the Institutional Capacity Building, as well as an efficient and effective funding mechanism for environmental projects. Moreover, it will seek to ensure sustainable rural development in the NWP.

3.5 Conclusion

It is evident from the overview that a large proportion of the population residing in the NWP finds themselves in some degree of economic hardship. This is exacerbated by the high level of unemployment. Even though economic growth in the province has contributed towards a moderate decline in the level of unemployment, it still remains higher than the national average.

The inability to reduce unemployment levels at the same rate as economic growth should not be ascribed to the NWP economy's inability to generate sufficient employment opportunities, but rather to the inequalities amongst people and racial groups residing in the NWP. Foremost amongst these is the high level of functional illiteracy, which relates closely to socio-economic differences in the quality and quantity of education, limiting the employment opportunities of these people. This has directly contributed towards the income inequalities present in the province, with people with low or no education finding it difficult to access skilled employment opportunities and to earn associated wages. Moreover, the lack of access to health care and basic services such as clean running water, sanitation, housing and good nutrition contributes towards unemployment and subsequently to the economic hardship being experienced by many in the province.

However, numerous actions by local and provincial government have seen improvements, especially when it comes to eradicating the backlog with regard to basic governmental service delivery, as well as the improvement of the healthcare system. However, despite the decline in overall government healthcare personnel and equipment, support structures from the private

sector have improved, contributing towards the decline in the mortality rate amongst infants and children under 5 years of age, as well as an increase in life expectancy at birth. Moreover, predictions indicate a decline in the prevalence of HIV/AIDS in the foreseeable future. However, the current prevalence of HIV/AIDS and associated diseases is of some concern, with this being probably the single most important driver that will shape the future socio-economic and economic development of the NWP.

Furthermore, within the socio-economic environment and passable infrastructure, the NWP economy reported a reasonable growth rate over the past decade, with the agricultural, mining and manufacturing sectors accounting for the highest sectoral growth rates. However, mining, finance and community services were the foremost contributors in terms of their contribution towards provincial GDP, which resulted in tertiary industries accounting for the largest share of provincial GDP.

As for the agricultural sector, field crops (maize, sunflower) and livestock (beef cattle, pigs) were the foremost contributors to gross farm income in all regions of the province, with the contribution of horticultural products (potatoes, onions, oranges) being modest in specific regions of the NWP.

In conclusion, the interrelation between the socio-economic environment and the agricultural sector in the NWP is of the utmost importance. Currently, social security is used as an instrument to fight poverty, with nearly one third of the population in the province receiving grants, as these grants provide the “social safety nets” aimed at alleviating economic pressure and ensuring access to food. However, questions may be raised regarding the long-term sustainability of these grants. Despite the contribution that agriculture is already making towards the upliftment of the people, there needs to be greater emphasis on the agricultural sector as a vehicle for sustainable development. However, to achieve this, shortcomings in the current institutions responsible for development initiatives in the province need to be addressed. This will require that public/private partnerships are formed between government and the private sector.

CHAPTER 4

Opportunities and Limitations for Agricultural Growth and Development in the North West Province

4.1 Introduction

A dynamic agriculture is central to social and economic growth, especially in areas where general welfare and farming fortunes are closely linked. However, sustainable development in any region or country is guided by the potential supply and demand, opportunities and constraints of its natural resource base, human resource base and capital base. The same is true for the North West Province (NWP), which harbours a great potential for agricultural growth and development. However, unlocking opportunities presented by the province's agricultural sector will require a collective effort as several challenges and threats inhibit its development prospects.

As stated earlier, a SWOT analysis was conducted for each of the local municipalities in the NWP to get a better perspective of the potential opportunities as well as the factors inhibiting growth and development. In total, 21 SWOT analysis workshops were held throughout the province. These workshops were structured in the form of panel discussions for all role-players in the private/commercial agricultural sector, followed by workshops for role-players from the public sector. The private/commercial sector workshops were arranged in collaboration with the farmer unions, organised agriculture and the agribusinesses present in the respective municipal regions. As for the public workshops, local municipalities assisted with an awareness campaign to ensure the participation of role-players involved in agriculture from the public sector's side. They also assisted in identifying and issuing invitations to specific knowledgeable people in their respective regions, i.e. extension officers, council members, small-scale farmers, etc. In general, the SWOT analysis workshops were attended by representatives from organised agriculture, farmers' unions, cooperatives, input suppliers, banks, government officials, commercial and small-scale farmers, etc. The sessions were guided by a discussion leader who orchestrated the discussion according to the SWOT methodology. From this, conclusions were drawn on the

potential agricultural opportunities as well as factors that inhibit growth and development in the province.

The chapter will therefore detail the conclusions that were drawn from these workshops. It is divided into two sections. The first part will focus on the key factors (weaknesses and threats) that inhibit growth and development in the province. The second will focus on the agricultural opportunities (strengths and opportunities) that were identified in the SWOT workshops.

4.2 Factors Inhibiting Growth and Development in the North West Province

The rural character and diverse natural resource base of the NWP provides immense potential for agricultural growth and development, which could facilitate the empowerment of small-scale farmers. However, before agriculture can be promoted to a point where this potential can be successfully tapped, the factors inhibiting growth and development of agriculture in the province must first be addressed.

According to the workshop findings, the key factors inhibiting growth and development in the different regions of the NWP revolve around human factors; the institutional environment and its supporting structures; physical infrastructure and natural resources. These issues are discussed in the sections that follow. Note that several of the factors listed in the tables below were essentially the same for all four district municipalities and these are listed only once to avoid duplication.

4.2.1 Human factors inhibiting development

According to the SWOT analysis, the NWP, like most provinces in South Africa, faces significant human development challenges featuring inadequate skills, lack of entrepreneurship and people's predetermined mind-set (nomadic) surrounding production practices and lifestyle. In addition, the SWOT analyses identified several other human factors that have an inhibiting effect on the growth and development of agriculture in the NWP. These include lack of adequate education and training, health related issues, and lack of management skills. However, greater

investment in people can reduce poverty and promote economic growth and stability. Such investment and the outcomes it produces could well serve as a sturdy foundation for facilitating sustainable human development, and subsequent economic growth.

Table 4.1 shows the different human factors identified during the SWOT analyses that are believed to constitute obstacles to development in the respective municipalities of the NWP.

Table 4.1: Human factors inhibiting growth and development in each district municipality

Municipal Regions	Human Factors Inhibiting Growth and Development
<p>Ngaka Modiri Malema</p> <ul style="list-style-type: none"> ➤ Ramotshere Moila ➤ Distsobotla ➤ Mafikeng ➤ Ratlou ➤ Tswaing 	<ul style="list-style-type: none"> • Migration of people from rural agricultural to communal/rural areas (skilled workers) • Beneficiaries selected for redistribution programmes not competent or capable of farming • Lack of trust between farmers and government • Small-scale farmers not applying efficient farming practices (due to a lack of government support structures and assistance schemes) • Lack of knowledgeable and skilled extension officers • Conflict between beneficiaries of redistribution programmes • Conflict of interest between municipality, tribal leaders and Land Affairs as to what land should be utilised, and how • Limited numbers of trained agricultural workers (machinery operators, etc.) • Absence of study groups to assist upcoming farmers • Insufficient training of new upcoming farmers • Closing of training facilities • HIV/AIDS and tuberculosis • Tendency of politicians to misuse agricultural initiatives for their own gain • Difficult for upcoming farmers to obtain land • Catchment areas not properly managed (i.e. dams, irrigation areas, etc.) • Unsatisfactory management of development projects
<p>Dr. Ruth Segomotsi Mompati</p> <ul style="list-style-type: none"> ➤ Kagisano ➤ Naledi ➤ Mamusa ➤ Greater Taung ➤ Molopo ➤ Lekwa-Teemane 	<ul style="list-style-type: none"> • Low labour productivity coupled with low skills levels • Lack of creativity and slow reaction from producers to counter the changes taking place in the agricultural sector • Competency levels of civil servants (all levels of government) • Lack of capacity coupled with understaffed government institutions (municipalities, DACE, etc.) • Insufficient practical components in training programmes coupled with insufficient training of upcoming farmers • Lack of managerial skills • Dependency syndrome of inhabitants from the NWP (state grants)
<p>Dr. Kenneth Kaunda</p> <ul style="list-style-type: none"> ➤ Ventersdorp ➤ Tlokwe ➤ Matlosana ➤ Maquassi Hills ➤ Merafong City 	<ul style="list-style-type: none"> • Wrong mindset (attitude) of upcoming farmers • Lack of sufficient mentorship • Illegal land occupation by communities on restituted land • Crime (stock theft, etc.)

Municipal Regions	Human Factors Inhibiting Growth and Development
Bojanala ➤ Madibeng ➤ Moretele ➤ Rustenburg ➤ Kgetlengrivier ➤ Moses Kotane	<ul style="list-style-type: none"> • People are poor and unemployed • Bureaucratic red tape • Farmers in communal areas are landlocked. These farmers are assigned a piece of land by the tribal leader with the ownership of the land remaining with the tribal leader. Thus, farmers do not have security or ownership of the land they produce on.

Most of the human factors inhibiting growth and development in the NWP stem from a lack of proper education, training, employment opportunities or capacity within governmental departments (see Table 4.1). These factors also contribute to the level of crime in the NWP. Although several other factors might contribute towards crime, it is indirectly related to unsatisfactory levels of education and training (i.e. unemployment and economic hardship) as well as the inability of local authorities to enforce the law. The increased level of crime holds several threats for agricultural growth and development in the NWP, and is one of the main reasons for the migration of skilled farmers and workers from the sector. Within the current economic climate, the migration of knowledgeable people from the agricultural sector holds severe consequences for both the development and commercial legs of the sector, with a potential decline in productivity and effective mentorship.

Furthermore, a disturbing weakness is the inability of farmers in the NWP to be creative in their production and marketing strategies. This relates especially to the current global agricultural and economic environment faced by producers. Hence, the creativity of these producers relates directly to their entrepreneurial skills, which can be regarded as one of the prerequisites for success in modern day agriculture.

Besides the threat of crime and a lack of entrepreneurship, the lack of capacity and knowledge within NWP government institutions pose additional stumbling blocks for growth and development, especially with regard to the successful implementation and management of development programmes and projects. Moreover, lack of commitment on the part of various government officials has resulted in poor basic service delivery. This relates directly to problems that are experienced by farmers with contaminated water supplies, etc. The problems in governmental departments in several instances originate from officials not being properly committed or competent to execute their respective responsibilities.

Another human factor that poses a stumbling block for agricultural growth and development in the NWP, unrelated to education and training, pertains to the incidence of conflict between beneficiaries, tribal or community leaders and government in the land reform and restitution process. This results from a conflict of interests between the different parties as to what and how redistributed land should be utilised (i.e. the tendency of politicians to misuse agriculture for their own gain). The consequence of these quarrels generally results in illegal occupation of restituted land by communities, which effectively takes farmland out of production.

4.2.1.1 Education and training

With reference to Table 4.1, it is clear that the NWP could be regarded as a province with relatively poor human resource development indices, both in the skills levels of the workforce and the resources spent on training. Training and retraining to build human capital and marketable skills such as basic literacy, entrepreneurial skills and training in non-traditional occupations for vulnerable groups is critical for agricultural development to succeed. Such training would contribute towards better functionality in government structures and support systems, as well as integrating the poor into the commercial cycle and labour markets.

Furthermore, lack of schooling for employment contributes to the influx of people into the urban areas in search of jobs and the mushrooming of informal settlements around urban areas. It is also argued that this continual flow of labour towards towns and cities in search of nonexistent jobs contributes directly to the underdevelopment of the rural areas. Far greater priority should be given to developing strategies and actions for improving the skills and competencies of the people in all types of economic activities, especially agricultural and related fields.

A new strategy is needed that involves education and training to develop both the practical and technical capacities of graduates to engage in productive activity scientifically, efficiently and cost effectively. According to this strategy, education and training should be focussed on developing the capacity of farmers and their workers. The civil servants who exercise oversight responsibilities for the implementation of the various sectoral policies also need to be capacitated, in order to enhance the effective harnessing of both human and natural resources in

a way that translates to the overall welfare of the society at large. Attention should also be given to the development of effective programmes to foster the leadership and management skills required for the effective use of strategic approaches to the performance of management. Provincial government departments and other agencies should develop their own programmes for training and development within the broad policy goals of the country and integrate the allocation of resources for these activities into corporate strategic development (such as strategies for improving the quality of services) and budget planning (Sacht and Jaiyesimi-Njobe, 2002).

4.2.1.2 Entrepreneurship

A factor that is often overlooked in the public policy arena is the role that entrepreneurship and growth of businesses play in rural development. Several of the commercial and small-scale farmers have lagged behind with regard to value-adding initiatives. Producers have lost pace with the changing market environment since the deregulation of the control boards (one-channel marketing system), so that they remain production driven instead of market/demand driven, and do not apply proper free market management systems. Thus, it is argued that these two characteristics could assist producers in opposing certain challenges that are presented by the rapid and constant changes in the agricultural business environment. Moreover, it is important that entrepreneurship and creativity in farming should be recognised as one of the necessary conditions for a healthy agricultural economy.

One of the great challenges that faces the NWP is the development of policies that promote entrepreneurship, which can be defined as rapid growth of new and innovative businesses that foster opportunities and rural economic health. In many instances, the agricultural policies in place show no confidence in the entrepreneurial ability of farmers and concentrate solely on production. This undermines the building of a viable farming community (Du Toit, 2003).

4.2.2 Institutional factors inhibiting development

Table 4.2 shows various institutional factors that might constitute obstacles to development in the respective municipal regions. The major obstacles as depicted in Figure 4.2 relate to the malfunctioning of government institutions as well as the absence of development implementation and management structures that are required to facilitate growth and development in the NWP.

Table 4.2: Institutional factors inhibiting development in each district municipality

Municipal Regions	Institutional Factors Inhibiting Growth and Development
<p>Ngaka Modiri Malema</p> <ul style="list-style-type: none"> ➤ Ramotshere Moila ➤ Distsobotla ➤ Mafikeng ➤ Ratlou ➤ Tswaing 	<ul style="list-style-type: none"> • Justice system in a state of collapse (police, security, law enforcement, etc.) • Interpretation and application of the BEE principle • Agricultural groups have different agendas (not one mouth-piece to communicate problems to the different levels of government) • Ministry of Agriculture and Land Affairs not functioning together as one ministry • Uncontrolled settlement programmes leading to the establishment of informal settlements • Insufficient cooperation between municipalities and agricultural unions • Lack of processing facilities • Municipalities have lack of capacity to give effective support to the agricultural sector • Lack of an effective monitoring and evaluation system to ensure proper implementation of agriculture related projects • Funding criteria for beginner farmers not emphasising risk management • Absence of proper information and support from DACE (poor work ethic, shortage of experience and knowledge, weak capacity to maintain knowledge, poor decision making) • Poor border control (inflow of illegal immigrants) • Insufficient financial services and funding sources for farmers (unable to provide farmland as security because ownership belongs to government) • Lack of coordination and a collective support system for upcoming farmers • Uncompromising labour laws • No reliable agricultural database • Poor access to markets for upcoming farmers • Lack of government protective measures for the agricultural sector
<p>Dr. Ruth Segomotsi Mompati</p> <ul style="list-style-type: none"> ➤ Kagisano ➤ Naledi ➤ Mamusa ➤ Greater Taung ➤ Molopo ➤ Lekwa-Teemane 	<ul style="list-style-type: none"> • Police and judiciary system not capable of enforcing law and order (insecure climate, especially within the farming environment) • Ownership system with regard to communal lands • Inadequate government support systems for communal and beginner farmers (Policies from which support is derived are essentially wrong) • Poor governance that relates to negative business environment • Insufficient communication between local government and primary agriculture

Municipal Regions	Institutional Factors Inhibiting Growth and Development
	<ul style="list-style-type: none"> • Poor state and functionality of the health system • Lack of proper support systems from government (disaster management guidelines, etc.) • Insufficient investment into research and technology development from the government sector • Unreliable infrastructure (i.e. telecommunication, electricity, etc.) • Lack of working agreement between different government departments
<p>Dr. Kenneth Kaunda</p> <ul style="list-style-type: none"> ➤ Ventersdorp ➤ Tlokwe ➤ Matlosana ➤ Maquassi Hills ➤ Merafong City 	<ul style="list-style-type: none"> • High land prices • Poor veterinary services • Absence of proper marketing structures • Illegal land claims (contribute towards drawn-out land reform process) • Lack of proper development plans
<p>Bojanala</p> <ul style="list-style-type: none"> ➤ Madibeng ➤ Moretele ➤ Rustenburg ➤ Kgetlengrivier ➤ Moses Kotane 	<ul style="list-style-type: none"> • Lack of proper land audits by municipalities • Rezoning of high potential agricultural land • Lack of education and entertainment for youth • Absence of properly functional farmers groups • Lack of SDF (Spatial Development Framework) • Distorted markets • Collapse of governmental experimental farms

Human factors remain at the root of most shortcomings and tribulations experienced within government institutions as well as the development, implementation and management of support structures. Furthermore, human factors and their impact on the functionality of the different institutions, especially government institutions, coupled with structural weaknesses, added to the dimension of challenges apposing growth and development in the NWP.

In addition, several of the institutional challenges depicted in Table 4.2 relate to the implementation or execution of policies on ground level and refer to the slow process of land restitution and land reform in the NWP. Many role-players in the province are of the opinion that the slow restitution process creates an environment of uncertainty amongst producers that negatively affects production capacity and food security in the province. Moreover, the slow restitution process has resulted in the establishment of informal settlements on previously productive (restituted) agricultural lands.

Ancillary to the ineffective implementation or execution of policy on ground level is the inadequate post-settlement support (i.e. funding, training, mentorship, etc.) provided by local government. This has contributed to the failure of several development projects in the NWP. Hence, according to findings from the SWOT analyses, ineffective implementation and

inadequate post-settlement support could mainly be ascribed to the incapacity and understaffing of departments of local government on the one hand, and the formulation of inadequate policy and policy guidelines on the other.

The same applies to the extension services in the NWP, with several extension officers not being capable of fulfilling their duties or responsibilities. Moreover, when educational shortcomings and other factors including poor infrastructure, inadequate financial resources and weak institutional structures are taken into account, these factors combined limit the extent to which extension services can support commercial and upcoming farmers, with the latter invariably located in the most remote rural areas and thus being difficult to access. Failure of extension support to emerging farmers triggers a chain reaction that impedes the good faith between farmers and public institutions.

Findings from the SWOT analyses reveal an entirely different picture for development projects that are administrated and managed within the private sector. Agribusinesses in the NWP have recognised the importance of successful land reform programmes, and have developed supporting mechanisms which are implemented with great levels of success. The successes of these structures can mainly be ascribed to capacity and knowledge within the relevant institutions. Thus, cooperation between private and public sector seems to be essential to ensuring growth and development in the NWP.

4.2.2.1 Support and mentorship

Successful land redistribution programmes are of the utmost importance in ensuring food security and increased wealth and prosperity for those involved. Controversially, past experiences of land redistribution programmes sketch the picture of a poverty trap rather than increased wealth and prosperity. In the NWP, however, most agribusinesses together with other institutions have identified the need to provide assistance to land redistribution and restitution beneficiaries, enabling them to develop from beginner to commercial farmers.

Temo Agri Services (TAS) in Brits is an example of such a support mechanism that is developed and managed by Magaliesberg Cooperation Group (MGK). The division comprises a joint venture between MGK and the Temo farmers' trust, which was established for the benefit of emerging farmers and forms part of Temo Agri investment, a black-owned company who invested in MGK, acquiring 22 % of MGK shares in a BEE transaction.

The TAS division operates as one of MGK's business divisions, which enables them to have access to the vast resources available to other MGK business divisions and provides services such as production loans, crop insurance, production inputs, marketing, logistics and mentorship. However, the strength of the division lies in its mentorship programme, designed to train and develop emerging farmers. The objectives of the division include:

- To ensure that farmers acquire the necessary technical skills required to succeed in grain and oilseed farming;
- To train farmers in farm management;
- To train farmers in financial planning and budgeting;
- To train farmers in human resources management.

Farmers that join the programme become beneficiaries of the Farmer Share Trust, which owns 10 % of the acquired 22 % of MGK shares. This enables them to participate in the programme, thus receiving the necessary support and mentorship required to be successful.

However, another great challenge faced in the NWP is the development of policies that assist private institutions to successfully develop and implement mentorship schemes or ventures, including the promotion of joint venture (JV) schemes between agribusiness and government. Mayson (2003) pointed out that JVs are an increasingly common feature of the land and agrarian reform process in South Africa. This entails that upcoming farmers with land rights, reform beneficiaries or corporate entities receive financial support from government, with commercial farmers and corporate entities engaging in joint agricultural or other land-related production. These schemes normally give land reform beneficiaries access to capital and land, and bring in the expertise of commercial farmers or agribusinesses, which empowers them to become successful in their practices.

4.2.3 Infrastructure

According to Mboweni (2005) at the Fedusa third national congress, “the maintenance, upgrading and expansion of infrastructure deserve a prominent position among any list of reforms needed to propel growth to a higher plane”. Therefore, government in cooperation with public entities has the task of developing and maintaining the infrastructure needed to stimulate marketing development and other activities that depend on marketing, i.e. production, processing, etc. Importantly, decisions on infrastructure must be taken in consultation with affected communities in the NWP.

Table 4.3 shows the different infrastructural shortages and flaws identified as inhibiting growth and development in the respective municipal regions of the NWP.

Table 4.3: Infrastructure inhibiting development in each district municipality

Municipal Regions	Infrastructural Factors Inhibiting Growth and Development
Ngaka Modiri Malema ➤ Ramotshere Moila ➤ Distsobotla ➤ Mafikeng ➤ Ratlou ➤ Tswaing	<ul style="list-style-type: none"> • Infrastructural system not functional (i.e. rail, road, power telecommunication) • Lack of processing facilities • Irrigation channel system old, leaking a lot of water • Long distances to markets • Degradation of resource base due to inadequate fencing • Lack of auction facilities for small-scale farmers • Lack of irrigation system for small-scale/developing farmers
Dr. Ruth Segomotsi Mompati ➤ Kagisano ➤ Naledi ➤ Mamusa ➤ Greater Taung ➤ Molopo ➤ Lekwa-Teemane	<ul style="list-style-type: none"> • Lack of proper pounds for stray animals • Lack of adequate fencing in communal/rural areas • Secondary roads in dilapidated condition • Poor health status (absence of, malfunctioning of clinics) • Breakdown of schools, police stations, etc. in remote rural regions • Inadequate drainage systems
Dr. Kenneth Kaunda ➤ Ventersdorp ➤ Tlokwe ➤ Matlosana ➤ Maquassi Hills ➤ Merafong City	<ul style="list-style-type: none"> • Absence of proper marketing structures • Absence of information centres where farming information can be sourced
Bojanala ➤ Madibeng ➤ Moretele ➤ Rustenburg ➤ Kgetlengrivier ➤ Moses Kotane	<ul style="list-style-type: none"> • Old operational systems of municipalities cause operational problems • Lack of training centres • Lack of educational entertainment facilities for the youth • Lack of nearby markets for developing farmers • Inadequate or no public transport infrastructure • Lack and collapse of government experimental farms • Lack of adequate infrastructure to control storm water and flooding

Foremost amongst infrastructure deficiency concerns is the state of transport, which serves as the gateway to markets and inputs for producers in the NWP. In addition, concerns were raised with regard to social development infrastructure, including the health system, schools, police, etc., all of which indirectly influence the functionality of the agricultural sector in the province. The following sub-sections will elaborate on the main infrastructural challenges or shortages highlighted in the SWOT analysis workshops (see Table 4.3).

4.2.3.1 Railways

The state of transport and railway links is cause for concern in the NWP as these systems form part of a crucial element of the transportation system, and are a significant factor in the movement of products both within and beyond the borders of the province. However, deterioration of the system over the past decade has resulted in it not being adequately suited for all the specific needs.

4.2.3.2 Roads

The decay of railway infrastructure and functionality has placed excessive demands on roads in the province. This has contributed towards the increased dependency of producers and manufacturers on road transportation to access their supply and product markets. However, insufficient infrastructure in terms of limited access to main roads results in added difficulty for producers in accessing their relative markets.

Furthermore, the deteriorating condition, especially of secondary roads, adds to the scale of the problems faced by producers in accessing their markets. Developments and related activities of the mining industry coupled with low maintenance are the foremost reasons for the poor condition of roads in the NWP. As a result, farmers are faced with increased transportation costs, which negatively impact on their profitability.

4.2.3.3 Fences

The lack of adequate fencing holds severe ramifications for the NWP and its natural resource base. Roaming livestock and stray animals coupled with the lack of an effective pound system pose a major problem for both farmers (whose crops get damaged) and the general public at large (whose safety along the roads is at stake). Moreover, effective management of livestock herds is impossible without basic infrastructure such as fences. This has resulted in overgrazing, especially in the communal areas of the NWP. Hence, overgrazing is directly linked to erosion and subsequently the degradation of the natural resource base in the NWP.

In addition, results from the SWOT analyses reveal that the roaming of stray animals also serves as a vector for the spread of transmittable animal diseases in and around the province and holds a serious threat for the livestock sector. The outbreak of a transmittable disease such as Foot and Mouth (FMD) would not only affect the province, but would have a significant impact on the national economy. This is especially concerning within the backdrop of inadequate veterinary services, coupled with the inability of the Department of Conservation and Economic Affairs (DACE) to monitor potential outbreaks in the NWP. There is also no vaccination programme in place to deal with outbreaks of transmittable diseases amongst small-scale or developing farmers (no specific educational information/guidelines and no training for these farmers regarding vaccination programmes, etc.).

Theft of fences could be regarded as the main reason for inadequate fencing in the NWP. Most recently, high steel prices have contributed towards the problem, with fencing material being stolen and sold for scrap metal. This relates back to the ineffective enforcement of the law and justice system in the province. Serious action should be taken against these perpetrators, as their actions could have far reaching consequences not only for the province but also for the country.

4.2.3.4 Social development

Poor functioning and the relative breakdown of social development systems (healthcare, education, and justice, etc.) in the NWP relates to the lack of capacity within the respective

provincial departments, coupled with infrastructural deficiencies (roads, water, electricity, buildings, etc.). This applies especially to the remote regions of the province where access to operational requirements are limited, as mentioned above.

In addition, the results of the SWOT analyses suggest that the province's healthcare system, especially in the deep rural parts of the province, is characterised by areas with no clinics, or clinics that are often in a neglected condition, and with doctors and medical staff that are seldom effective in their treatments. Moreover, unemployment and low levels of income due to lack of education and skills levels result in many households being extremely vulnerable to problems in the functioning and accessibility of the health care system in these regions. The situation in the NWP is further exacerbated by the incidence of HIV/AIDS and other diseases such as tuberculosis that become more infectious because of HIV/AIDS.

Besides making inhabitants of the NWP more susceptible to other diseases, the major impact of HIV/AIDS is the devastating effect that it has on development and growth through its impact on the workforce's ability or capacity to be productive. As a result of increasing frequency of ill-health, the individual is unable to perform at an acceptable level, which directly impacts on wages earned. Hence, the immediate impact on the household is a decline in income that exacerbates poverty and destitution for those associated with the infected person.

A similar environment is experienced in the educational system, with certain regions that are characterised by no schools or schools in a deprived condition. Such institutions are normally understaffed, or in some cases vacancies are filled by unqualified or incompetent employees. This has contributed to the poor level of human development in the province, and resulted in people being more susceptible to economic hardship and poverty.

Furthermore, concerns were raised with regard to the absence of agriculture and related subjects in schools. This has contributed towards the unfamiliarity of the youth with regard to agriculture and could be considered as one of the reasons for the low level of interest in farming. Moreover, the lack of proper agricultural education and information has led to the outflow of young people from the sector, creating a vacuum with regard to the number of well trained and knowledgeable

people in agriculture, thereby threatening the future sustainability of commercial agriculture. It has also contributed to the ageing population in agriculture, presenting a stumbling block towards achieving greater success with farming.

The inadequate functioning of the police services and the inability of the judiciary system to enforce the law in the NWP has created an insecure climate in most regions of the NWP, especially amongst the agricultural community. This has seen several leading farmers and their workers migrating from the rural regions, which has further contributed to the vacuum of knowledge and skills in the sector.

4.2.4 Natural resources

The NWP economy is firmly based on its natural resource base, with mining and agriculture being the foremost contributors to economic growth and development in the province. Over the years, government has given agricultural development a high priority, with its role being critical to the overall social and economic development of the NWP.

However, concerns have been raised with regard to environmental degradation in the NWP. Although natural factors such as drought and climate change can contribute to land degradation, poor land use management and planning are the key causes of land degradation. NEPAD (2002) as reported by the DEAT (2008) indicates that environmental degradation and the unsustainable exploitation of natural resources threaten to reduce the future productivity of agricultural land and natural resources. Hence, the effects of land degradation are often stated in terms of lost productivity, which threatens food security and contributes to poverty as well as the migration of people residing in both rural and urban regions of the province. Musvoto (2008) is of the view that the impact of degradation stretches beyond the direct impact of production losses. According to Musvoto (2008), the direct relationship between the degradation of soils and the degradation of water related services results in the secondary costs of land degradation, which include the decreasing resilience of the ecosystem, loss of ecosystem services and damage due to siltation of water bodies. This can best be illustrated by an example, namely inappropriate tillage practices, which can result in poor soil structure. Poor soil structure can result in reduced

infiltration and this often leads to increased runoff and soil erosion, resulting in pollution of water bodies and negatively affecting aquatic biodiversity as illustrated in Figure 4.1 (Musvoto, 2008).

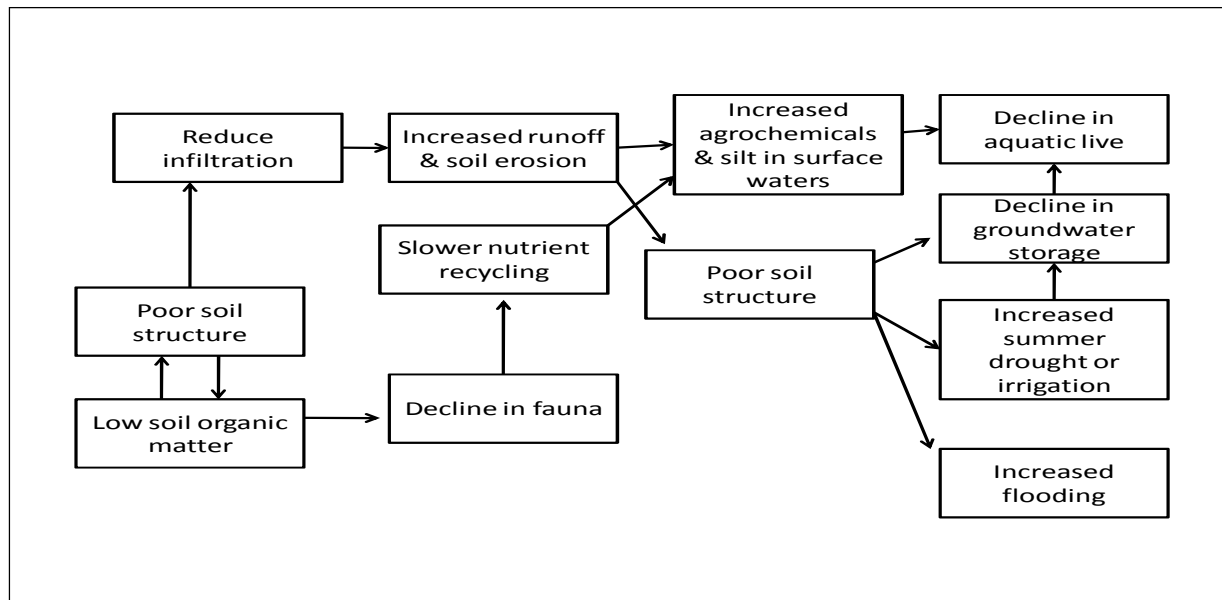


Figure 4.1: Degradation process and the effects on the environment

Source: Musvoto (2008) as adapted from Holland 2004.

Thus, natural resource degradation could be seen as a cross-cutting issue and is intricately linked to food security, poverty, urbanisation, climate change and biodiversity. As described in the previous paragraphs, agriculture can trigger land degradation processes, and these processes can interact synergistically with feedbacks having detrimental consequences. Therefore, one of the major challenges will be to ensure that agriculture does not degrade the underlying natural resources through the development of business plans based on suitable farming practices that will ensure viable utilisation of the natural resource base.

4.2.4.1 Natural resource degradation in the NWP

A study by Hoffman *et al.* (1999), as reported by the civil society mobilisation project (Jordaan, *et al.*, 2006), revealed that the NWP is listed fourth out of the nine provinces in terms of the collective natural resource degradation index. Moreover, in terms of soil and veld degradation

indices, the province is listed in fifth and fourth places respectively. The statistics also indicate that the combined degradation index in the communal areas is approximately 2.5 times higher than in the commercial farming areas.

As for soil degradation in the NWP, Jordaan *et al.*, (2006) reported a fairly high index of 149. The severity (degree and extent) of soil degradation ranges between 4.4 for the commercial areas, and 6.0 for the communal areas. Moreover, regions within the Bojanala Platinum district municipality (Madikwe, Lehurutshe, Mankwe) showed the highest degradation index values, with cropland and grazing affected by wind and water erosion. Furthermore, the Vryburg district, which lies within Dr. Ruth Segomotsi Mompati district municipality, struggles with farmland that has been covered by wind-blown sand.

Jordaan *et al.*, (2006) suggested that veld degradation in the NWP has occurred due to bush encroachment/thickening, loss of basal cover and changes in species composition. Jordaan *et al.*, (2006) further reported that these causes are so interwoven that it is extremely difficult to point out a single causative factor. For instances, the loss of cover or changes in the species composition can lead to bush encroachment. Bush thickening for whatever reason, however, also leads to changes in the species composition and is accompanied by a decrease in the basal cover. Hence, the authors studied the majority (28 districts) of the province and came to the conclusion that veld degradation seemed to be a problem throughout the province.

4.2.4.2 Natural resource factors inhibiting growth and development

This section reflects aspects of the province's natural resources that the SWOT analyses identified as inhibiting growth and development. These factors do not vary significantly between the different district municipalities and relate closely to land degradation, as a result of both human activities and natural causes.

Table 4.4: Natural resource factors inhibiting growth and development in each district municipality

Municipal Regions	Natural Resource Factors Inhibiting Growth and Development
<p>Ngaka Modiri Malema</p> <ul style="list-style-type: none"> ➤ Ramotshere Moila ➤ Distsobotla ➤ Mafikeng ➤ Ratlou ➤ Tswaing 	<ul style="list-style-type: none"> • Rainfall (fluctuations in average annual precipitation between seasons and regions) • Overgrazing of communal lands • Badly maintained fire belts (contribute towards uncontrolled veld fires) • Climate very moderate and unsuitable for agricultural production in most regions of the province • Pollution of underground water and river systems (malfunctioning of municipal sanitation systems) • Variation with regard to soil depths (even differing on the same lands) • Sporadic droughts
<p>Dr. Ruth Segomotsi Mompati</p> <ul style="list-style-type: none"> ➤ Kagisano ➤ Naledi ➤ Mamusa ➤ Greater Taung ➤ Molopo ➤ Lekwa-Teemane 	<ul style="list-style-type: none"> • Extreme weather conditions (Erratic rainfall patterns coupled with severe droughts, sudden floods, etc.) • High levels of water evaporation • Inability of small-scale farmers to access underground water (water at depths that make pumping unaffordable) • Underground water supply is unreliable (over-utilisation of the resource) • Water contaminated by informal settlements • Poor quality of irrigation water (polluted by the malfunctioning of upstream municipal sanitation systems) • Salinity (inadequate drainage infrastructure) • Bush encroachment as a result of overgrazing • Poisonous plants • Uncontrolled veld fires • Contagious animal diseases (livestock and game that enter region from other areas) • Poor rehabilitation of soils by the mining sector (adds to destruction of the natural resources)
<p>Dr. Kenneth Kaunda</p> <ul style="list-style-type: none"> ➤ Ventersdorp ➤ Tlokwe ➤ Matlosana ➤ Maquassi Hills ➤ Merafong City 	<ul style="list-style-type: none"> • Alien species encroachment on productive farm land • Water shortages (underground water; Maquassi hills) • Dolomite underground structure holds threat for the utilisation of underground water
<p>Bojanala</p> <ul style="list-style-type: none"> ➤ Madibeng ➤ Moretele ➤ Rustenburg ➤ Kgetlengrivier ➤ Moses Kotane 	<ul style="list-style-type: none"> • Invader trees (absorbing enormous quantities of water) • Relatively high incidence of hail • High summer temperatures coupled with low average rainfall

4.2.4.3 Water

Due to unpredictable rainfall, high evaporation rates and low conversion to runoff, the NWP, like other provinces in South Africa, is a water-stressed province, where demand is fast approaching available supply.

The surface water reservoir in the NWP is mainly from rivers, dams, pans, wetlands and dolomitic eyes fed by aquifers. However, perennial surface water resources are generally scarce and unsustainable, particularly in the semi-arid western portion of the province. Many of these reservoirs are dependent on runoff water, with runoff as a percentage of the precipitation ranging from less than 1 % in the west to approximately 7 % in the eastern region, and the average runoff of 6 % being well below the national average of 9 % (North West Department of Economic Affairs and Tourism, 2008). The main rivers in the province include the Crocodile, Groot Marico, Hex, Elands, Vaal, Mooi, Harts and Molopo rivers.

These rivers nourish three of the most important catchment areas in South Africa, all of which fall within the borders of the NWP, namely, the Vaal River catchment in the South, the Limpopo River catchment in the north east and the Orange River catchment in the west. Concerns have been raised with regard to the management of these catchment areas, especially regarding the control of alien plants. According to the North West Government (2008), alien plants (e.g. bluegums and poplars) are responsible for excessive abstraction of water from the catchments, which negatively influences the availability of water in the province.

Large reservoirs of subterranean water in the form of fractured aquifers and dolomitic compartments are present in the NWP. However, recharge to this resource is considered to be one of the lowest nationally, with an average of less than 10 mm per year in the western regions of the province. Therefore, emphasis needs to be placed on the sustainable utilisation of this water resource, given that excessive abstraction might result in sinkholes, which holds a threat to both human settlement and the agricultural sector.

Thus, the NWP relies heavily on its underground water resources to meet agricultural, industrial and mining demands. However, according to concerns raised during the SWOT analysis workshops, excessive abstraction coupled with droughts, which are more a rule than an exception in the western parts of the province, has seen these resources become unreliable and more difficult to access. This applies especially to consumers/users in the remote rural regions of the province, where the underground reservoir levels have deepened to the point where it is uneconomical to pump. This holds a severe threat for agriculture, given that it not only forms the backbone of economic activities in these remote rural regions but also serves as a means of survival for people residing there. The deepening levels of underground water might impact to a lesser extent on the urban regions, with users being able to access surface water, depending on their location. However, the situation requires that government intervene to protect the levels of underground water and by doing so address the threat it holds towards the sustainability of agriculture in the rural regions. Government will be required to monitor the levels of underground water and when necessary enforce the National Water Act 36 of 1998. According to the act, water for human and animals consumption is protected.

Moreover, the pollution of surface as well as underground water raises serious concerns among most users in the NWP. Pollution due to salinisation, acid mine drainage, industrial effluents and storm-water runoff in urban areas has seen the quality of water decline. This could have serious implications, especially for human health and the productivity of the agricultural sector in the province. As discussed earlier, agricultural productivity is directly related to food security and health, so that water pollution holds dire consequences for the NWP and its inhabitants.

The opportunity for the expansion or introduction of new projects entailing water intensive crops or enterprises appears to be limited in the NWP. The prognosis for such enterprises is clearly one of high risk against the backdrop of the current water concerns. Emphasis should rather be put on the improvement or revival of current irrigation projects for which water is already allocated.

4.2.4.4 Soil

In general, land and soil in the province show signs of degradation. According to the ARC (2008), this degradation can be ascribed to wind and water erosion. This, in turn, can be ascribed to factors such as degradation of the land cover, which is directly related to factors previously highlighted, i.e. lack of adequate fencing, inappropriate farm management practices, uncontrolled veld fires, etc.

However, soils in the western, and especially the north-western and central western regions of the Dr. Ruth Segoma Mompati District Municipality (RSMDM) are predominately deep, with excessively drained red or yellow sands containing 0-6 % clay in the upper parts. Soils in the southeast regions, on the other hand, tend to be somewhat shallower, characterised by red and yellow loamy sands or a light sandy loam that is also susceptible to subsurface compaction, and in some instances to surface crusting (ARC, 2008). Cultivation is more common in the southeast region of the district.

Soil texture and characteristics are rather different for the various regions in the NWP. Hence, soils in the east of the province, specifically towards the plains in the western parts of Bojanala Platinum District Municipality (BPDM), are mainly underlain by shales and diabase of the Transvaal sequence and the pedisements originating from these rocks. These soils are regarded as moderately deep to deep, and dominated by red sandy loam or sandy clay soils. Soil types in the south-western region of BPDM are similar to those of the western parts, but tend to be shallower. Regions in the north of the district municipality are covered by moderately deep to deep black or red, strongly structured clay soils. However, rocky outcrops are visible in certain areas of the BPDM, and are more evident towards the central regions (ARC, 2008).

Several commonalities can be found between soils in the Ngaka Modiri Molema District Municipality (NMMDM) and the RSMDM, with the bulk of the NMMDM being covered by moderate deep to deep red and yellow sands to light sandy loams that drain excessively to imperfectly. These soils are also highly susceptible to wind erosion in the absence of vegetal cover. Soils in the NMMDM are fairly extensively cultivated, except for the north-western parts.

Soils in the north of this district consist of swelling black clay and heavy textured red soils (ARC, 2008).

Soils in the Dr. Kenneth Kaunda District Municipality (KKDM) consist of predominantly shallow, sandy loams and abundant rocky outcrops with deep to deep sandy loam soils being subdominant (ARC, 2008).

4.2.4.5 Climate

Global climate change threatens the success and pace of agricultural development and consequently of poverty eradication. Rural communities, especially subsistence and upcoming farmers in remote regions, are usually those most vulnerable to climate changes. These people have the fewest resources available, and general lack of information poses a further burden in adapting to climate change. This is especially true for the NWP, where climate variations are coupled with great variations in rainfall between the mountainous, wetter eastern region and the drier, semi-desert Kalahari plains in the west.

The NWP is primarily a summer rainfall area, with hot summers and cool sunny winters. The rainy season usually occurs from October to March and peaks in January in the central regions. Average annual precipitation varies between 500 mm and 700 mm in the eastern parts of the province, and between 400 and 600 mm in the central regions. In the western districts, annual rainfall varies between 100 and 400 mm. Simultaneously there is a corresponding increase in evaporation from east to west (Tswelopele Environmental Pty, 2008). Hence, in the south-eastern region of the NWP, evaporation tends to exceed annual precipitation, which directly contributes to arid and semi-arid conditions (Urban-Econ, 2003). According to a study that was done by Hassan (2006) as reported by Tswelopele Environment Pty (2008), climate change will result in a decrease in rainfall of 5 to 10 %, coupled with a projected increase in temperature of 1 to 3°C and related evaporation rates. This will have a significant impact on the agricultural sector, particularly on dry-land crop producers farming in the NWP.

Furthermore, global climate change or global warming has resulted in the natural fluctuation of climate cycles at different time scales, contributing towards increased intensity of extreme weather patterns in the NWP. Unpredictable climate changes hold a primary threat to farmers in the eastern parts of the NWP, as many of these farmers are involved in perennial crop production (citrus, vinyards, etc.), with these crops being most sensitive to climate changes (temperature, frost, etc.).

Moreover, Tswelopele Environment Ltd (2008) reported that a dramatic biome response to climate change is predicted to change the climate suitability of areas occupied by different biomes, leading to a shrinking of the extent of these biomes. Predicted changes in biome boundaries could affect more than 75 % of the NWP by the year 2050, with existing savannah vegetation shrinking towards the eastern corner of the province. It is important to take these changes into consideration for the successful development and implementation of future agricultural projects in the province, as the rates of extinction and reduction in the ranges of species will increase as favourable habitats become more narrowly distributed.

4.2.4.6 Grazing

The vast majority (71 %) of the NWP falls within the savannah biome while the remainder falls within the grassland biome. This province could be divided into four major ecological zones including Highveld, Bushveld, Middleveld and Kalahari Desert, with the NWP being the province with the second lowest plant diversity of all provinces in the country (North West State of Environmental Report, 2002).

The majority of land in the NWP is low and low to moderate potential grazing land, with grazing capacity that ranges between 5 and 25 ha per AU². Over-utilisation of grazing is a serious concern in the NWP. Communal areas are often grazed continuously at stocking rates that exceed the carrying capacity of the landscape. This has resulted in the soil surface being exposed, which contributes towards soil erosion, reduction in the grazing capacity and bush encroachment, putting additional pressure on remaining grazing areas.

² Animal unit (AU) refers to a large stock unit (LSU) which is equal to 450 kg

Bush encroachment is perceived as another big environmental issue in the NWP. It directly influences farming practices, as encroachment reduces the availability of grazing lands. According to Jordaan *et al.* (2006), the main reasons for bush encroachment and related natural resource degradation are as follows:

- Overstocking;
- Poor or no camp systems;
- Poor or no veld management;
- The communal grazing system leads to open access for those within the area;
- Lack of responsibility because of lack of ownership;
- Settlements on grazing lands;
- Drought and other natural phenomena;
- Injudicious burning practices that lead to resource degradation (bush encroachment, etc.)

Furthermore, in conjunction with injudicious burning practices is the lack of proper fire belts and resultant uncontrolled veld fires. Not only do uncontrolled veld fires have an enormous impact on grazing capacity in the short term, they also lead to further bush encroachment which negatively impacts on grazing capacity in the long term. Hence, the consequences of bush encroachment stretch beyond the reduction of grazing capacity, as it also absorbs enormous amounts of water in a province where water could be regarded as a scarce resource.

However, the loss of rangeland cover constitutes a serious factor inhibiting livestock development in the NWP. Therefore, emphasis needs to be put on farming practices and programmes that preserve or restore rangeland cover in the NWP.

4.3 Key Challenges faced by the Agricultural Sector in the North West Province

The key factors inhibiting growth and development as identified by the SWOT analyses have been discussed in the previous section, but it was also found adequate to highlight the challenges faced by the agricultural sector in the NWP as identified by the NWDACERD in its strategic plan. Significant challenges identified by NWDACERD (2001) include the sustainable use and development of the natural resource base, low profitability and competitiveness. These

challenges are manifested in a number of issues, each providing its own, further challenges, and are summarised in the Strategic Plan of the NWDACERD as follows:

- **Infrastructure backlogs:** Insufficient basic on-farm and off-farm infrastructure in the developing agricultural sector and amongst emerging black farmers, especially in the old homeland areas, is largely responsible for the low profitability and constrained competitiveness of the sector.
- **Constrained competitiveness and low profitability.** There is evidence that some sub-sectors and value-adding activities are uncompetitive in local and international markets. This is caused by high input costs combined with low productivity, sub-optimal business strategies, inefficiencies, and unfair trade practices. The lack of competitiveness leads to low profitability, which is again responsible for low investment in certain sub-sectors; poor investment in agriculture is the major challenge that needs to be addressed to put these sectors on the high growth path that is envisaged.
- **Inadequate human resources and skills base for effective and efficient support, research and delivery systems.** Key programmes within the Department of Agriculture experience human resource capacity and capability constraints. The latter is particularly prevalent amongst the specialist and technical advisory components of the programmes. As a result, the Department's current human resource and skills bases in these areas are not aligned with the extensive global and technological changes that have taken place over the past decade. This ultimately has an adverse impact on service delivery.
- **Exploitative and unsustainable use of natural resources:** Degradation of the resource base is linked to the fundamental poverty trap that many previously disadvantaged people find themselves in. Furthermore, this is linked to the above problem of inadequate skills (among both people and advisory staff) to develop and implement sustainable practices, and is exacerbated by the State's incapacity to enforce legislative requirements when the commercial sectors do not comply with these sustainability practices.

A number of specific challenges were identified by the NWDACERD in 2007 as being critical in terms of their potential impact on service delivery issues. These include:

- Alignment of departmental service delivery mechanisms with local government's institutional arrangements;
- Alignment of service delivery programmes with support PGDS and ASGISA initiatives;
- Implementation of the provincial growth and development objectives;
- Targeted implementation of the AgriBEE Charter;
- Roll-out of the MAFISA programme in the province;
- The challenges of land redistribution;
- Low productivity in smallholder agriculture;
- The social and economic impact of HIV/AIDS;
- The high rate of unemployment and poverty in the province;
- Barriers to increased production, including farming knowledge, appropriate technology, access to resources, access to markets and business skills;
- Exploring partnerships and cooperation in the agricultural value chain to improve market and finance access;
- Strengthening stakeholders' relations in the sector;
- An ever-increasing demand for services, particularly from emerging farmers and the game industry;
- Provision of comprehensive agricultural support to beneficiaries of land reform and new entrants into farming;
- Food Security, Women and the Young Farmer programmes.

Moreover, in addition to the challenges highlighted by the NWDACERD in their strategic plan, several shortcomings and flaws in the province have resulted in further challenges for the agricultural sector, which include the following:

- The rural nature of the province and the condition of the major physical infrastructure makes it difficult for agriculture to be competitive.

- Low population density in certain municipal regions of the province, which in certain respects decreases the demand for agricultural products, as many inhabitants produce food on garden or subsistence scale.
- Outflow of young people from agriculture to seek job opportunities in other sectors of the economy. Results from the SWOT analyses reveal that the inability of the agricultural sector (due to low profit margins) to compete against the wages paid by other sectors, especially the mining sector, have contributed towards the outflow of young people from agriculture. This has led to the phenomenon of an ageing agricultural population in the NWP.
- Backlogs in basic service delivery and maintenance by several municipalities of the NWP. Although these have improved since 2004 to date, the uncontrolled emergence of informal settlements and the lack of an integrated approach to housing delivery whereby sector departments do not participate in the planning and efficient allocation of resources all increase the burden of backlogs on local municipalities.
- Available resources are unevenly distributed and offer limited potential for improved delivery of services and growth.
- The vast majority of the population could be regarded as poor, with high levels of illiteracy that affect their ability to obtain viable employment opportunities. Moreover, the levels of illiteracy have contributed towards the high level of dependency on state grants, negatively influencing the willingness of these beneficiaries to become part of the economic active population. The dependency syndrome could be regarded as one of the reasons why the municipalities in the NWP have not established themselves as highly productive hubs throughout South Africa.
- The NWP is faced with the challenges posed by the social and economic discrepancies present in the province. Social inequalities have contributed significantly towards the current socio-economic climate, defined by high levels of poverty.
- The prevalence of HIV/AIDS. This impacts directly on productivity in the agricultural sector, especially in the remote rural regions where agriculture forms the backbone of all economic activities. Furthermore, other diseases such as tuberculosis, which are more infectious due to HIV/AIDS, infant mortality and the failing health care system all contribute to the challenges faced by the agricultural sector. The health situation poses several threats to the success of

development projects in the province, with the possibility that some beneficiaries will not be able to fulfil their obligations to the projects.

Ultimately, most of the challenges in the NWP stem from administrative fragmentation and incapacity amongst government institutions, coupled with the old and neglected condition of the physical infrastructure. However, these deficiencies are manageable and could be overcome through better structured policies and closer cooperation between government and private entities, developing markets and institutions that effectively support agricultural growth. Moreover, emphasis needs to be put on the stimulation of labour-intensive agricultural production; supporting the weak and vulnerable with safety nets; and investment in social infrastructure and human capital to enable the poor to take advantage of opportunities in the growing labour markets.

Furthermore, within the complex and challenging agenda of the NWP, priority should be given to education and training as a long-term resistance to challenges and factors inhibiting growth and development. This will facilitate a means by which the necessary human capital can be built, and contribute towards an improved institutional environment. Ultimately it would ensure effective governance, and create literacy and skills that will enable the poor to participate in the main stream economy.

4.4 Challenges Facing Developing Farmers

As already mentioned, the NWP agricultural sector holds enormous potential for growth and development. However, to increase agricultural productivity and economic prosperity for developing farmers, a number of constraints affecting specifically these farmers must be addressed. Several of these constraints stem from the challenges experienced within the agricultural sector, as discussed in the previous sections. The impact of these challenges on small-scale farmers can be categorised into four broad groups, namely:

- Production limitations;
- Access to credit;
- Human capacity;

- Market access.

It is important to understand and analyse the problems according to the broad categories above. Norton and Alwang, (1993) argued that agriculture can make a major contribution to economic development through the production of surplus food and fibre, the utilisation of labour, as well as the creation of capital and rural welfare. Moreover, the four categories closely relate to the institutional environment's "rules of the game" and the governance structures' "play of the game" of Williamson's institutional framework. Recall that these two levels are principally defined by the New Institutional Economics (NIE). The study will furthermore use this framework to develop the necessary institutional arrangements required to address the factors inhibiting rural development.

4.4.1 Production limitations

In respect to production limitations, it has been found that the greatest constraints relate to availability and affordability of key inputs such as seed, fertilisers, pest control products and machinery for cultivation of the fields. In the past, farmers in the communal areas were assisted by government agencies, which have now been dismantled as part of the ongoing agricultural restructuring process. Without any prior experience of how to cope with these production eventualities, many farmers have had to abandon farming altogether, while others are trapped into arrangements that do not benefit them and further reduce the profitability of farming in the former homelands. This is what has happened, for instance, in the old Bophuthatswana since 1994. The land reform programme in South Africa has also resettled many black farmers who do not have the financial means to acquire the necessary inputs.

4.4.1.1 Inputs

According to findings from the SWOT analyses, lack of capital is the most important constraint facing developing farmers. There are many problems associated with high input costs and lack of capital. Acquisition of production capital determines the affordability of goods inputs such as high quality seed, more effective fertilisers, better pest control, etc. Sustainable production

greatly depends on using good inputs. The cost price-squeeze has a serious impact on emerging farmers, as their input costs often exceed potential income. Farm management becomes more difficult when availability and affordability of inputs become of concern. Low quality inputs are then used, which leads to decreased yields and productivity. Emerging farmers become more dependent on input suppliers as their demand for improved supplies increases. Small-scale farmers tend to experience more difficulty in acquiring new and technologically improved inputs than commercial farmers.

4.4.1.2 Farming practices

Farming practices include both cultivation techniques and livestock practices. According to findings from the SWOT analyses, the traditional idea should be discouraged that bigger livestock herds represent greater wealth. This belief creates the incentive among farmers to increase livestock numbers, irrespective of the grazing capacity of natural pastures, accessibility of feed or the quality of the animals. The results are over-grazing, inferior quality animals and erosion. Erosion causes deterioration of the available pastures and arable land. In the long-term, this vicious cycle further decreases the general productivity of the land.

Moreover, results from the SWOT analyses reveal a greater tendency for small-scale farmers in the NWP to engage in intercropping practices. Mixed cropping should not always be seen as negative, for it does have some advantages. Small-scale farmers have low incomes and are normally risk-averse. Intercropping gives a more stable cash flow and is a way of diversifying income on scarce land resources. Mixed cropping practices also spread the labour demands over a longer time period. Furthermore, pests are less of a problem in intercropping systems, thus reducing required input costs.

The importance of the necessary skills within farming cannot be overestimated. Not only are technical skills important – managerial and decision-making skills are too. Every commercial farm, independent of its size, has to be profitable. Maximum profit can only be realised when the right decisions are made, and these decisions must be based on data from efficient and well-kept records. This emphasises the importance of both management and record-keeping skills.

Finally, to be sufficient in the demanding, highly competitive environment of today's agricultural sector, farmers also need to practice improved cultivation methods.

4.4.2 Lack of access to credit

Production capital is absolutely essential for any farming operation. Because small-scale farmers do not have collateral, they find it difficult to acquire credit. Commercial banks, the Land Bank and other money-lenders also consider small-scale emerging farmers as being high-risk.

Usually, the farming units of small-scale farmers are very small, are found in relatively distant geographical areas and have less developed infrastructure. This results in relatively high transaction costs. Micro-financing, when available, involves high interest rates due to high administration costs, opportunity costs and risk premiums. Informal credit providers include money-lenders, merchants, pawnbrokers, landlords, family and friends. These informal credit sources usually know their clients personally. This lowers the transaction costs, as screening borrowers to reduce risks takes less time. Informal money-lenders also use simple accounting techniques, which lowers costs and reduces administration time (Norton & Alwang, 1993).

Loans to small-scale farmers are small, so the paperwork and time spent on evaluating potential borrowers, collecting payments and supervising loans in order to reduce risks, are relatively costly. Thus, where private and public sources exist, they tend to lend to larger farmers, thus reducing both administrative costs and the chances of default.

The South African Government regulates interest rates, which are, in general, relatively high. A lower inflation rate results in the lowering of interest rates. This is beneficial to borrowers and lenders, as lower interest rates result in cheaper credit for borrowers and less risk for lenders. This could lower the risk premium, which is normally very high for small-scale farmers. These farmers are poor and have a low income. One bad year may therefore have disastrous consequences. Weather usually affects farmers in the whole area. Bad weather can cause a large number of borrowers to default. The opportunity cost for the informal sector to invest in small-scale agriculture is relatively low, but quite high for the formal sector.

The fourth cost incorporated into interest rates is monopoly profit. Typically, it is expected that monopoly profits will be high and that exploitation of borrowers will occur in the informal credit sector, due to entry barriers to formal credit sources (i.e. because of high risks and administration costs). However, rivalry between informal money-lenders ensures that monopoly profits stay relatively low. The start-up capital needed is low as loans are relatively small. When monopoly profits rise, new competitors enter the market. The competition between lenders then forces the profits down.

The small size of farming operations, significantly low farm income, lack of knowledge, inappropriate technologies and precarious financial positions all contribute to making financing more difficult and riskier. Banks need security for their loans. This makes it difficult for an individual farmer on communal land or a farmer who rents land to obtain financing. Small-scale farmers with their own private property have security, but it is not adequate. The farms are small and have little fixed capital (permanent improvements), thus they are only able to acquire small amounts of capital.

The communal areas of the NWP and the resettlement areas around rural towns have low per capita income, and high rates of unemployment and illiteracy. These factors make it even less attractive for investors to invest in agriculture and other industries in these areas. An investor wants a return on his/her investment and these factors lower returns and increase risk. Consequently, there is a shortage of effective financial services in these areas. This increases the transaction costs, as potential lenders and borrowers have to travel long distances to banks.

Finally, access to capital is critical, which emphasises the importance of considering alternative institutional arrangements that will ensure access to finance for small-scale farmers.

4.4.3 Human capacity

According to the findings of the SWOT analyses, development programmes should not be implemented if they do not improve the human capacity of emerging farmers and that of their collaborators. Without skills, the farmers are unable to apply new knowledge to improve farm incomes. Farmers rely on the guidance of extension services. However, extension services are facing constraints of their own.

Moreover, health is an important issue that should not be neglected when considering human capacity. People's education, i.e. their knowledge and skills, and their health and nutrition, i.e. their strength and vitality, can be correlated directly to their productivity and therefore their levels of income.

4.4.3.1 Extension and support services

The NWDACERD has sufficient capacity in terms of the number of extension officers. However, according to findings from the SWOT analyses, extension services are seriously constrained by their lack of sufficient experience and knowledge, poor infrastructure, inadequate financial resources and weak institutional structures. These factors combine to limit the extent to which extension services can support poor farmers, who are invariably located in the most inaccessible areas. Failure of extension support to emerging farmers sets off a chain reaction that destroys the good faith between farmers and public institutions, and which will subsequently contribute towards the low level of social capital present in the province.

Beugelsdijk and van Schaik (2001) argued that social capital is an important factor behind economic development, since trust norms and networks boost economic and institutional machinery. It has also been argued that long term economic development efforts hinge strongly on the levels of national, regional or local social capital (Ostrohm and Ahn, 2001, as cited by Milagrosa and Slangen, 2005). As mentioned previously, Putman (1993) as cited by Jordaan *et al.*, (2006) found that social capital has a major influence on horizontal networks, which in turn were found to play a major role in economic growth in Northern Italy. Within the South African

context, social capital is thus of major importance since coordination and cooperation between emerging farmers and extension services could serve as a solution to include emerging farmers in the mainstream agricultural economy.

With respect to support and services, the emerging agricultural sector cannot rely only on the NWDACERD. Other institutions from both the private and public sectors should also be involved in programmes promoting skills training, extension services, development of organisations and institutions, financial assistance, creation of markets, as well as other activities.

4.4.3.2 Youth and women

Women and youth should be the main targets of agricultural training programmes. Results from the SWOT analyses highlighted that young people exhibit a general lack of interest in agriculture. Programmes focussed on the youth could create interest in the field, and would increase the capabilities of agriculture's future role-players. Besides, including the youth or improving their interest in agriculture would provide a solution to the aging agricultural population of the province.

Certain characteristics of the rural population were identified that relate to the youth and their general lack of involvement in agriculture. Firstly, most emerging farmers can be categorised as being older, and with a high level of illiteracy. Financial resources for farming operations are mainly acquired from pensions. Households rely heavily on remittances and governmental grants, and such aid forms a high proportion of household incomes. Nutritional levels within the rural community are deteriorating by the day.

In rural parts of the NWP, men and women play different roles in agriculture. In rural small-scale or subsistence farming operations, men are involved in producing cash crops and animals, whereas women are responsible for the household food crops.

Further education for women holds significant advantages. Higher levels of education for women are demonstrably related to lower birth rates, which in turn positively affects national food security, employment figures, and general economic well-being.

It should therefore be a priority to train the youth and women, to increase their literacy levels and to create an incentive for them to become involved in farming operations. If children are properly schooled and skilled, the adults of the future will be literate. This will also lead to more people being employed in other sectors of the economy.

4.4.3.3 Institutions

Results from the SWOT analyses suggest that cooperation between institutions is necessary to ensure the full development and utilisation of human and other resources for rural agricultural development. Institutional arrangements are being considered within structures of government, education, training and extension services, traditional and modern agriculture, research, culture, religion, lobby and vested interest groups, political and ideological organisations, the information sector, markets, policy-makers, etc.

It is imperative to recognise the need for aligning the development strategy in agriculture with institutional support structures. A perspective for rethinking traditional institutional systems and the need for greater integration across the sectoral value chain, which includes non-arable farming activities, must be developed.

4.4.4 Market access

In the publications of the BATAT programme of the DoA (2004), certain barriers with regard to market access by small-scale farmers are mentioned. The most important obstacles applicable to the NWP are the poor conditions of the roads that serve communities in the rural areas, inadequate information about supplies and prices, lack of transport, storage problems, lack of extension advice, and a lack of basic management and business skills.

One of the greatest difficulties small-scale farmers experience is access to markets for their products. According to Lyne (1996), smallholder farmers in similar circumstances across the country are further constrained by limited access to other factors of production, including credit facilities and information. As Ortmann and Machethe (2003) note, even with small farms, agricultural productivity can be improved if adequate access to support services and markets is guaranteed.

Many farmers find it difficult to transport their products to markets due to a lack of transport. When transportation costs are high, farmers are unable to get their fresh produce to the market; thus they resort to farm-gate sales, which reduces their margins. Transport problems are experienced mostly in communal areas in the old homeland regions. This is due to the fact that the major markets for fresh produce are in Gauteng, while other, smaller markets in the NWP exist only in the more urbanised areas and towns.

Many areas lack adequate market structures or sufficient market facilities. Marketing facilities should be created and revitalised where the need exists. Extension officers must help farmers identify potential markets and encourage farmers to be more market-orientated in their production decisions. Agricultural production must be guided by market demand. This means that markets must be identified before production commences. To do this, relevant and accurate market information becomes essential. Farmers must obtain product-specific information to inform their marketing and production decisions. Products should be identified that can be produced at optimal level and for which potential markets exist.

Small-scale emerging farmers do not have the capacity to compete with large, commercial farms. Well-established commercial farmers seldom experience problems with market access because they have already acquired or have access to necessary transportation, storage facilities, information and marketplaces. A strategic plan should be compiled to incorporate small-scale, emerging farmers in the system, and to offer market accessibility at such a level that they have a fair chance of competing in the bigger and more developed markets.

4.5 Agricultural Production Potential in the North West Province

The previous sections presented a detailed discussion on the factors inhibiting growth and development within the NWP. However, most of these factors are manageable and destined to improve once the necessary institutional changes are made. Thus, unlocking the opportunities presented by the agricultural sector will require an improvement of the institutional environment. As already mentioned, the improvement of the institutional environment might entail the reform of policies, institutions and laws, as well as markets and services, all of which will assist growth and development, especially in the rural areas.

Moreover, agricultural production potential or capability is highly dependent on the interrelation between several factors, with the natural resource base and its condition being foremost. The following section provides an analysis of potential enterprises with respect to their production capabilities, as identified in the SWOT analysis workshops that were held throughout the NWP.

Table 4.5 reflects the commodities/enterprises suitable for production in a specific district municipality. However, it is important to bear in mind that the suitability of production for a specific crop or enterprise might differ for different regions within the district municipality. Therefore, suitability for each crop within a district municipality will range between suitable, marginally suitable and not suitable.

Table 4.5: Potential agricultural enterprises in the North West Province

Commodity/ Enterprise	Ngaka Modiri Malema DM	Dr. Ruth Mompoti DM	Dr. Kenneth Kaunda DM	Bojanala DM
Citrus				
Mandarins	X			X
Oranges	X			X
Lemons	X	x	X	X
Perennial Crops				
Figs				X
Pomegranates	X	X		X
Prickly Pears	X	X		X
Olives	X	X		X
Pecan nuts	X	X	X	X
Table grapes	X	X	X	X
Vegetables				
Onions	X	X	X	X
Cabbage	X	X	X	X
Green Beans	X	X	X	X
Pumpkins	X	X	X	X
Carrots	X	X	X	X
Tomatoes	X	X	X	X
Sweet Potatoes	X	X	X	X
Potatoes	X	X	X	X
Grains				
Maize	X	X	X	X
Sunflower	X	X	X	X
Sorghum	X	X	X	X
Wheat	X	X	X	X
Soya Beans			X	X
Barley		X		
Livestock				
Goat meat	X	X	X	X
Goat milk	X	X	X	X
Beef cattle	X	X	X	X
Dairy cattle	X	X	X	X
Broilers	X	X	X	
Eco-Tourism	X	X	X	X

4.5.1 Beef

According to ECI Africa (2005) the commercial livestock farmers in the rangeland areas of the NWP are able to respond positively to increased demand for beef products. The increased benefit is not the only spin-off that will accrue to the economy, as their increased incomes translate into more employment and higher wages. As extensive livestock farming does not use much labour, this benefit is likely to be small, although the multiplier effect of their purchases on inputs and further processing may be considerable.

In most cases, farmers keep their cattle for traditional purposes or for ploughing of fields. This implies that animals are only sold at a very high age, which results in lower quality of the meat produced. Furthermore, problems in most rural areas include concerns with low calving coupled with low weaning rates, weak genes and a general lack of proper management practices. The absence, and in some instances the lack of, access to proper local market facilities poses an additional burden for these farmers. Together, these factors have contributed towards low incentive levels for emerging farmers in the NWP participating in the mainstream beef cattle economy.

To date, two major projects have been launched to rectify the above impediments. These include the Western Frontier Beef Beneficiation Project, which is aligned with the objective of the North West Provincial Growth and Development Strategy (PGDS), as well as “an integrated red meat industry in the Bophirima District” plan that was compiled by Scientific Roets Limited (2006).

Finally, the improvement of livestock production will make a considerable contribution towards addressing food security in poverty-stricken communities. If production can be improved to a level where marketable animals are produced, the marketing of these animals can form a vital source of income for poor households. Improvement of livestock production will also contribute to reducing unemployment.

4.5.2 Dairy cattle

The NWP was previously known as one of the major dairy production regions in South Africa, producing around 18 % of the total national milk supply prior to 1994. However, post deregulation in 1994 the number of milk producers in the NWP declined dramatically, by 45 %. The reduction in milk producers was mainly as a result of the deregulation, import relaxation, legalised colouring of margarine and other government policies (North West Provincial Government, 2008).

Furthermore, dairy farming is highly dependent on the availability of quality feeds and good grazing. In much of the NWP this implies the need for irrigated pastures and the feeding of locally produce grain. Hence, concerns were raised in the SWOT analysis workshops with regard to the relatively scarce water resources and high input costs of producing pastures and grain in the light of current milk prices. Farmers should therefore be careful when considering new dairy farming practices.

4.5.3 Sheep and goats

Although sheep are found in all provinces, they are more concentrated towards the arid parts of the country (Eastern Cape, Northern Cape and Western Cape), making the NWP one of the smaller sheep production regions. Also, sheep producers in the NWP focus primarily on meat (mutton) production, not wool.

Besides being prone to animal diseases and stocktheft, added concerns raised during the SWOT analyses relate to people's lack of proper experience and knowledge with regard to their livestock. In addition, concerns were raised with regard to the impact that sheep farming could have in promoting land degradation, especially in regions with sandy soils, as sheep are prone to erode these soils. Therefore, sheep farming requires intense and effective grazing management to preserve the natural resources and subsequently to remain profitable. If sheep farming is to be considered, it should be in regions of the province where the necessary and adequate mentorship

is readily available to assist new entrants in applying effective and precise management practices for the specific region.

According to findings from the SWOT analyses, goat farming is more lucrative to pursue because of their browsing habits and the general degree of knowledge and experience that local inhabitants have with regard to these livestock. Goats are not particular in their diet and can thus be used in fighting and controlling the bush encroachment problem that has escalated to uncontrollable proportions. In addition, goat production practices can be combined with cattle farming, as their grazing natures complement each other.

However, markets for goats exist primarily outside the borders of the NWP, with the main markets being in KwaZulu-Natal. This could be a burden for local inhabitants as the distances to the markets are perceived as a problem. Thought should be given towards the development of a goat market chain within the province, as this will enable local producers to fully exploit goat production to their own benefit. This will also require that up-to-date accurate market information will be readily available, so that producers are able to make informed market decisions.

Another concern that was highlighted during the SWOT analysis workshops entails the need to address the control the impact of pests and parasitic infestations in goats. Farmers are concerned about the availability and presence of animal health technicians and clinics. The understaffed state veterinary offices and the location of animal clinics make it difficult, especially for farmers in the remotely rural regions of the NWP, to consult with animal health experts during disease outbreaks, which occasionally inflict huge losses on their herds. Local government could assist these farmers by increasing the presence and circulation of knowledgeable health technicians and state veterinarians throughout the province. Losses due to parasitic infestation can be kept to a minimum through the introduction of goats that are immune to tick-related diseases like red water. Moreover, as with other small stock (sheep) in the province, goats are prone to theft and predators, which will require intensive management practices.

4.5.4 Poultry

Poultry production in the NWP consists mainly in two of the poultry industry's three sub-sections, namely, broilers and eggs, or layers (North West Provincial Government, 2008). However, it is difficult to separate these sections as there are naturally internal linkages between eggs, broilers and the supply of day-old chicks (the third section of the industry) as suppliers of feed and chicks are linked to the broiler and layer producers.

According to the National Agricultural Marketing Council (NAMC, 2007), poultry is the fastest growing animal protein source for human consumption in South Africa, with an average industry growth rate of 7 % per annum. This has resulted in poultry consumption growth outstripping any other source of animal protein in the market. Furthermore, the NAMC (2007) reported that the main reasons for the huge growth in poultry demand could be ascribed among other things to rising living standards leading larger numbers of consumers to choose protein filled diets, health awareness, convenience, as well as to increased marketing by broiler producers and price competitiveness relative to other protein sources on the market.

Despite having large benefits, the poultry industry is dominated by a small number of large corporate producers, resulting in the inability of farmers to obtain any real direct benefits in the absence of target programmes to support smaller-scale operations. The same applies to the animal feed industry, which is concentrated in the hands of a few firms to the extent that limited opportunities exist for small-scale operations.

However, opportunities do exist for the establishment of broiler operations in selective nodes, especially in more densely populated regions. The reason for the establishment of broiler operations in these nodes is to reduce travelling distances to potential markets. As the roads, especially secondary roads, are in a degraded condition, long distances between producers and the markets will increase operational costs to the extent that the enterprise is no longer financially viable.

The presence of the mines, especially in the Bojanala Platinum District Municipality, adds to the positive dimension and opportunities for broiler production in the NWP. When broiler production is started, it is recommended that contracts first be fixed with mines in the province. Fixing the contracts before starting with production will reduce the risk associated with market fluctuations and price volatility, which are probably among the most inhibiting factors for new entrant farmers.

Another possibility whereby new entrants could be accommodated is through joint ventures (JV) in terms of the concept of out-grower schemes (Mayson, 2003). These ventures hold mutual benefits for both the company that provides the inputs and the producer responsible for raising the chicks. Normally, chicks and feed are provided to the contract grower (private farmer) to grow the chicks to the age of 39 days. This eliminates constraints such as operating capital, transport burdens, etc. that the grower might encounter. However, the profitability of the enterprise will depend on management, as the grower will be held responsible for the reimbursement of the inputs (chicks, feeds and any other inputs that might be required) after the completion of each consignment.

Moreover, the benefit to the principal company lies in the reduction of responsibility in certain parts of the production chain. However, the principal company remains reliant on the contract farmer to supply at the level of quality and quantity required. Therefore, building the necessary capacity of the farmers forms a central part of success (Mayson, 2003).

Similar business models should be applied to layers, as the ones for broilers, with such enterprises concentrated in the more populated regions to ease access to both formal and in some instances informal markets.

Additionally, the integrated nature of the industry makes its supply chain relatively easy to expand, as contractor or out-grower schemes exist within the province where layer enterprises are used to supply broiler production units with day-old chicks. The concept is based on the principle whereby layers are distributed to contractors or layer farms. The eggs are collected

daily and kept in hatcheries. Once the eggs hatch, the day-old chicks are delivered to broiler farms where they are reared till slaughtered, normally after 39 days (Mayson, 2003).

4.5.5 Game ranching (Eco-tourism)

The South African wildlife ranching sector is relatively young, but is one of the fastest growing economic sectors nationally. Growth in this sector is primarily driven by economic incentives to landowners who have recognised that a much wider range of income possibilities could be realised compared to traditional livestock (Cloete, Taljaard and Grove, 2006). Ranchers in the NWP provide consumable activities (i.e. recreational hunting, trophy hunting, biltong and wildlife meat) as well as non-consumable activities (i.e. accommodation, game breeding, wildlife viewing, adventure and agri-tourism). In general, studies have indicated that wildlife ranching might offer better utilisation of the natural habitat (browsers and grazers) compared to domestic animals (Cloete, Taljaard and Grove, 2006).

Besides focussing only on game ranching as a sole farming enterprise, the concept of a game and cattle farming combination was identified as a possibility in the SWOT analysis workshops. Several farmers in the NWP are actively involved and successful in combining the two enterprises as certain species complement cattle in their grazing habits and this allows for optimal utilisation of natural resources. However, a prerequisite for success in a combined game and cattle farming unit is to determine the species composition (including the cattle) that is best suitable for the specific farm. This can be done through game management decision models that use information regarding the physical characteristics (climate, soil, etc.) of a particular farm as well as species specifics (dietary needs, hectares needed to behave socially, etc.) to identify the appropriate species composition for the farm.

Moreover, agri- or eco-tourism in the NWP has massive potential for growth, with a number of national parks (i.e. Pilansberg, Madikwe) and three world heritage sites (including Taung Skull World, the Cradle of Humankind and the Vredefort Dome) within its borders. A growing number of international and local tourists visit these destinations annually. This could hold vast potential for the inhabitants of the NWP if it is actively promoted.

However, game farming and agri-tourism are very sophisticated enterprises, which require the right personality, extensive knowledge, intensive management practices and large capital investments. For these reasons it is proposed that a prerequisite for farmers that want to engage in game farming or agri-tourism should have had previous exposure to the industry. Moreover, the implementation of such a plan should be coupled with extensive training and ample mentorship.

4.5.6 Grain Crops

Despite the NWP being known as a livestock rearing province, it also has potential for agricultural production under dry-land conditions and/or irrigation.

Maize is the most important grain crop in South Africa, being both the major feed grain and the staple food for the majority of the population. Historically, South African maize production consisted of equal quantities of white and yellow maize, but over the last few years it has moved towards 65 % white and 35 % yellow. The NWP contributed 18 % towards the total national maize crop during the 2006/07 season (Strategic Environmental Focus Ltd, 2008).

Maize in the NWP is produced for either grain or silage purposes. Production is mostly carried out under rain-fed (dry-land) conditions, with a slight proportion of the maize crop being irrigated. Potential exists within in the NWP to expand current production; however current input costs have led to high levels of financial risk associated with maize production. The situation will surely change over time as grain prices increase or as technological developments result in higher average yields.

Moreover, maize production holds better prospects for farmers in parts of the Bojanala Platinum District Municipality, especially the old Bophuthatswana regions. The heavier turf/clayish soils allow farmers to obtain acceptable maize yields without applying fertiliser. As fertilisers account for the bulk of the input costs, these producers only need basic crop production knowledge to be successful.

Sunflower is a crop that, compared to other crops, performs well under drought conditions, and this is probably the main reason for the crop's popularity in the marginal regions of South Africa. The NWP is regarded as one of the main sunflower producing regions, accounting for 41 % of the national yield during 2006/07.

Sunflower is considered to be highly suitable in crop rotation systems, especially with maize. However, increased input costs have seen the profitability of sunflowers come under tremendous pressure. Thus, sunflower production will be more lucrative in the regions with higher clay content or turf soils (old Bophuthatswana regions), as lower inputs are required to obtain acceptable yields. Moreover, if bio-diesel becomes an important factor in the South African fuel reserves, new markets will open that will present lucrative opportunities to expand current production.

The drought resistance, heat-tolerance and adaptability of sorghum to conditions in arid regions make it one of the crops with high potential for expansion in the NWP. The NWP produced around 5.8 % of the national yield during the 2006/07 season. Sorghum could be produced for either the grain market or human consumption, with the crop being regarded as a cereal with a high nutritional content contributing towards food security. Besides, sorghum is a good alternative to maize in low potential, shallow soils.

However, due to little research, this crop is the most susceptible to insects, diseases and weeds, which could result in high levels of pest and weed control applications. This would negatively impact on the financial profitability and feasibility of sorghum production. Moreover, large capital investments will be required to improve the plant's viability against pests.

Wheat is by far the largest winter cereal crop planted in South Africa. However, total local production is not enough for domestic requirements, which compels South Africa to import approximately 2.8 million tons of wheat annually to meet local demand (Strategic Environmental Focus Ltd, 2008). Therefore, expansion of wheat production could be stimulated by the great local demand.

Although wheat in the NWP is mainly produced under irrigation, which limits the expansion of wheat production in the province to the current irrigation schemes, the expansion of wheat production in the irrigated regions will directly relate to wheat's profitability compared to alternative winter crops (i.e. barley, canola). Hence, wheat production developments in the NWP should focus on the improvement or rehabilitation of previous irrigated development schemes that have collapsed, or those that are not productive.

4.5.7 Oil seed and beans

Soybean production is relatively small in the NWP, with produce mainly being utilised for soybean oil, which is used for domestic cooking and meat substitutes (North West Provincial Government, 2008). The SWOT analyses revealed that the production of oil seeds in the NWP constitutes both irrigation and dry-land. Alternative markets in the form of bio-fuels might present themselves in the near future. However, soybean oil's relatively high cost to alternative products such as vegetable oils would most probably discourage the adoption of soybean oil in the bio-fuel production process.

According to the Dry Bean Producers' Organisation, (2006) most of the commercial dry beans are produced in Mpumalanga (54 %), followed by Free State (22.5 %) and NWP (13 %). Dry beans are considered to be an ideal rotation crop. Moreover, a dry bean/maize crop rotational system can result in an increase of the long-term yield of maize. On high-yield soils the introduction of a dry bean/maize crop rotation system could drastically improve the profitability of both the dry bean and maize crops. However, it is recommended that the rotational system should only be applied once every four years and it should be on soils suitable for both dry beans and maize (Dry Bean Producers' Organisation, 2006).

4.5.8 Vegetables

The production of vegetables requires intensive cultivation and adequate water supplies. Thus, the area that can be farmed with these crops in the NWP is fairly limited. However, the SWOT analyses revealed those vegetables that could be grown under intensive irrigation conditions in

the NWP include: paprika, potatoes, cabbages, watermelons, tomatoes, etc. Therefore, the commercial production of vegetables should be focussed in the main irrigated areas along the Crocodile, Harts, and Vaal rivers as well as the smaller areas along Rustenburg, Marico and Molopo. Irrigation for vegetable production from boreholes is also available in the Vryburg, Ottosdal and Ventersdorp areas, where intensive cultivation is used to conserve the available water (North West Government, 2008).

Additionally, vegetables could be grown under hi-tech systems such as hydroponics. This will allow producers to extend the range of vegetables produced, as the hydroponic system enables producers to regulate the production environment. These production techniques, however, require large capital investments coupled with the relevant expertise and knowledge. Adequate training and mentorship will thus be a prerequisite for new entrants to be successful in employing hi-tech systems for vegetable production.

Potatoes are the single most important vegetable product in South Africa. The vegetable is known to be intolerant to high temperatures and is produced primarily under irrigation in the NWP. Moreover, potatoes use water relatively more efficiently than most cereals during production.

However, the incidence of a large number of diseases in potatoes makes it highly management intensive, requiring a well-planned crop rotation system. It is advisable to alternate potatoes for at least three years with cereals such as maize, grain sorghum or wheat, or alternatively grass types. Crops such as sunflowers, beans and other vegetables should rather be avoided in the rotational system. Moreover, increased production costs have seen producers with average yields realising financial losses. Thus, potatoes should only be considered in commercial production practices where available irrigated land allows for a proper rotational system coupled with favourable product prices.

4.5.9 Perennial Crops

Perennial crops are those that naturally have a long growing or establishment period before they start to yield returns to the farmer. However, the various topographic features divide the NWP into a number of sub regions; each with its own distinct climate, thus holding several opportunities for the expansion of citrus and other perennial crop production practices. These distinct climates enable farmers in certain regions to grow citrus and other perennial crops, which include lemons, oranges, pecan nuts, table grapes, figs, prickly pears, pomegranates and olives.

Perennial crop production requires large initial capital layouts coupled with a substantial amount of running capital for the first few years, as production will only start to yield returns a few years after establishment. Citrus crops (i.e. lemons, oranges) are very susceptible to climatic factors. Farmers in the NWP should therefore only engage in citrus production under ideal climatic conditions. Additionally, extensive knowledge and skills are a prerequisite for success in producing perennial crops. Thus, government needs to commit to ensuring both financial assistance and education/training and mentorship for beneficiaries to be successful.

Moreover, the SWOT analyses revealed accessibility to markets as an additional factor inhibiting the establishment of perennial crops in the province. In the NWP, the bulk of perennial crops are marketed through fresh produce markets, with the distance to markets being a burden for producers on the outskirts of the province. Hence, processing facilities, especially for citrus in the Bojanala District Municipality, present producers in the vicinity with additional marketing options. Adding to market prospects of perennial crop producers is the potential of obtaining an international cargo licence for the airport in Mafikeng. This will provide producers with the opportunity to move their frontiers from local to international markets. Accomplishing access to international markets will require the establishment of additional infrastructure (warehousing, etc.). On the other hand, entering the international market would create employment opportunities for the local community, reducing poverty and economic hardship.

Lemons are amongst the most cold sensitive crops of all citrus. However, climatic temperatures in the NWP allow producers to engage in lemon production throughout almost all regions of the province. Furthermore, the production of lemons in the NWP should only be pursued under irrigation. Municipal regions that are not suitable for lemon production in the NWP include the Molopo, Naledi, Moses Kotane, and Madibeng local municipalities (ARC, 2008).

Oranges are subtropical in origin and cannot tolerate severe frost. Orange production is therefore confined to areas with mild and almost frost-free winters where temperatures seldom drop below 2°C. Moisture is a limiting factor in orange production, and to ensure that moisture stress does not suppress growth and production, orange production in the NWP should be pursued under irrigation. Also, due to their production requirements, oranges could only be produced in a few local municipalities which include the Kgetlengriver, Rustenburg, Moretele, and Ramotshere local municipalities (ARC, 2008).

Pecan nuts require a continental climate, with hot summers and cold winters in moist to semi-arid areas, preferably under irrigation. Therefore, areas with short, cold winters and long, very hot summers are ideal. Pecan nuts could be produced almost throughout all areas of the NWP where soil and water allow, except for the following local municipalities: Molopo, Kagisano, Naledi, Moses Kotane, Madibeng local municipalities (ARC, 2008).

Table grapes, similar to oranges, cannot tolerate severe frost or rain during their harvesting season. Production of table grapes could be pursued under irrigation almost throughout the NWP, except in the following municipal regions: Molopo, Kagisano, Naledi, Moses Kotane, Ventersdorp, and Merafong local municipalities (ARC, 2008).

Fig production is mainly pursued under intense solar radiance, high summer temperatures, moderate winters and relatively low humidity. In the NWP, figs should be cultivated under irrigation to ensure optimal production. However, the introduction of new hybrid cultivars from Israel enables producers to pursue fig production throughout the NWP (ARC, 2008).

Prickly pears are most tolerant of varied soils, temperatures and moisture levels. The plant grows best in sunny positions, with well-drained sandy loam and protection from cold winter winds. Moreover, prickly pears are the only crop that could be produced under rain-fed conditions in the NWP. Rain-fed production practices could be pursued in the following regions of the NWP: the Naledi, Greater Taung, Lekwa-Teemane, Ratlou and Mafikeng local municipalities. Moreover, prickly pears could be produced under irrigation in the Molopo and Kagisano local municipalities (ARC, 2008).

Pomegranates can be grown in a wide range of soils, with a semiarid climate characterised by mild winters and hot summers being the ideal climate for optimal growth. In the NWP, pomegranates could be produced under irrigation in the Molopo, Kagisano, Naledi, Greater Taung, Lekwa-Teemane, Ratlou, Mafikeng, Ramotshere and Tswaing local municipalities (ARC, 2008).

Olives could be produced for both oil and table consumption. However, frost pockets, poor drainage and salty soils should be avoided when establishing new plantations in the NWP. Olives in the NWP are primarily produced under irrigation and could be pursued in the Greater Taung, Kgetlengrivier, Rustenburg, Kenneth Kaunda, Mafikeng, Ditsobotla and Tswaing local municipalities (ARC, 2008).

4.6 Conclusion

Within the background of the structure of the NWP economy and its wide production capabilities, there is no doubt that agriculture will continue to play a key role in terms of food production and job creation. However, the effectiveness with which the sector is able to do this will depend to a large extent on how well some of the current constraints facing the sector are addressed. The main constraints identified are institutional weaknesses and poor infrastructure. These relate especially to the deprived condition of many secondary roads linking farms to markets and sources of needed farm inputs.

Functionality within government institutions needs to be revived, as it serves as the foundation from which most of the factors hindering growth and development need to be resolved. Additionally, government support is needed to boost existing agricultural industries as well as to motivate the establishment of new initiatives to address current and emerging problems in order to enhance the competitiveness of the sector in provincial, national and global markets

CHAPTER 5

Institutional Framework for Agriculture Development in the North West Province

5.1 Introduction

Besides the province-specific problems and challenges highlighted in the previous chapter, the long-standing equity issue in the South Africa's agricultural sector has emerged as an additional dilemma that inhibits growth and development in the North West Province (NWP). Since 1994, the South African Government has been implementing a comprehensive land reform programme to address the long-standing equity issues. However, several independent observations suggest that the land reform programme has not led to an improvement in agricultural production and income generation, and many land reform beneficiaries are threatened with insolvency (Ortmann & Machethe, 2003; Van Schalkwyk, Groenewald & Jooste, 2003). In many situations where surplus production has been realised by the small-scale and emerging farmers, lack of access to markets has forced them into extremely exploitative exchange arrangements that further erode their welfare and drive them deeper into destitution (Van Schalkwyk *et al.*, 2009). It has thus become clear that land ownership, though a serious matter and undoubtedly politically sensitive and highly emotive, is another dimension of the problems facing the previously disadvantaged communities of the NWP.

Undoubtedly, the situation in the NWP calls for innovative approaches to improve the success rate of development initiatives i.e. capacitate the local population, create jobs, expand income-earning opportunities, etc. The main focus of these innovative approaches, however, should be to improve the current institutional environment to one that will facilitate a platform from where development initiatives can be implemented successfully. Moreover, as Bradhan (2007) has stated, institutional frameworks can be regarded as the major difference between the economics of the rich and the poor. The institutions of a country can be seen as the mechanisms that shape its economic performance and subsequently the success of rural development (Coase, 2000 as

cited by Herrera, Van Huylenbroeck and Espinel, 2005). Therefore, to reach the point where potential opportunities in the NWP can be unlocked, an enabling institutional environment needs to be established within the NWP. This should comprise institutions and institutional arrangements that will address the factors inhibiting growth and development in the province.

The Department for International Development (DFID, 2003) were of the same view, suggesting that in order for innovative approaches to benefit the poor, it must address the underlying factors that limit agriculture's contribution to poverty reduction. Terluin (2001), as cited by Valentinov and Baum (2008), was of the view that institutional structures alternative to those of urban areas needed to be put in place to satisfy the needs of rural farmers and dwellers. This chapter will therefore seek to identify specific institutional that would address the main factors inhibiting agricultural growth and development in the NWP.

5.2 Creation of an enabling institutional environment

The most important challenge to unlocking the many opportunities available to local communities in the NWP does not lie in rural or underprivileged communities. The most important prerequisite for the success of development efforts is creating an enabling institutional environment. According to Van Schalkwyk *et al.*, (2009), an enabling institutional environment should allow good administration, cooperation between national, provincial and local government structures, a participatory approach to development, and involvement of the private sector and non-government organisations (NGOs).

Based on this, the following sub-sections will deal with the different institutions and institutional arrangements needed to address the main factors inhibiting growth and development in the NWP as identified through the SWOT analysis workshops.

5.2.1 Infrastructure

According to the DFID (2003), effective infrastructure is essential to nearly every aspect of rural agricultural development. Likewise, the World Bank (1994) stated that the adequacy of

infrastructure helps to determine one country's success with development initiatives and another's failure. Therefore, based on this, one might argue that the most important factors in unlocking the opportunities for development in the NWP lie with its physical infrastructure and the condition of that infrastructure, which is ultimately one of the crucial factors supporting the institutional environment. This is argued by Green, Aberman & Domink (2002), who highlighted the important role that road and public transport play in supporting development initiatives. However, Leinbach (2000) has argued that investments in transport, especially if confined only to road transport, as is commonly the case, without a corresponding effort to improve services more broadly remains as a 'necessary but not a sufficient' condition for change to occur. He noted that many other factors intervene to condition people's actual behaviour and that transport investment rarely acts as a catalyst for change in rural development as is commonly supposed. Wilson (1973), on the other hand, argued that where transport is a 'binding constraint' or is operating in an environment of 'prior dynamism', i.e. where factors are ripe for change, investment may act as a catalytic agent for rural development. This is surely the case in the NWP, with the condition of roads, especially in the rural regions of the province, being a binding factor that inhibits the success of development. A number of other authors (Dawson and Barwell, 1993; Howe, 1999; Lebo & Schelling, 2001; Starkey, Ellis, Hine & Ternel, 2002) have also pointed to the importance of more efficient transport services as an essential mechanism for rural development.

In the South African context, government has the responsibility to maintain and upgrade most roads in the province (North West Provincial Government, 2008). Besides, it is also clear from the SWOT analyses that communities (both formal and informal) rely on government to maintain and upgrade the infrastructure in their region. However, the SWOT analyses also revealed that most rural roads are in a poor condition. The inability of government officials to adhere to their responsibility contributes towards a decline in the social embeddedness (i.e. social capital) of the region and subsequently the province. Recall that social embeddedness is the first level of the economics of institutions as presented by Williamson. It might be difficult at first to relate social embeddedness (i.e. customs, social norms and traditions) to the maintenance of infrastructure. However, social embeddedness is measured through social capital, which reflects on trust, norms

and networks. Important in this case is that social capital also consists of non-contractual elements such as trust.

Beugelsdijk and Schaik (2001) highlighted several studies that have shown the importance of trust in economic development, and similarly in rural development. Thus, the inability of government to adhere to their responsibility of maintaining and upgrading of infrastructure (in this case, roads) has far reaching consequences that relate firstly to a decline in social capital, and secondly, inflict higher transaction cost onto producers. Transaction cost relates to the third level of the economics of institutions, namely governance structures. Moreover, increased transaction cost in itself can have devastating effects for rural development in the NWP as it will lead to lower levels of profitability and consequently to non-viable farming practices.

Moreover, the debate on road infrastructure in the NWP should be re-orientated, away from a focus on investment by government in roads towards more holistic changes in the transport conditions, as this will be a key component of future development. Ling and Zhongyi, (1996) reported that China, which had the world's largest programme of investment in rural roads for the purpose of addressing rural development, changed its focus in the 1990s so that broader social development objectives were integrated in road investment decisions. This means that roads and social infrastructure needs are addressed simultaneously. Investments made by government to maintain and upgrade roads should therefore not only have economic growth as a priority, but should also take into consideration the social impact of such investments. The utilisation and expansion of the railway network, for example, would also contribute towards the improvement of rural development in the NWP.

Other infrastructure indices such as water and electricity supply are also indicators of successful development. According to the results from the SWOT analyses, water and electricity supply/availability is a cause of concern in ensuring the successful implementation of development initiatives. Garvin (2005) reported that infrastructure owners worldwide are turning to the private sector to help with infrastructure expansions and modernisation. Therefore, to improve social capital and lower transaction cost in the province it is recommended that government should form partnerships with local communities, businesses and farmers. For

instance, government should engage with these groupings in meeting its obligation to provide adequate water supplies to its citizens, particularly to the underprivileged communities in the NWP.

A further suggestion is that government should stimulate the formation of water user associations in farming areas dependent on irrigation water, or areas with the potential to be under irrigation. According to a study of Qiao, Zhao and Klein (2008), water user associations were found to be the best solution in areas that experience shortages of water resources, poor management of water, inefficient use of water resources, etc. Moreover, the authors concluded that water user associations safeguard farmers' interests, help to reduce labour inputs and disputes about water, reduce irrigation costs, and promote efficient water use. This reflects on improved governance and subsequently the reduction of transaction cost. The entire local infrastructure should be developed with maximum participation by the benefiting and surrounding communities.

Another important issue is the provision of electricity to rural and other communal areas. This could also be addressed through the formation of public-private partnerships. Adhering to these demands through the formulation of networks and cooperation with other role players in both the private and public sectors will contribute towards improving social capital and lowering transaction cost, especially for those residing in the rural areas. Moreover, improved social capital and lower transaction cost will facilitate higher levels of trust, better relationships, less uncertainty, etc. between government and citizens of the province, so contributing towards successful rural development in the province.

Telecommunications is yet another example of infrastructural shortage, especially in the rural regions of the province. Technological advances in this field have seen farmers increasingly using these new forms of communication, such as sms, emails, the internet, etc., as a way to source market information or stay up-to-date with current market and production affairs (Rao and Pattnaik, 2006). This also relates closely to the second level of the economics of institutions namely the institutional environment also called the "rules of the game". It is also at this level where agents such as small-scale and commercial farmers involved in the production, marketing and distribution of agricultural products might need protection against opportunistic behaviour

(see Chapter 2). Milagrosa (2007) and Jordaan, Grove and Khaile (2008) suggested that most of the interventions against opportunistic behaviour entail price and pricing strategies. Thus, easy and frequent access to information would assist small-scale producers in rural areas to protect themselves against opportunistic behaviour from speculators and other marketing agents by being informed of market related prices, etc.

Moreover, the use and flow of information also relate to the levels both of social embeddedness and governance structures. Recall that Williamson (2000) stated that the four levels of institutions are fully interconnected with each other. Uzzi (1996) argued that trust facilitates the exchange of information, which is crucial for rural transformation but difficult to value and transfer via market ties. In this case, trust refers to the ability of both government and private institutions to supply farmers in rural regions with the necessary mechanisms whereby they can receive and send information. Malecki (2000), as cited by Beugelsdijk and Schaik (2001), suggests that once the networks for information flow are established, information becomes less expensive. This will lower transaction cost, thus contributing towards higher profitability and success in rural development.

However, government should urgently attend to the road and electricity infrastructure if rural development is to be successful. According to the Department of Transport, Roads and Community Safety North West Province (2008), the funding needed for the upgrade and maintenance of roads is in excess of R 2.4 billion, while the budgets for 2009/10 and 2010/11 only make provision for R 783 million and R 685 million respectively. Thus, the current budget, as well as those for the next two years, is well below the basic requirements for road maintenance. It is also reported that the total cost for upgrading the electricity infrastructure in the North West Province may amount to R 1 billion. This is likely to result in major backlogs in both these services. As a result, the province is faced with a great challenge in terms of electricity supply and road maintenance as it attempts to resuscitate its economy so as to speed up development and meet national development priorities.

Thus, infrastructures play a critical role in the success of rural development. As recommended earlier, government should engage with the private sector to ensure that the infrastructural expansion, modernisation and backlogs are addressed.

5.2.2 Rural Finance System

Analogous to infrastructure requirements is the need for finance. From Chapter 4, it is evident that access to finance poses significant challenges for most farmers and especially small-scale farmers in the rural regions of the province. Besides, the difficulty of accessing finance also contributes to the transaction cost imposed on the specific beneficiary or applicant, negatively affecting his/her profitability.

The failure of formal/traditional credit institutions in the NWP to provide small-scale farmers with the necessary financial support highlights the need for innovative thoughts regarding alternative finance systems. The World Bank (1998) suggests that rural finance systems might include various forms of banking arrangements, cooperatives, mutual benefits societies and solidarity groups, etc. Moreover, findings from the World Bank (1998) suggest that these types of rural finance mechanism generally attract a sizable clientele and that they have had a good loan recovery record. In contrast, a study by the Bank of Mozambique (2008) challenged the effectiveness and sustainability of most of the rural finance mechanisms highlighted by the World Bank (1998). This saw international non-profit NGOs (CARE international) piloting the introduction of proven micro-credit facilities suitable for coping with rural finance intermediation obstacles such as Accumulative Savings and Credit Associations (ASCAs), Rural Finance Associations, village banks and other community, group or member based facilities. However, due to financial repression and an unsustainable approach to rural finance and economic development, exacerbated by the intensified civil war in Mozambique, no meaningful conclusions could be made as to which finance system would improve credit supply in the rural regions of Mozambique (Bank of Mozambique, 2008).

Yaron, McDonald and Charitonenko (1998) argued that the traditional subsidised programmes used by government as a mechanism of finance to promote agricultural growth and development

in rural areas generally fails. This is also evident in the NWP, with most government programmes having failed to yield the desired outcomes. On the other hand, Yaron, McDonald and Charitonenko (1998) found that the introduction of well-designed and self-sustaining rural finance systems like village banks was highly successful in improving rural development in Indonesia. Giehler, Yinhong, Changqing and Pei (n.d.) came to the same conclusion in their study, which showed that village banks were a workable solution for microfinance in the rural regions of China.

Similar to the above, Westley (2004) strongly proposed village banks as a financial system to address finance shortcomings in rural regions. He elaborated by stating that the introduction of rural village banks may work better than trying to lure urban commercial banks out to rural areas with a lack of lending experience that may constitute a formidable barrier to their entry into rural markets. Nigrini (2001) were of the same view, arguing that the characteristics of the rural areas such as poor infrastructure, low population density, high levels of illiteracy, and limited business activities further restrain formal financial institutions from addressing the financial needs of the rural population. Moreover, results from research in Latin America revealed that village banks have a stronger poverty focus; therefore, by introducing, strengthening or expanding the concept of village banks may help to alleviate social problems at the same time that it extends the reach of the rural finance system (Westley, 2004).

Furthermore, Nigrini (2001) argued that many researchers emphasise the importance of utilising a community's resources such as villagers' skills, imagination, initiatives and financial potential to establish self-help institutions that address their needs. He elaborated that a community of people, by identifying their own potential, gain confidence in themselves and their capacity to meet their own economic needs. This puts dwellers into perspective the statements of Terluin (2001) as cited by Valentinov and Baum (2008), where he argued that alternative institutional structures than those of urban areas might be required to satisfy the needs of rural farmers and. Moreover, Cross and Coetzee (2001) advocated the importance of decentralised financial services, i.e. financial services organised by the local community. They elaborated by arguing that these self-help groups emphasise intermediation at the local level, i.e. they mobilise local financial, human and social resources and provide services such as savings and credit facilities.

The solidarity and trust that exist among members of the community, as well as local knowledge, management and pressure, decrease the adverse selection and moral hazard problems that are often associated with local financial intermediaries (Cross and Coetzee, 2001).

Village banking is therefore proposed as a possible solution for access to finance for rural and communal farmers in the NWP. This institutional arrangement will link borrowers, groups and micro-finance providers in a way that will reduce transaction cost and the risks in providing external finance to rural people. Moreover, the proposal is seen as a critical institutional arrangement that is important in uplifting the poor; however, institutional arrangements could be altered as the concept grows and new needs surface. The arrangement will provide assistance with respect to production limitations, create access to credit, provide greater access to the marketplace and, in the long run, develop human capacity (Nigrini, 2001).

5.2.2.1 Role of the village bank

One of the weaknesses of subsistence and small-scale farming operations is their inability to acquire financial assistance. The concept of village banking is based on a simplified banking system comprised of two basic elements: community ownership and a link to commercial banks. A village bank is a community-operated facility that operates as a financial service provider. The village bank plays the multiple roles of (Nigrini, 2001):

- Encouraging the natural inclination of poor people to save for their own benefit. Studies by Spio, Groenewald and Coetzee (1995) as well as Yaron, Benjamin and Piprek (1997) indicated that rural people do have the ability to save. Nigrini (2001) suggested that the importance of savings in rural areas has often been neglected since it was assumed that rural people cannot and will not save due to low income levels and a high propensity to consume. He elaborated by suggesting that in many instances, the demand for saving facilities is actually greater than that for credit.
- Establishing a community capital base for the community to access funds. Credit is often needed for either production purposes or other unforeseen consumption expenses. The presence of a village bank eliminates potential exploitation by local moneylenders at high interest rates (Nigrini, 2001).

- Handling and managing housing, welfare and agricultural subsidies; and
- Ensuring not only that financial resources are delivered adequately and effectively into the community, but also that there is accountability at the point of delivery.

5.2.2.2 Village banking as a micro-financing institution

According to Nigrini (2001), village banks are semi-formal financial institutions that create access to basic banking services on a sustainable basis by utilising a community's rules, customs, relationships, knowledge, solidarity and resources. Van Schalkwyk *et al.*, (2009) were of the same view, suggesting that village banks are rural-based micro-financing institutional structures linked to the formal financial market in a commercially viable manner that ensures the underprivileged rural community obtains access to much-needed financial services. The sustainability of rural institutional structures depends on effective community participation through ownership, and the community accepts control.

According to Nigrini (2001) and Westley (2004), village banking is community-based and targets rural communal areas. It is directed towards the provision of effective financial services in support of sustainable economic and agricultural development. This is achieved by the:

- Provision of a comprehensive range of financial services, including savings, transfers, loans, and insurance services;
- Development of credit capacity for the community and its members;
- Effective utilisation of local and foreign economic resources; and
- Development of effective institutional capacity in the community to ensure sustainability for development projects.

Moreover, the emergence of village banks throughout the world has its roots in several aspects, which amongst other include (Nigrini, 2001 and Van Schalkwyk *et al.*, 2009):

- The fact that rural people have always shown an affinity for saving financial proceeds by keeping livestock, etc. This relate to tradition (social embeddedness). This level of institutional arrangements takes centuries to change, implying that the traditions of these people need to be altered for them to consider saving their financial proceedings in other

forms. Current traditions might not contribute towards rural development, especially with the aim to establish small-scale farmer that can be incorporated into the mainstream agricultural value chain and subsequently the formal economy. The establishment of micro-financing schemes (village bank) provide participants with financial incentives that are different to their tradition, and contribute towards rural development.

- Poor people have a natural inclination to save their proceeds so as to provide for the future, because of the hopelessness of their situation, which relates directly to access to formal markets, finance and other social institutions.
- Elderly people save because of a reduced need for spending. Instead of them hiding their money, village banks provide them with the opportunity to deposit it into a micro-finance institution that is easily accessible and where they will be able to receive interest on their capital.
- Women save to provide for their families. These savings were normally very informal, with money hidden in the house, under the bed, etc. The establishment of micro-financing schemes in the rural regions would present women with an incentive to save their money in the village bank, where they will receive interest on their investment. This way of business reduces uncertainty and risk for the investors.
- Between 16 and 18 million South Africans live in rural areas, i.e. an estimated 41 % of the total population, and do not have access to formal banking services. Micro financing institutions, like those proposed, could provide almost half of the population with a formal place to save or borrow money.
- Commercial banks are withdrawing from rural settlements due to the lack of business justification to serve these areas. The lower transaction cost associated with micro-financing institutions (village banks) justifies their establishment in rural areas. Moreover, these types of institution would ensure successful rural development, as the Strauss Commission of Inquiry (1996) reported: “the provision of appropriate financial services in the rural areas should be one of the important mechanisms in the development strategy for unlocking development potential”.

Therefore, the general benefits to government and agriculture that would result from village banks include:

- The development of an effective community-based institutional capacity that ensures sustainability of agricultural initiatives, resulting in a revitalised rural economy that generates job opportunities for rural people.
- Village banks can be developed and considered as an institution to be used for effective delivery and recovery of credit to small and medium-sized agricultural enterprises, because of its client knowledge base. Strong member participation will result in strong peer pressure, which guarantees a high recovery rate on credit.
- Mobilisation of domestic savings to match opportunity will ensure effective use of government funds for investing in people as the productive and creative core of the economy, especially with the majority of the rural poor.
- Cooperative partnerships will facilitate the compilation of farmer profiles and adequate management of client risk, as the ability to follow members' liquidity increases.
- Locally-based institutional capacity will promote the ability of the grass-roots farming community to access available financial services.

Instead of complaints about its lack of facilities, finance, etc., the key is for each community to focus upon its own human, financial and other potential, as its exports, tourist potential and attraction to outside investors could grow from this. The first imperative is to meet local, regional and national needs from local sources of raw materials, skills, imagination and products. Every society, from the least to the most sophisticated, has needs. Wherever there is a need, there is a potential job, business, profit and improvement of those services that support growth and provide the multiplier effect of wealth creation. Finding opportunities for development is the purpose and function of local community structures and the interactive planning process.

5.2.3.3 Operation of the village bank

Village banking is a micro-finance institution (MFI) and it shares common characteristics with other such institutions. However, micro-finance institutions differ greatly in size, their financial performance and the services they provide (Nigrini, 2001; Hardy *et al.*, 2002). The most common services provided by MFIs are the provision of credit to small enterprises and poor households. Some MFIs also provide other services such as insurance, financial advice and

training to their clients. Micro-finance clients mostly consist of poor people in rural areas who find it difficult to access credit. Hardy *et al.* (2002) give the following description of MFI clients:

“The primary clients or clientele of MFIs consists almost by definition of those who face severe barriers to access financial products from conventional financial institutions. These barriers comprise mainly high operational costs and risk factors. An MFI’s clientele may for example be distributed in remote locations, possess few negotiable assets, whether they be physical or financial, and live in an environment where enforcement of formal property rights and other contracts is expensive and uncertain”.

The possible clients of proposed village banks in the North West district will basically be the same as other MFI clients, since the main focus of the village bank will be to make credit accessible to small-scale farmers and poorer households in the rural areas. Providing financial services to small-scale farmers will make credit more accessible. The village bank will provide the financing for inputs and services necessary for production.

Farmers will use part of their produce for their own consumption and the surplus will be delivered to the village bank, which will then market the crops on behalf of farmers. Marketing can be done through various channels, such as the futures market, fresh produce market, direct sales, contracted sales, etc. It is foreseen that the village bank will market large volumes of produce, as many farmers are likely to make use of these services, which gives the village bank more bargaining power. The better bargaining power of the village bank may result in better prices for the farmers. Economies of scale can be utilised due to the large volumes marketed, reducing transaction cost. For example, transport costs per unit will be lower.

Income from the sale of produce should be used to pay for the inputs, services, transport and marketing costs, salaries of the village bank, the farmers’ debt and other costs. Once all the expenses have been paid, farmers receive the profit. This system will allow farmers to concentrate on production. As small-scale farmers are seldom financially strong, they are largely risk-averse. As the village bank provides credit and does the marketing, it carries the financial risk for the farmer. This system also protects the village bank from financial losses due to

unpaid debt, as the village bank does the marketing of the products for the farmers and pays for inputs. It is thus obvious that the village banking system provides solutions for many problems small-scale farmers encounter, and it has numerous advantages.

5.2.3 Equity sharing

Narayansuwami, (1991) argued that it is widely recognised that the access of physical, technical and financial resources is not always a sufficient condition for rural development. In some instances, the strength and weaknesses of organisational set-up as well as behavioural factor play a significant role in determining the nature and pace of rural development (Narayansuwami, 1991). Moreover, Nepal (2009) argued that local organisation/producers have been overlooked in development theories for a long time mainly because of a technocratic understanding of development. Finally, though, development planners then began to search for reasons for the unsatisfactory results of past development strategies and have formulated new strategies that enhance local organised efforts. Amongst his findings, Nepal (2009) noted that the promotion of local organisations of producers is an important mechanism for involving people in rural development. People can then influence decisions through their joint efforts and common voice. Producer organisations provide ownership to local people in development activities and ensure a fair share of benefits. In this context, equity sharing can be seen as a viable mechanism for insuring participation in rural development (Nepal, 2009).

De Lange (2004) was of the same view, arguing that equity schemes allow previously disadvantaged people to enter into agriculture at a lower risk. Besides, Boyce (2006) stated that equity schemes are a mechanism that raises the income and broadens the ownership base of land in South Africa, and it is for this reason that the Department of Land Affairs (DLA) has integrated equity schemes into government programmes that seek to contribute to rural development.

A debate however exists about the merits and demerits of equity schemes in generating the expected results with regard to rural development. One view is that, equity schemes exist in the interest of commercial farmers as the way of spreading the risk of farming business to the

workers (Fast, 1998 and Mayson, 2004 as cited by Boyce, 2006). Moreover, Fast (1999) particularly points to the danger of losing this lifetime investment opportunity for farm workers if the scheme goes into liquidation. The other view is that equity schemes are the best mechanisms to provide the poor with an opportunity to participate in the farming business (Lyne and Knight, 2004; Winberg, n.d., as cited by Boyce, 2006). In addition, Lyne and Roth (2004) argue that the emergence of equity sharing schemes in which previously disadvantaged employees acquire shares on the commercial farms in which they work, has opened exciting prospects for redistribution of wealth and income streams while empowering workers and improving their productivity, retaining quality management and preserving the credit-worthiness of the farming enterprise.

In the NWP, farm workers and labour tenants can also benefit, especially through equity sharing projects. According to Van Schalkwyk *et al.*, (2009), several agricultural equity sharing projects exist for emerging or existing farmers in the NWP. Thus, equity sharing can offer an alternative solution for creating an enabling institutional environment where village banking is not feasible. This solution can also be implemented alongside village banking projects. It is important that farm workers and communal farmers in the NWP should be economically empowered to increase their standard of living. This is possible through partnerships between large commercial farmers and their labourers. The workers can be empowered by sharing equity in the farms where they work. This would also provide more security for farm workers and allow them to share in profits. New entrants or small-scale farmers can also be incorporated into partnerships with existing commercial farms in a sustainable way. Several forms of partnerships exist and the advantages and disadvantages are more or less the same. With development, equity sharing seems to be one of the models that have yielded success in the past. Advantages of the proposed institutional structure include (Townsend and Ngatea, n.d. and Van Schalkwyk *et al.*, 2009):

- The fact that knowledge can be accessed immediately. According to results from the SWOT analyses, lack of proper knowledge is regarded as one of the factors inhibiting development success in the NWP. Thus, within the institutional framework of equity sharing, the new entrant or beneficiary will be able to access local knowledge from the commercial farmer with whom the agreement is set.

- Capital can be made available. In most instances the new entrant or small-scale farmer will introduce new capital into the farming business by buying shares in the operation. This capital injection holds vast potential as it can be used to expand current operations, engage in new activities, for vertical integration or the replacement of equipment and machinery, etc.
- Risks are spread: Linked to the spread of financial risk is also a reduction of production risk for the new entrants, as the commercial farmer brings a lot of experience and know-how to the farming practices.
- In-service training can take place: The institutional framework of equity sharing will allow for the new partner to engage in production activities under supervision or with guidance from the commercial farmer, enabling the new entrant to learn by doing. This holds the potential to significantly reduce transaction cost, compared to a situation where the new entrant engages in production on his own, as mistakes could be kept to a minimum with the guidance of the commercial farmer.
- Existing markets can be spread: The equity sharing framework presents a means from where production practices could be expanded, as new entrants are likely to introduce new capital or access to sources of capital into the business. This might allow the newly formed partnership to spread the existing market by adding value to their produce through trademarks, etc.
- The pace of development is much quicker: As stated, mistakes could be kept to a minimum, enhancing the potential for success. Moreover, new entrants or partners will also be able to learn by doing under the supervision of the commercial farmer, reducing transaction cost and contributing towards the success of development in the province.
- All parties want to make a profit; all parties will therefore try their best to ensure optimal profit.

According to Townsend and Ngatea (n.d.) and Van Schalkwyk *et al.*, (2009), the disadvantages of equity sharing are as follows:

- Full ownership is not possible with new entrants or small-scale farmers that will acquire shares in the farming operation,
- Small-scale farmers can possibly be dictated to in decision-making: New entrants or small-scale farmers might lack the knowledge or know-how in certain aspects of farming, which may make it easy for well established farmers or partners to dictate the decision making.

Although this approach in some cases could be beneficial in terms of eliminating potential production losses, etc. it is not the best means of guiding the new entrant or farmer. The new entrants should have the opportunity to participate meaningfully in the decision-making process as this will assist in the learning process as well as establishing a feeling of ownership.

- The danger of a total take-over exists if the co-operation agreement has not been carefully drawn up.
- Developers normally make the biggest contributions and only minority shareholding is available for them.

Decision makers should not blindly engage in the proposed institutional framework as changes in various factors, i.e. economic, climate, policy, etc. might influence equity sharing considerations (Bauer, 2009). The following scenarios may lead decision makers to decide that equity sharing is a suitable vehicle (Van Schalkwyk *et al.*, 2009):

- Projects where much capital is required: Equity sharing has to ability to present access to new capital either through financial institutions or new entrants.
- Projects that require a high level of management inputs and experienced partners (commercial farmers) who could lead the business through the crucial/ beginning phases of operation.
- Multi-disciplinary projects (production, labour management, marketing, financial management).
- Labour-intensive projects.
- Where farmers lack their own capital.
- Where there is insufficient knowledge.

Once it is decided that the best option for development in a specific scenario is to engage the framework of equity sharing, certain conditions for successful partnerships need to be adhered to. According to the OECD, (2006) and Van Schalkwyk *et al.*, (2009), these include that:

- Parties must trust each other: As discussed in a previous section, trust forms part of social embeddedness and is of utmost importance for successful rural development.
- An outside partner must be fully informed regarding the long-term objectives of the partnership: This will ease the process of decision making and planning, as all parties involve

will understand the rationale behind the process of decisions and planning.

- Partners must have sufficient capital at their disposal to finance the project: Finance and access to finance should be seen as probably the most important aspect of getting the partnership and subsequently the business going. Without capital no production practices will be able to commence, making it unattractive for anyone to get involved.
- Cooperation agreements must be completed and understood by everyone: It is important that there are guidelines as to how operations, funding, etc. will be approached and managed. This will reduce the potential of future conflict and failure.
- Parties must be satisfied with agreements that are reached: Dissatisfaction will almost definitely lead to the failure of the partnership.
- All parties must be fully informed regarding the negotiation process as well as the performance of the partnership after the agreement has been reached.
- A seizure programme must be in place and be implemented.
- Fair profit-sharing must take place: It is important that the arrangements around profit sharing are clear before production commences. This relates closely to the long-term objectives of the business, meaning that the role-players involved should decide whether all profits will be paid to the partners as agreed upon or whether a certain percentage will be kept for improvements, expansion or replacement of stock, machinery, etc.

Thus, the institutional framework of equity sharing provides an alternative to village banking as a vehicle for successful development in the NWP. As mentioned, equity sharing could also be combined with village banking as a means of ensuring access to finance, mentorship, etc. for new entrants or beneficiaries of development initiatives.

5.2.4 Agribusinesses

Agribusinesses or the former agricultural cooperatives are an important player in agricultural development as they are regarded as institutions with knowledge, capacity, know-how and a responsibility towards the agricultural sector. The USDA (2002) was of the same view, stating that agribusinesses in the 21st century have an important role in rural communities, where they are an integral part of the social fabric. The same holds for the NWP, besides, agribusinesses

consist of vast resources, especially the human capital that is needed to ensure the success of agricultural development in the province.

Dorward, Kydd, Morrison & Poulton (2005) argued that when development is examined using the concepts of institutional economics, the findings indicate that unsuccessful development is characterised by high transaction cost and risk, weak information flows, and subsequently a weak institutional environment. Agribusinesses in the province possess the means to address several of these issues, thus they could well serve as a means to reduce transaction cost through appropriate and sufficient production contracts, supply of inputs as well as improved information flows to small-scale producers. This relates closely to what Sexton and Iskow (1988) defined as the traditional role of cooperatives, when they suggested that the role of cooperatives has been to improve farmer returns by lowering production and transaction cost in the market channel, counter-balancing the negative economic impacts of market power, and reducing producer income risk. Thus, one might conclude that the traditional role of agribusinesses actually entail the improvement of the institutional environment for farmers, which will contribute towards successful development in the NWP.

Moreover, the following sub-section will detail more on the role of agribusinesses with regard to development in the province.

5.2.4.1 Role of Agribusinesses

Consolidation and increased coordination throughout the agri-food sector have rapidly reshaped the role of agribusinesses. Sykuta and Cook (2001) were of the view that the increased concentration, both up and downstream, has raised the spectre of the traditional agribusiness role in counter-balancing market power. They argue that the increasing demand for coordination among players throughout the agri-food system points to a different role for agribusinesses, namely contracting. This especially applies in situations where vertical integration of productive resources is impractical, for instance in the small-scale producing sector of the NWP. Cooperatives could therefore assist small-scale producers with production contracts that will reduce their risk and ensure access to markets. Contracting is not a new concept and is already

employed by agribusinesses in the NWP. Moreover, agribusinesses in the province have expanded this initiative especially to incorporate small-scale farmers into their system through other complementary initiatives (Van Schalkwyk *et al.*, 2009). The different agribusinesses that are not already involved in such a programme should be encouraged and assisted to play the same role as those already involved.

Agribusinesses are well positioned and have the experience and knowledge to provide the right kind of support to small-scale farmers. It is therefore essential for them to cooperate with government and to help make new farmers successful (Van Schalkwyk *et al.*, 2009). Results from the SWOT analyses reveal that development initiatives run by agribusinesses in the province are very successful, but they do face constraints, one of which is access to funding. As mentioned previously, public private partnerships in this regard may solve this problem. The establishment of new agribusinesses in areas where the existing ones do not operate must also be considered.

Moreover, contracting is only one sphere of the role that agribusinesses could play in ensuring that development in the province is successful. And although contracting could provide assistance in various forms, including access to capital, inputs, markets, etc., agribusinesses must also be given the responsibility of mentorship to new entrants or small-scale farmers. This was also stress in the 2010 Budget Policy Speech of the Department of Agriculture, Environmental Affairs and Rural Development, where the MEC for agriculture stated that agribusinesses should play a bigger role in mentoring small-scale farmers. As mentioned, the lack of proper knowledge and know-how is often the cause of failure when it comes to development. Agribusinesses should therefore emphasise the importance of mentorship, ensuring that the small-scale farmers in their respective regions receive the necessary support.

Agribusinesses also have an important role to play in the former homeland areas. These regions are unique in the sense that they are so-called tribal land, which makes the implementation of the proposed equity sharing scheme unfeasible, as ownership of the land normally lies with the tribal chief. Agribusinesses should therefore extend their role as input suppliers and providers of markets through contracts to facilitate a process where the tribal chiefs and representatives from

the other parties involved could engage in conversation to see how these lands can be used in a productive manner. This proposed solution should be where tribal chiefs grant the beneficiary a formal tenure system that will give him the rights to production on the specific piece of land. The proposed system might result in problems such as obtaining access to credit, as the beneficiary will not be able to provide security for capital required. Agribusinesses should play a pivotal role in this regard as well, following the same procedures as done by the Temo Agri Services. This will ensure the productive utilisation of land in the NWP that was previous unproductive. Moreover, the village banking concept in these regions holds vast potential in bridging the challenges of capital.

5.2.5 Training and education in the North West Province

Insufficient education and training was identified during the SWOT analysis workshops as one of the underlying reasons for most human related factors inhibiting growth and development in the province. Gomes and Camara (2004) argued that the education of rural people is of utmost importance to ensure successful rural development. Moulton (2001) stated that without education and training, by definition, a person cannot comprehend the instructions on a bag of fertiliser. This emphasises the importance of addressing education and training in the province. Moreover, education and training relates to the institutional environment, as presented by Williamson in his framework for the economics of institutions. Recall that this level refers to the so-called “rules of the game”. The institutional environment plays a significant role in shaping events at the governance level. This implies that training and education will be an important factor in determining how small-scale farmers go about producing, marketing and distributing their produce.

Gomes and Camara, (2004) argued that education and training strategies need to be integrated within all aspects of sustainable rural development, through plans of actions that are multi-sectoral and interdisciplinary. This means creating new partnerships between people working in agriculture and rural development, and people working in education. Van Schalkwyk *et al.*, (2009) were of the same view suggesting that a participatory partnership for education and training should be implemented to allow for the simultaneous strengthening of the development

process and the provision of farmer training and support in various aspects of agricultural production and marketing. Moreover, Van Schalkwyk *et al.*, (2009) elaborated by arguing that a number of issues pertaining to the circumstances of small-scale and emerging farmers in South Africa and the mechanisms that will hasten their full integration into the nation's agricultural economy are still not clearly understood. In light of this, a comprehensive action plan is essential, and should feature an interactive action learning and research process.

5.2.5.1 Integrated research-training-mentorship programme

Within the background of the concerns that was raised during the SWOT analysis workshops, it is proposed that an integrated research training programme based on learning-by-doing processes be drafted and implemented as a strategy to improve education and training in the NWP. Learning-by-doing programmes are nothing new in the field of education and training for rural people, with the so-called farmer field schools that have proved to be very successful in other African countries (Chain Empowerment, n.d.). In addition, Asiabaka (n.d.) argued that in many of the traditional learning models, problem definitions tended to be skewed towards research interests more than to farmer-perceived problems, whereas learning by doing is more focused on supporting small-scale and emerging farmers according to their specific key constraints. He elaborated by arguing that traditional training systems viewed farmers, extension officers and researchers as three separate strata and the links between them have normally been weak or non-existent. Therefore, the programme should integrate research, training and direct field production. This will enable participants to test new techniques learned, with a curriculum that could be modified accordingly to accommodate emerging issues.

Moreover, Van Schalkwyk *et al.*, (2009) suggest that research should examine the constraints faced by recently settled farmers, including the impact of working capital, practical skills, mentorship, market access, etc. in order to ensure that training adheres to the needs of small-scale and emerging farmers. The training of these farmers in the NWP should be tailored to the findings of research and should focus on the following:

- Training in small-scale livestock production;
- Training in small-scale field crop and horticultural production;

- Training in the operation of farm machinery;
- Training in the application of simple irrigation technologies;
- Training in the principles of farm budgeting and commercialisation;
- Training in principles and procedures of agricultural marketing and pricing techniques.

The umbrella research-training-mentorship programme described above will provide the framework for implementing the agricultural and rural development strategy of the NWP. The strategy should build on existing know-how, resources and potential, while developing skills for commercial farming through targeted training and mentorship that explores new opportunities in the province. It is expected that farmers trained in the activities will be able to apply the techniques on the farms on which they have been settled.

5.2.5.2 Target groups

In the African context, women and youth are more open to changes in technology and play a major role in agricultural production, as they provide food for their families (Elias, 2002). Training women will ensure that surpluses of food crops will be produced, as most of them are currently unemployed. Women usually produce the food crops in African cultures (Norton & Alwang, 1993). This production activity will ensure enough food for consumption and will increase the incomes of rural families.

Education and training involves a change in human behaviour, and systematically enhances one's abilities to investigate, analyse, innovate and learn, which are crucial for economic growth (Bwalya, 2007). This is particularly true for agricultural growth. The objectives of agricultural training should therefore be to raise agricultural productivity, the standard of living of the rural population and thus farmers, and the rural welfare in the province by targeting woman and the youth.

5.2.5.3 Operation and functioning

Based on the shortcomings identified in the SWOT analyses, the training process should comprise technical, management and institutional training. Technical training should provide the necessary technical skills and knowledge to farmers to create an understanding of how to produce using available resources. The training must consist of producing various commodities, maintenance and production expansion. Management training should focus on the management and entrepreneurial skills of individual farmers in order to develop leadership in management of agricultural ventures and should consist of:

- Farm management,
- Basic business skills,
- Basic book-keeping,
- Basic record-keeping, and
- Marketing.

Institutional training programmes should focus more on developing groups who are involved in community projects. Institutional training should consist of:

- Development and implementation of the Constitution,
- Meeting procedures,
- Project management, and
- Leadership.

5.2.5.4 Extension

Gupta and Kunwar (n.d.) argued that extension has a big role to play in the rural development of any country's agricultural sector. Therefore, extension training should play a significant role in the NWP's development programme. Besides the training of new extension officers, those currently working in the field should be encouraged to study further and carry out research, and also become involved in training the less experienced officers. As discussed above, mentorship is of utmost importance for successful development in the province. Mentorship should be one of the main responsibilities of extension officers in the province. However, according to results

from the SWOT analyses, many mentorship programmes are not functional, especially those operated by governmental institutions, which is mainly due to lack of proper knowledge among extension officers. Training of these officers and their involvement in research could increase knowledge and involvement with the community.

5.2.6 Market access solutions

Some solutions with regard to the marketing problems of small-scale farmers have been analysed and discussed in various other documents. The BATAT document compiled by van Renen (1997) is probably the most comprehensive of them all. This section is based on that document, using what is applicable to the NWP. The development and maintenance of rural infrastructure, including marketing infrastructure, has been undertaken almost entirely by government. Participation by local communities, farmers and traders was often neglected. This neglect has led to ineffective planning, and a lack of interest and commitment from the supposed beneficiaries towards using and maintaining the facilities. Local organisations, agencies and groups should be central in planning and setting priorities for these facilities, and should also contribute in some way to the provision of infrastructure. The most cost-effective storage of agricultural produce allows delivery to match the steady consumption demands, while still catering for seasonal delivery schedules and providing a buffer to cushion delivery delays.

Moreover, marketing extension can rarely be found for the effective implementation of marketing development programmes. An efficient marketing extension network is essential, and it should carry out the following:

- Advice on product planning: Carefully selecting crops to be produced according to marketability is essential.
- Facilitation of the provision of market information: The information must be relevant and have a direct impact on farmers' activities.
- Secure markets for farmers: Assisting small-scale farmers to find markets.
- Advice on improved marketing practices: Advising and training farmers in improved harvesting methods, grading and standardisation, packaging, handling and storage methods.

- Promote group marketing: Because of the small quantities marketed by individual small-scale farmers, group marketing could assist in transportation and group bargaining.
- Advice on establishment and operation of rural markets: Advising and/or assisting the local authorities in planning rural markets, in designing their structures and advising on their improved operations.

Marketing information services have the function of systematically and continuously collecting and processing marketing data, and of making it available to market participants in a form relevant to their decision-making. The purpose of such information services is to continuously enhance market transparency through:

- The creation of stimuli by indicating market opportunities.
 - The stimulation of competition amongst suppliers and traders.
 - Promoting the adaptation of supply to the development of demand.
 - The reduction of seasonal and erratic price variations and associated market risk.
 - The provision of data as a precondition for the planning and control of market interventions.
- A marketing information service must be relevant, meaningful, reliable and easily accessible. Information must be available promptly, as marketing information services lose their usefulness over time.

In the initial stages of economic development, agricultural market information may not play a very important role. A need for an information service first appears with rising market production and a decline in the significance of subsistence production. Therefore, its content and extent should be in relation to such development. In order to broaden access to agricultural marketing, the following broad strategies should be put into effect:

- Firstly, remove the obstacles, whether legislative, regulatory, institutional or otherwise.
- Secondly, enhance the small-scale farmers' ability to seize opportunities through training and advice.
- Thirdly, ensure that they have the information, resources and services to succeed.
- Fourthly, set up a marketing support structure to ensure sustainability and growth.
- Finally, ensure that they have a voice and representation at both organisational development forums and at decision-making bodies, as this is where they will shape their own destiny.

5.2.7 Strategic framework for the creation of an enabling institutional environment

To ensure that the proposed institutions and institutional arrangements are implemented in a constructive manner to address the challenges highlighted in the previous chapter, a strategic framework will be required. The compilation of the strategic framework is based on the shared experiences and knowledge obtained during the SWOT analysis workshops as well as the expert consultation sessions/workshops. Following the SWOT analysis workshops, expert consultation sessions/workshops were held with all the relevant role players (agribusinesses, organised agricultural, input supply companies, agricultural processors, banks, government, etc.) in the province to determine potential steps, actions, requirements, objectives, etc. that will be required to ensure that the proposed institutional framework can be implemented successfully. Davis, Reardon, Stamoulis & Winters (2002) highlighted that evidence from developing countries points towards the growing importance of industry knowledge when developing strategies for the improvement of rural development. From the knowledge obtained from the field sessions and inputs from the sector, a strategic framework was drafted that defines four main objectives.

The **first objective** is to create micro-finance and other essential institutions. Initially, the potential role-players should be identified that could contribute towards the establishment of micro-finance and associated institutions (i.e. cooperatives, financial institutions, organised agriculture, etc.). This is important for other institutions such as the NWDACERD, NGOs, the DBSA, the Land Bank, etc. that already exist and that provide some of the services. Links with these organisations will make implementation faster and ensure that resources are used more efficiently. The communities benefiting from development projects must also be identified.

Secondly, the system must be implemented and regulated. A number of actions are needed to create the proposed rural finance concept, namely:

- Involving the community in the management and operation of the village bank. This will create a sense of ownership among residents of the community that will contribute towards support and investment certainty within the institution.
- Creating constitutions and business plans. A constitution and business plan would assist in identifying the long-term objectives of the enterprise. Besides, a proper constitution and

business plan will increase investors' and other role players' participation in the initiative, increasing its chances of success.

- Determining the services that are needed. Participants should decide on the range of financial services (savings, transfers, loans, insurance, etc.). Moreover, this will guide the development of credit capacity.
- Developing infrastructure.
- Linking with commercial banks. This will not only improve the credit capacity of the community, it will also improve the institutional capacity, which will contribute towards sustainability of development projects funded by the initiative.
- Developing good communication channels between role players. Communication in any form of business is vitally important for survival and success. Good communication will ease the process of decision making and doing business, contributing towards the efficiency of the initiative.

The **second objective** is to promote market-orientated production. Four strategies will ensure achievement of this objective with the first being to build strong market signals, for which the following actions are needed:

- Identify surplus producers in the region.
- Introduce agri-business skills through training, twinning arrangements, franchises, joint ventures, etc.
- Establish closer liaison amongst the main stakeholders – marketing, research and production units in the NWDACERD.
- Strengthen market information systems and dissemination.
- Establish a more professional, comprehensive and locally relevant market information bulletin.

The second strategy is to ensure availability and timely distribution of agricultural inputs. Agricultural cooperatives and the various input suppliers have an important role to play in this regard, as these institutions are the main suppliers and distributors of agricultural inputs. The actions needed are to:

- Develop a market network with distribution incentives.

- Strengthen local seed production and distribution.
- Encourage marketing of organic fertilisers like compost and kraal manure.

The third strategy is to ensure farmer participation in livestock markets. The actions needed are to:

- Improve cattle breeds.
- Improve the frequency and spread of cattle auctions.
- Provide access to new technologies.

This strategy should be closely linked to the initiatives developed under the Western Frontier Beef Beneficiation Programme and the Nguni Cattle Development Programme. These programmes are part of the initiatives of the NWDACERD to improve rural development in the NWP. The objective of these programmes is to ensure that all small-scale farmers are involved in the total value chain of beef production and to present small-scale cattle farmers with improved genetics.

The fourth strategy is to promote agricultural diversification. This can be done with the following actions:

- Design support and capacity-building programmes for surplus producers.
- Promote intensive livestock and horticultural production.
- Improve cattle breeds.
- Encourage the creation of a line of credit for small and medium-sized enterprises.
- Promote investment in agriculture.

This strategy could also be related to the initiatives as discussed in the previous paragraph. Moreover, the **third objective** is to improve marketing efficiency, for which there are four strategies. The first strategy entails the building of a strong wholesale industry through the following actions:

- Enforcing marketing tiers to avoid inter-tier competition.
- Designing support and capacity-building programmes (pricing, packaging, advertising and handling).

The second strategy needs to establish dependable supply via the following actions:

- Establishing rural produce collection depots: These depots are similar to the handling facilities that are foreseen to be established by the Western Frontier Beef Beneficiation Programme.
- Strengthening market information systems: This could also be addressed by NWDACERD Western Frontier Beef Beneficiation Programme through the establishment of livestock cooperatives. These cooperatives could cooperate with producer's organisations such as the Red Meat Producers' organisation to improve the flow of information to small-scale farmers in rural regions.
- Promoting marketing cooperatives. The Western Frontier Beef Beneficiation Programme will also address this action through the establishment of their livestock cooperatives. These cooperatives will automatically contribute toward marketing, as more and higher quality animals would be grouped in production units.

The third strategy expands local markets. The following actions are needed:

- Promoting local produce markets.
- Establishing domestic market links.
- Improving aggregate demand through provincial government incentives.
- Promoting the concept of market days.
- Promoting the establishment of marketing cooperatives and other marketing organisations.

The fourth strategy aims to reduce marketing costs. This strategy also relates to the NWDACERD Western Frontier Beef Beneficiation Programme, with the actions under the programme that can be used to reduce marketing cost. However, take note that the following actions will be essential in reducing marketing cost:

- Creating strategic market infrastructure.
- Promoting marketing cooperatives.
- Intensifying marketing infrastructure development (slaughter facilities, feeder roads, auction yards, marketplaces, etc.).
- Encouraging the establishment of produce collection depots.

The **fourth objective** is to promote household food security, and it has three strategies. The first is to improve agricultural productivity, for which the actions needed are to:

- Promote the production and distribution of better seed varieties.
- Promote the adoption and application of productivity-enhancing technologies.
- Encourage the wide application of sharecropping and the adoption of intensive livestock and horticultural production.
- Promote the use of kraal manure and ashes where appropriate.

Strategy two aims to improve rural communities' access to food, with these actions:

- Encouraging the growth of informal rural markets.
- Promoting the concept of rural market days.
- Disseminating food preservation technologies.
- Promoting local food processing, e.g. hammer milling.

The third strategy is to reduce risks. This can be done with the following actions:

- Using a variety of tools, including futures, production contracts, etc.
- Encouraging crop diversification: Intercropping can also play a valuable role. The different intercropping possibilities suitable for the different regions, land, rainfall, etc. could be communicated to small-scale farmers through the extension services provided by both government and private entities such as cooperatives.

The above provides a framework that can be used to implement the proposed institutional changes necessary for new entrants or small-scale farmers to unlock the opportunities present by agriculture in the province. These institutions and arrangements are initiated based on the problems and challenges experienced by small-scale farmers in the province. Thus, achieving the objective of ensuring that these institutions are in place will certainly contribute towards higher levels of success associated with development in the province.

However, rural development does not only encompass the improvement of livelihoods through the introduction of new farmers to the agricultural sector, it can also include institutional

arrangements that will contribute towards sustainable employment and business opportunities in the province.

5.3 Conclusion

The greatest challenge faced by all involved in the implementation and development of rural development projects and programmes is the creation of an enabling environment. This will make a greater contribution to assisting rural development than establishing development projects in rural areas without the necessary institutional support. It can be concluded that small-scale farmers in the NWP will only be able to make a living on their farms if the proposed institutional environment is created.

The system of village banking provides general solutions to most of the problems, i.e. credit access, market access and especially production limitations. Equity sharing is a solution to the credit access problem, but also helps to overcome other shortcomings such as the lack of skills, infrastructure, inputs, knowledge and good management. Equity sharing and village banking can be applied together or as alternative solutions. The involvement of agricultural cooperatives brings another alternative to the table.

These solutions will never be successful without the necessary training. The action strategy for such a programme will be a learning-by-doing process, with small-scale and emerging farmers being supported and assisted with their key constraints. To achieve the above, a research-training-mentorship programme is proposed. Production should always be market-orientated. Included are the marketing solutions provided in the BATAT document as compiled by van Renen (1997). By implementing the proposed solutions, an enabling institutional environment could be created that will help emerging farmers to succeed.

CHAPTER 6

Model Selection

6.1. Introduction

The South African government, as much as it has a responsibility to redress the imbalances of the past, also has the challenge to balance equity with efficiency in a free market economy (Awosola, 2006). Therefore, attention needs to be given to institutional support structures and how they could reduce the impact of policies that focus on redressing the historical injustices of the past. The study therefore seeks to quantify the potential impact of the proposed institutional framework (see previous chapter) on development initiatives in the province. The quantification of the proposed institutional framework is the second main objective of the study.

This chapter provides an overview of the selection of an appropriate model to quantify the impact of the proposed institutional framework for sustainable rural agricultural development in the North West Province (NWP). The land reform policy (i.e. redistribution of 30% of agricultural land) will be used as a proxy to quantify the impact of the proposed institutional framework. Amongst others, the chapter elaborates on impact analysis most frequently used to measure the impact of policy interventions and support structures. This will be followed by an in-depth discussion on the Social Accounting Matrix (SAM) and its applications, the Conningarth Social Accounting Matrix database for the NWP, adjustments made and concluding remarks.

6.2 Impact analysis

Taljaard (2007) defined impact analysis as a means of empirically estimating the consequences of an exogenous change/shock on the economy or sector/industry in particular. He further stated that impact analysis is normally focused in two directions, firstly the impact of other activities on the industry under investigation and secondly the impact of that specific industry on other

industries. Normally, impact analysis is conducted by policy makers or advisors who want to determine how a particular industry will evolve over time so that they can plan accordingly. In addition, impact analysis also provides interested parties with information as to how much employment, income, taxes, etc. a specific industry could generate or lose within a specific economy.

However, the contribution of a specific industry within an economy could be influenced by several factors, among which the institutional environment, policy interventions and lack of proper support structures can be regarded as the most important. Impact analysis can therefore also be used to answer questions surrounding the impact of alternative institutional frameworks, policies interventions and support structures or the lack thereof on a specific industry. This is especially true in the context of agricultural development, where new entrants or beneficiaries rely heavily on support structures and protection to remain sustainable in the imploring faces of production. Moreover, in an open economy, industries are not isolated from each other. This implies that an impact on one industry will hold implications for another. Researchers at the United Nations (1999) believed that when a full-fledged impact analysis is conducted, it is impossible to isolate the total impact of a particular industry on the entire economy. They also believed that the results from an impact analysis are only useful if they can be formulated consistently as changes in the vectors of final demand, i.e. changes in final consumption, exports, fixed capital formation and inventories.

Hussain *et al.*, (2003) were of the same view as the United Nations, that the impact of a particular industry on the entire economy cannot be isolated. They argued, though, that the impact of a particular industry on the rest of the economy could be classified on three levels, the first being the direct effects. By direct effects, Hussain *et al.* (2003) referred to the initial immediate effects caused by the specific activity, which will subsequently initiate a series of iterative rounds of income creation, spending and re-spending, resulting in what are termed indirect and induced effects. Secondly, the indirect effects refer to changes in production, employment and income as a result of the direct effects on the industry sector that may be directly or indirectly related to the initial impacted sector. The third level of impact, namely induced effects, refers to general changes in the household sector's earnings and spending

patterns because of the direct and indirect effects. Together, these three effects or impacts make up the total effect or impact of an exogenous change on a particular industry or economy. Furthermore, Hussain *et al.* (2003) defined leakages as those expenditures that “leak” out of a specific area and that should therefore not be included in an estimation of the total impact at local level.

According to Hussain *et al.* (2003), the most popularly used impact analysis methods include backward and forward linkages, Input-Output models, and Social Accounting Matrix (SAM)-based models (i.e. general and partial equilibrium models, multiplier analyses, etc.). The following sub-sections provide a review of these methods with the objective to determine the most suitable ones for achieving the aims of the study.

6.3 Backward and forward linkages

Backward and forward linkages normally result from an increase in activity in any one sector. A stimulus in a sector initiates backward linkages through its extra demand for inputs from upstream industries, while forward linkages arise when extra supplies from a sector induce downstream industries to expand their own production levels (Townsend, 1997).

Initial work on backward and forward linkages can be traced back to Rasmussen (1957), followed by Chenery & Wanabe (1958), Roberts (1992), and more recently, Townsend (1997). These authors provide a detailed account of how to measure linkage effects. However, of late, the measurement of backward and forward linkages has become standard practice in input-output analysis, and will therefore not be discussed in detail as it is not seen as the most effective method to use for this study.

6.4 Input-output approach to modelling

Input-output analysis was developed by Wassily Leontief in the late 1930s. Leontief (1986) as cited by Townsend (1997) stated that:

“Economic theory seeks to explain the material aspects and operations of our society in terms of the interactions among such variables as supply and demand or wages and prices. Economists have generally based their analysis on relatively simple data – such quantities as the gross national product, the interest rate, price and wage levels. However, in the real world things are not so simple. Between a shift in wages and the ultimate working out of its impact upon prices there is a complex series of transactions in which actual goods and services are exchanged among real people. These intervening steps are scarcely suggested by the classical formulation of the relationship between the two variables. It is true, of course that individual transactions, like atoms and molecules, are far too numerous for observation and description in detail. However, it is possible, as with physical particles, to reduce them to some kind of order by classifying and aggregating them into groups. This is the procedure employed by input-output analysis in improving the grasp of economic theory upon the facts with which it is concerned in every real situation.”

Townsend (1997) explained further that the information in input-output analysis concerns the flows of products from each industrial sector considered as a producer to each sector considered as consumers. This information from which an input-output model is developed is placed into an inter-industry transaction table. Input-output tables therefore present a database with which to analyse the local economy. Similarly, Taljaard (2007) suggested that an input-output table in its simplest form can be used in describing the local economy.

According to Van Seventer (1999) and Taljaard (2007), there are three basic applications of regional input-output tables. Firstly, regional input-output tables can be used as a framework to study the relative regional characteristics. Secondly, they are handy as a policy analysis tool. Thirdly, such tables can also be used to investigate the impact of new investments projects and new or changed production activities, or the extent of external market shocks on the local economy. This fits well with the aim of the present analysis, to quantify the impact of the proposed institutional framework on the different agricultural sectors in the NWP.

Taljaard (2007) argued that the basic strength of input-output analysis lies in its ability to explain inter-sectoral economic relationships within an economy, whether regional or national. By

contrast, Midmore (1991) as cited by Taljaard (2007) notes that the weaknesses of an input-output analysis are firstly that it relies on linear, average relationships. Secondly, it precludes substitution between inputs in productive processes but assumes that inputs are perfectly elastic in supply, and thirdly, that the infrequent publication and long period of gestation of most national input-output tables is a serious drawback. However, when developments in the analysis of transactions within an economy are expanded to include the whole economy and its linkages, the original input-output transaction matrix can be set in the wider accounting framework of a Social Accounting Matrix (SAM). A SAM base model can therefore be seen as a better instrument to quantify the potential impact of the proposed institutional framework (see Chapter 5) for the improvement of rural agricultural development in the NWP.

6.5 Social Accounting Matrix approach to modelling

Several explanations for the structure and functioning of a SAM can be found in the literature. Amongst others, Round (1981) defined the SAM as a single-entry accounting system where each macro-economic account is represented by a column for expenditures or payments and a row for income receipts. King (1985) was of the view that the SAM principle is nothing more than that of double entry bookkeeping in accounting, with a series of accounts in each of which incomes and outgoings must balance. The double entries are achieved by only a single entry in a matrix that resembles an oversized chessboard. Pyatt (1988) defines a SAM as a square matrix designed to provide a record of transactions using a single-entry form of bookkeeping. More recently, Mabugu (2005) agreed with the definitions provided by the previous authors, stating that the SAM is in essence a double-entry accounting representation of the flow of goods as well as services and payments between sectors, classes of economic actors and other accounts. He went on to say that the SAM is a comprehensive, disaggregate, consistent and complete data system that captures the interdependence that exists within a socio-economic system.

Taljaard (2007) suggested that a SAM is in a sense similar to an input-output table, with a SAM being a comprehensive, economy-wide data framework, typically representing the economy of a nation or region. The data system includes both social and economic data for an economy. The data is usually sourced from input-output tables, national income statistics, and household

income and expenditure statistics (Sen, 1996). Therefore, the SAM is broader than an input-output table, showing more detail about all kinds of transactions within an economy. The United Nations (1999) expanded on the description by explaining that compared to an input-output table; the SAM technique elaborates more on the household sector. As an extension of the input-output framework, the SAM approach allows one to show how the household, government and other sectors are formed. Moreover, McDonald and Punt (2004) elaborated by stating that two basic important distinctions between a SAM and a conventional input-output table are that the SAM captures the full circular flow, whereas the input-output table only captures part thereof. Besides, the input-output table does not record details of the interactions in factor markets, i.e. there is no functional link between activities and institutions via factor markets. Further, input-output tables do not record the transactions between the various institutions in an economic system, or between the various components of an economic system and the rest of the world, with the exception of commodity transactions (McDonald & Punt, 2004).

Moreover, Taljaard (2007) suggested that the guiding principles behind the SAM are caught within the concept of circular flows and the requirements of double entry bookkeeping. The economic concept of circular flow, presented in Figure 5.1, relates to a particular angle from which an economic system is viewed and traced (Conningarth Economists, 2009). Following the flow in one direction involves tracing the flow of goods and services (commodity accounts), while going the other way around, the circular flow traces the flow of funds. Conningarth Economists (2009) and Taljaard (2007) further highlighted the idea that institutions, including households, enterprises and government, act as sellers in factor markets and purchasers in commodity/ product markets, whereas the opposite applies to activities. In addition, activities also purchase intermediate products from the commodity markets, whereas, transactions to the rest of the world can take place through both commodity and factor markets.

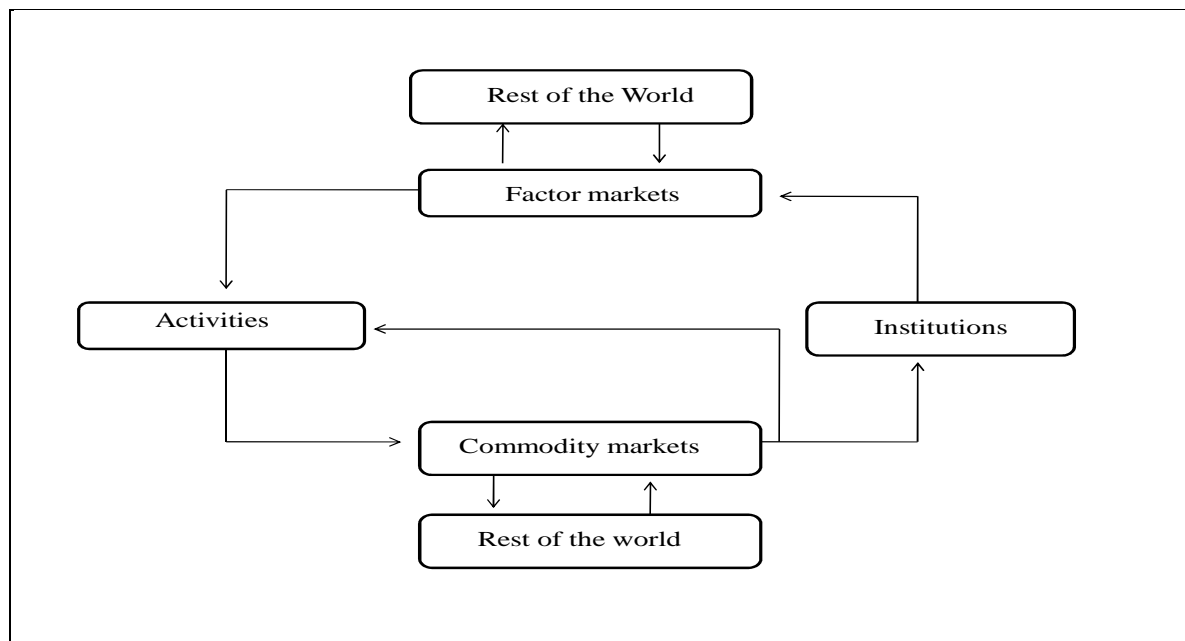


Figure 6.1: Schematic presentation of economic circular flow

Source: McDonald & Punt (2003:4); Taljaard (2007) and Conningarth Economists (2009).

The SAM therefore provides a conceptual basis to analyse both distributional and growth issues within a single framework. For instance, the SAM shows the distribution of factor incomes of both domestic and foreign origin over institutional classes and the redistribution of income over these classes. The SAM also depicts the expenditure of these classes on consumption, investment and savings made by them (Sen, 1996). In addition, Taljaard (2007) stated that household incomes are normally not the same as compensation of employees. The United Nations (1999) explained that household income can only be obtained after the process of distribution of income. For example, in addition to the compensation of employees, the household sector receives dividend interest on its deposits and transfers from other sectors like social security benefits. In terms of payments, households pay income taxes, interest on loans, insurance contributions, fines, as well as penalties and other type of transfers. The net receipts then form the disposable income. Disposable incomes of other sectors are formed in a similar way. By expanding these distributions and redistributions in an input-output framework, a SAM can be formed (Taljaard, 2007).

McDonald, Kirsten and Van Zyl (1997) and Conningarth Economists (2009) highlighted that many alternative layouts can be used for constructing a SAM. In general, six sets/types of accounts (all with numerous sub-accounts) can be distinguished in the SAM, including:

- commodity accounts,
- activity (or production) accounts,
- factor accounts,
- institutional accounts (household, enterprises and government),
- capital (savings/investment) accounts, and
- rest of the world accounts.

Table 6.1 shows a typical outline of a SAM, with the commodity accounts recording the demand and supply commodities. The column entries identify commodity transactions according to whether they are domestic or imported, inclusive of tariff revenues. The row entries sub-divide transactions in commodities between intermediate and final demands, where final demands are disaggregated across different institutions, the capital account and exports, inclusive of export subsidies. In equilibrium, total demand for commodities is equal to total supply for commodities, i.e. the row and column totals equate (McDonald, Kirsten and Van Zyl 1997)

McDonald, Kirsten and Van Zyl (1997) further reported that the activity accounts record domestic production activities. The row entries identify the production of commodities by activities, while the column entries sub-divide production expenditures between intermediate inputs and value added, and value added will be broken down into payments to different factors, expenditure taxes, e.g. VAT, paid by activities, and certain types of imports. The column sums for the production accounts record the total inputs to activities and are equal to the row sums, i.e. total outputs by activities.

Factor accounts represent income earned by and expenditure made by certain factors, which typically include labour and capital sub-accounts. They receive income from the sales of their services to production activities in the form of wages, rent and net factor income received from abroad. In turn, these revenues are distributed to households as labour and distribution profits, and to firms as non-distributed profits (Conningarth Economists, 2009).

According to Taljaard (2007), institutional (organisational) accounts, including households, enterprises and government, provide information about how the institutional arrangements (patterns of poverty rights and preferences of the society) interact to determine the nature of transactions (final demand for goods and services) between the production accounts and institutions, as well as between institutions. Moreover, Provide (2003:4) suggested that households usually earned the majority of their income from factors, with the possibility of supplementing their income with transfers from other institutions or the rest of the world (RoW). Total household income is normally distributed between consumption, transfers to other households, direct taxes and savings. Incorporated business enterprises earn income from non-distributed firm profits and transfers. Surplus income is distributed between taxes and transfers to other institutions, transfers to the RoW, and enterprise consumption (if applicable) and savings. Government receives income from various tax sources, from the ownership of factors (if applicable), and from transfers from other institutions and the RoW. Expenditure is made up of transfers and government consumption demand (Provide, 2003:4).

All transactions relating to investment and the funding thereof are normally recorded in the capital accounts. Domestic institutions and the RoW can contribute to the pool of savings, as shown in the capital row account. Savings injected into the economy through direct investment are captured in the capital row account. Finally, the RoW account(s) record all transactions between domestic institutions, factors or commodity accounts and the RoW (Provide, 2003:4).

Roberts (1991) noted that a SAM is characterised by the disaggregated treatment of the non-production-oriented accounts, with inter-industry transactions confined to a single sub-matrix in this type of framework. Despite the extension of information, the most noteworthy difference between a SAM and input-output table is the inclusion of both row and column entries for the various types of factors of production. These map the value-added payments from the production sectors to the owners or providers of the factor services, i.e. institutions. Roberts (1991) further emphasised that, unlike aggregate national accounts or input-output tables, the SAM highlights the issue of income distribution.

According to King (1985) a SAM has two objectives. The first, as already mentioned, relates to the organisation of information, usually information about the economic and social structures of a country in a particular year, though it could also be for a region in a country, a city, or any other unit of interest. The second objective is to provide a statistical basis for the creation of a plausible model. This will assist in analysing how the economy works as well as to predict the effects of policy interventions, institutional changes, etc. in a country or region. Pleskovic and Trevino (1985); McDonald (1999) and Conningarth Economists (2009) support this by suggesting that the most important feature of a SAM is that it provides a consistent and convenient approach to organising economic data for a country or region, irrespective of the characteristics of the country or region. The SAM is therefore a valuable accounting and descriptive tool.

Table 6.1: Typical outline of a macroeconomic SAM

Expenditures/ Receipts	1.Commodities	2. Activities	3. Factors	4. Households	5. Enterprises	6. Government	7.Savings investment	8. Rest of the world	TOTAL
1.Commodities		Intermediate inputs (USE matrix)		Private consumption		Government consumption	Investment	Exports	Demand
2.Activities	Domestic production (MAKE matrix)								Activity income (gross output)
3.Factors		Value-added						Factor income from RoW	Factor income
4.Households			Factor income to households	Inter-household transfers	Transfers to households	Transfers to households		Transfers to households from RoW	Household income
5.Enterprises			Factor income to enterprises			Transfers to enterprises		Transfers to enterprises from RoW	Enterprise income
6.Government	Sales taxes, tariffs, export taxes	Indirect taxes, factor use taxes	Factor income to government, factor taxes	Transfers to government, direct household taxes	Transfers to government, direct enterprise taxes			Transfers to government from RoW	Government income
7.Savings investment				Household savings	Enterprise savings	Government savings		Balance of payments	Savings
8.Rest of the world	Imports		Factor income to RoW		Transfers to RoW	Government transfers to RoW			Foreign exchange outflow
TOTAL	Supply	Activity expenditures	Factor expenditure	Household expenditure	Enterprise expenditure	Government expenditure	Investment	Foreign exchange inflow	

Source: Provide (2003:4) as adopted from Löfgren *et al.* (2001)

6.5.1 The Conningarth Social Accounting Matrix (SAM)

Conningarth Economists (2009) developed a series of SAMs for the different province with a 2006 base year. This is the most recent SAM available for the NW, and will therefore form the basis for the impact analysis. The NW SAMs were based on the supply and use tables (SU-Tables) published by StatsSA. The SU-Tables were used to identify the disaggregated accounts to be included in the SAM. The following provides an inventory of the number of constituent components that make up the entities of the Conningarth NW SAM (i.e. the structure of the SAM).

- Activities 37 components
- Commodities 37 components
- Factor payments: Labour 44 components
- Factor payments: Capital 4 components
- Enterprise 4 components
- Household 48 components
- Government 6 components (expenditure side)
- Capital account 2 components
- Foreign trade 6 components

The 37 commodities included in the North West SAM correspond to the goods and services produced by the various activities in the SAM. In terms of remuneration of labour reflected in the labour account for the NW SAM, four population groups (i.e. Africans, Asians, Coloureds and Whites) have been specified, along with twelve occupations groups, which is similar to the structure used in the National SAM published by StatsSA. As mentioned, the study will also draw on the national SAM to quantify the national impact of the proposed institutional framework. According to Conningarth Economists (2009), the classification of occupation groups in the North West SAM is a fair reflection of the different skills levels employed in the provincial economy. With regard to the remuneration of capital, factor account and enterprises, the same composition was used for both of these entities (i.e. public enterprises, private business enterprises, taxi enterprises and informal businesses). The household account has been subdivided into 48 different household types, corresponding to the four population groups, with

twelve income categories per group. Finally, the government account has been sub-divided into National, Provincial (education, health, welfare, and other), and Local Government structures. The Rest of World Account (RoW) has been sub-divided into the Rest of South Africa, and the Rest of the World.

6.6 SAM Based Models

It is important to note, however, that the SAM is not a model (Pyatt, 1988) but that it provides a valuable and descriptive tool that can be used to guide policymaking (McDonald, 1999). Moreover, Sen (1996) argued that the SAM is a technique related to national income accounting that provides a conceptual basis for examining both growth and distributional issues within a single analytical framework in an economy. Pyatt (1988) suggested that the relation between the SAMs and the models that are based on them has several aspects, as for each SAM-based model there is a corresponding SAM. However, the converse does not hold, if for any given SAM there are a variety of possible models. Thus, although the choice of SAM restricts the choice of models, it does not determine it uniquely.

McDonald (1999) emphasised that the importance of SAMs as a basis for wide-ranging economic models has increased substantially over time. As mentioned, it is possible to build more than one macro-economic model based on a SAM. O'Toole and Matthews (2002) argued that when analysing the impact of a set of policy or institutional changes, economists often need to choose between partial and general equilibrium methodologies.

Computable general equilibrium (CGE) models are a class of economy-wide models widely used in policy analyses. These models are regarded as the dominant framework for economy-wide, multi-sectoral models. Moreover, Löfgren, Harris & Robinson, (2002) explain that recent improvements in model specification, data availability and computer technology have improved the payoffs and reduced the costs of policy analyses based on CGE models, paving the way for their widespread use by policy analysts throughout the world. Dixon *et al.*, (1992) were of the view that CGE models are preferred to partial equilibrium models for understanding/quantifying possible impacts from exogenous shocks. This is because the production and consumption sides

of the economy in question are determined concurrently in a CGE model framework. Moreover, Kilkenny & Robinson (1990) elaborated by suggesting that CGE models are appropriate for analysing a variety of macro-economic issues, because they include factor markets, government accounts, and the major macro balances. They go on to point out that firstly, the advantage of a CGE model compared to other econometric models lies in their consistency and the fact that they are sectorally disaggregated. Secondly, in contrast to the partial equilibrium models, the economy-wide nature of CGE models further enhances realism. Dixon *et al.* (1992) further argued that CGE models could be seen as a powerful technique for quantitative analyses of the effects on industries, government, regions, occupations and households due to changes in a myriad of exogenous variables, including taxes, trade restrictions, government expenditure, welfare policies, commodity prices, technology, and environmental regulations.

Since one of the secondary objectives is to quantify the impact of an exogenous variable (change in the institutional framework) on endogenous variables (GDP, employment, etc.), the use of a CGE model is more complicated, which make it less favourable. As mentioned, the study will use the land reform program (i.e. redistributing 30% of agricultural land in the NWP), as a proxy quantify the impact of the proposed institutional framework on the economy of the NWP. Moreover, the only way to quantify the impact of the proposed change/shock through a CGE model framework is to alter the value of the endogenous variable (production) in the underlying SAM. This alteration in the SAM will, however, show a structural change in the economy, which will result in the model being invalid. Besides, Layman (2000) was of the view that the greatest disadvantage of using CGE models is that the level of expertise and resources needed to operate these models is far greater than that is required when using for example partial equilibrium or similar models. Moreover, Robinson and Löfgren (2005) advise that, when designing or choosing among different modelling frameworks, it is important to consider the users of the analysis, the structure of the economy being modelled, the availability of data, as well as issues of interest. *Ceteris paribus*, simpler models are always preferred to ones that are more complex, because they are easier to use, adjust and understand, making their findings more convincing.

Therefore, it seems evident that a partial equilibrium model or derivative thereof will be best suited for measuring the impact of the proposed institutional framework in the present study.

Furthermore, O'Teele and Matthews (2002) highlighted that a partial equilibrium model concentrates on a particular section of the economy, with all other variables being treated as exogenous to the model. This concentration allow for much more detailed modelling of a specific industry compared to CGE models.

The model adopted reflects the “partial macroeconomic equilibrium model” that was developed by Conningarth Economists. The Conningarth model uses technical coefficients and the Leontief inverse to transform the North West SAM into a model that is used to quantify the regional impacts of the proposed institutional framework. The partial macroeconomic equilibrium model quantifies the nature and magnitude of the macroeconomic impacts that emanate from the proposed institutional framework in terms of its impacts on macroeconomic performance indicators such as Gross Domestic Product (GDP), employment, investment, household income and expenditure, etc. Moreover, the model will also draw from the National SAM as compiled by Conningarth Economists to quantify the national impacts of the proposed institutional changes in the NWP.

The analyses take into account the direct, indirect as well as induce effects of the proposed institution framework. For example, the direct impact that emanates from the proposed institutional framework refers to the visible effects occurring within the agricultural sectors of the province. The indirect impact refers to those effects occurring in the different economic sectors linked with the agricultural sector, while the induced impact refers to the chain reaction triggered by the salaries and profits that are ploughed back into the economy in the form of private consumer expenditure. Besides, the model also allows for the quantification of the potential impact that the proposed institutional framework might have on government revenue, which reflects directly on local governments' ability to improve social services and subsequently the socio-economic environment.

In addition, SAM based multipliers are also calculated for the NWP. Multiplier analysis estimates the effects of one-time increases in exogenous variables on endogenous variables in the accounting framework and it is mostly used for short-term policy analysis. Pleskovic and Trevino (1985) as cited by Sen (1996) argued that multiplier analysis is very useful in estimating

the effects of exogenous variables, such as increase/decrease in outputs, employment and incomes, with each being disaggregated in relation to the classification system embodied in the social accounts.

6.6.1 Input structure of the model

As mentioned, the North West SAM database as compiled by Conningarth Economists (2009) was chosen because it is the most recent SAM available for the NWP. Unfortunately, the underlying SAM did not include disaggregated detail for the different agricultural sectors in the province. The process of disaggregating the agricultural sectors presented various problems, of which limited data was foremost. Data for the agricultural sector of the NWP is often missing, unreliable or outdated. This is especially true for data on the input composition of the agricultural sector in the NWP. The input composition of the agricultural sector refers to the inputs required for successful farming. The SAM database captures this input data through:

- its commodities account; which reflects 34 different industries from which the agricultural sector sources its production inputs;
- its human resources requirements; number, skill levels and salaries of personnel;
- in Gross Operating Service (GOS), which includes capital to public and private business enterprises, tax and informal enterprises; and
- general capital investments, which include investments made to acquire machinery, equipment, buildings, civil constructions, etc.

To overcome the paucity of data, the agricultural sector of the NWP was disaggregated, making use of the input composition of the different agricultural sectors as depicted in the SAM databases of the Mpumalanga and the Northern Cape Province. This approach assumes that production activities in the corresponding agricultural sectors of these three provinces are conducted in a comparable manner. An input structure was compiled from the input composition of the different provincial agricultural sectors by estimating a proxy, or percentage, of each input in relation to the total value of production. This input structure was then used to determine the input composition for the different agricultural sectors of the NWP by multiplying the respective percentages of each input with the total production reported by the different agricultural sectors

of the NWP. The data derived from this process (input composition) was then used to quantify the impact of the proposed institutional framework on the respective agricultural sectors of the NWP through the SAM-based partial macroeconomic equilibrium model.

The agricultural sector of the North West SAM database was disaggregated into seven different sectors, including cereals, citrus, other fruits, vegetables, livestock, dairy and other farming sectors. The cereal farming sector represents all the grains and oilseeds (i.e. maize, wheat, sunflower, etc.) produced in the NWP, the other fruits sector includes both the deciduous fruit and the sub-tropical fruit sectors. The other farming sector comprises mainly data from the poultry sector.

6.7 The model

Technical coefficients and the Leontief inverse were used to transform the NW SAM into a partial macroeconomic equilibrium model. This was applied to quantify the impact of the proposed institutional changes in the province. A technical coefficient is defined as the quantity of intermediate inputs that a particular sector requires from another sector in order to supply a unit of output, i.e. the quantity of intermediate inputs from sector **i** that is required by sector **j** to supply a unit of output from sector **j**. This can be formulated as follows:

$$a_{ij} = \frac{X_{ij}}{X_j} \quad (i=1, \dots, n) \text{ and } (j=1, \dots, n) \dots\dots\dots (5.1)$$

Where:

- a_{ij} is a technical production coefficient indicating the amount of products from sector **i** needed to produce one unit of product in sector **j** (technical coefficient);
- X_{ij} is the delivery of intermediate goods from sectors **i** to **j**;
- X_j is total gross input (output) of sector **j**.

The following holds for specific elements in a transaction table:

$$a_{11} = \frac{X_{11}}{X_1}; a_{12} = \frac{X_{12}}{X_2}; \dots \text{and } a_n = \frac{X_{1n}}{X_n} \dots \dots \dots (5.2)$$

The technical coefficients matrix is a collection of technical coefficients and is often indicated by a capital letter ‘A’.

$$A_{ij} \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & & a_{2n} \\ a_{n1} & a_{n2} & & a_{nn} \end{bmatrix} \text{ where } (i=1, \dots, n) \text{ and } (j=1, \dots, n) \dots \dots \dots (5.3)$$

With the application of equation 5.1, a system of output equations for different agricultural sectors in the NWP can be calculated. For example:

$$\begin{aligned} x_{11} + x_{12} + \dots + x_{1n} + F_1 &= X_1 \\ x_{21} + x_{22} + \dots + x_{2n} + F_2 &= X_2 \\ &\dots \dots \dots \\ x_{n1} + x_{n2} + \dots + x_{nn} + F_n &= X_n \end{aligned} \quad (i=1 \dots n) \text{ and } (j=1 \dots, n) \dots \dots \dots (5.4)$$

Where:

F_n is the final demand of a specific sector.

This can also be illustrated as:

$$\begin{aligned} F_1 &= X_1 - x_{11} - x_{12} - \dots - x_{1n} \\ F_2 &= X_2 - x_{21} - x_{22} - \dots - x_{2n} \\ &\dots \dots \dots \\ F_n &= X_n - x_{n1} - x_{n2} - \dots - x_{nn} \end{aligned} \quad (i=1 \dots n) \text{ and } (j=1 \dots n) \dots \dots \dots (5.5)$$

After the elements in the transaction table are converted to technical coefficients, then

$$\frac{X_{ij}}{X_j} = a_{ij} \dots \dots \dots (5.6)$$

Then, let all x_{ij} in equation 5.5 be

$$\begin{aligned}
 F_1 &= X_1 - a_{11}X_1 - a_{12}X_2 - \dots - a_{1n}X_n \\
 F_2 &= X_2 - a_{21}X_1 - a_{22}X_2 - \dots - a_{2n}X_n \\
 &\qquad\qquad\qquad (i=1\dots n) \text{ and } (j=1\dots n)\dots\dots\dots (5.5)
 \end{aligned}$$

$$F_n = X_n - a_{n1}X_{n1} - a_{n2}X_{n2} - \dots - a_{nn}X_n$$

By grouping similar terms:

$$\begin{aligned}
 F_1 &= (1 - a_{11})X_1 - a_{12}X_2 - \dots - a_{1n}X_n \\
 F_2 &= -a_{21}X_1 + (1 - a_{22})X_2 - \dots - a_{2n}X_n \\
 &\qquad\qquad\qquad (i=1\dots n) \text{ and } (j=1\dots n)\dots\dots\dots (5.5)
 \end{aligned}$$

$$F_n = -a_{n1}X_{n1} - a_{n2}X_{n2} - \dots + (1 - a_{nn})X_n$$

This can be written in a matrix format as:

$$F = (I - A) X \dots\dots\dots (5.6)$$

By multiplying equation 5.6 on both sides with the inverse $(I - A)^{-1}$, the result will be:

$$(I - A)^{-1} F = (I - A)^{-1} (I - A) X \dots\dots\dots (5.7)$$

And

$$X = (I - A)^{-1} F \dots\dots\dots (5.8)$$

As is:

$$\Delta F = (I - A)^{-1} \Delta F \dots\dots\dots (5.9)$$

Where:

- ΔF reflects the change in final demand; and
- ΔX reflects the change in output/production.

The inverse of $(I - A^{-1})$ is known as the Leontief inverse. In summary, the model is concerned with solving for the sectoral output levels (X) that satisfy final demand for those outputs (F) given the inter-industry structure of production. The model is used to determine a production plan that is consistent with a desired final demand vector, given the inter-sectoral transaction matrix (A).

Besides, the Leontief inverse were also used to calculate the GDP or value added, labour and production multipliers for the NWP. Miller (1996) as cited by Taljaard (2007) cautions that when interpreting multipliers, it should always be kept in mind that, in essence, multipliers are simple ratios. Economic multipliers only provide estimates of the total impact resulting from an initial change in economic output (i.e. final demand). It is also important to remember that multipliers vary greatly from one industry to another. This depends, however, on where production input purchases are made in a specific industry to another (Taljaard, 2007). Thus, using the average multiplier that estimates based on a function that resembles complete homogeneity and no linearity, multipliers for an industry or sector are likely to be overestimated.

The multipliers are calculated as follows:

$$Value\ added = \frac{Value\ added}{Total\ production} \dots\dots\dots (5.10)$$

Where GDP or value added is measured as the total value that is added to each product produced by the various activities. According to Conningarth Economists (2005), value added for a specific sector is calculated as the difference between the revenue that the sector earns and the amount it pays for the products of other sectors it uses as intermediate goods. Thus, the value added can be calculated from a SAM as the sum of:

- Remuneration of employees,
- Gross operating surplus (which include, amongst others, profits and depreciation),
- Net indirect taxes.

$$Labour = \frac{Employment\ (numbers)}{Production} \dots\dots\dots (5.11)$$

As indicated by equation 5.11, the labour or employment multipliers indicate the extent to which economic sectors contribute to job creation. This could well be an indication of each sector's contribution towards distributing salaries and wages between various types of labourers, which, in turn, should impact positively on the alleviation of poverty (Conningarth Economists, 2005).

$$Production = \frac{Production}{Production} \dots\dots\dots(5.12)$$

Conningarth Economist (2005) explains that in economics, production measures the total turnover generated by each sector in the economy. Production is therefore the sum of the demand for intermediate activities as well as the total value added by the specific activity. The formula for calculating production multipliers is shown in equation 5.12. The direct production multiplier therefore equals 1.

For all three multipliers listed, the total effects consisting of the direct, indirect and induced effect are calculated and reported in Chapter 7.

6.8 Conclusion

From the literature, it is evident that quite a few methodological approaches can be used to conduct impact analyses. Although this chapter reviewed only some of these methodologies, it is apparent that most of them rely on an underlying database that captures the flow of activities within the economy. These models and databases can be used to analyse the economy. Moreover, the principles underlying some of these models and databases have become standard procedure in others. This can be seen in the traditional backward and forward linkage approach used to measure linkages in an economy. The principles applied in this approach have become standard practice in input-output analyses, which are based on an input-output table. The input-output table is nothing other than an inter-industry transaction table that is concerned with the flows of products from each industrial sector considered as a producer to each of the sectors considered as consumers. Moreover, when analysis within an economy is expanded to include the entire economy and its linkages, the original input-output table can be set in the wider accounting framework of a SAM. A SAM database can therefore be seen as the most appropriate database for conducting full-fledged impact analyses.

The advantages and disadvantages of several SAM-based impact models are also highlighted in this chapter. However, based on the arguments presented above, it seems clear that a partial equilibrium approach is best suited for the objective of the study. The study will therefore adopt

the partial macroeconomic equilibrium model of Conningarth Economists. This approach applies technical coefficients and the Leontief inverse to transform the underlying North West SAM into a partial macroeconomic equilibrium model. The SAM database unfortunately lacked a disaggregated agricultural sector, which meant that a disaggregation of the sector was done by making use of the input compositions of other provinces. This enabled the study to quantify the impact of the proposed institutional framework on the different agricultural sectors of the province instead of only showing its impact on the sector as a whole.

CHAPTER 7

Results from the Impact Analysis

7.1 Introduction

This chapter reports on findings of the impact analysis. Considering the government's view of the land reform programme as an important mechanism for ensuring rural agricultural development, scenarios for the quantification of the proposed institutional framework were based on the land reform policy. The policy proposes that 30% of all agricultural land should be transferred to previously disadvantaged people by 2025. In addition, the formulation of the scenarios includes the success rate of past development initiatives. A partial macroeconomic equilibrium model (as discussed in Chapter 6) is used to simulate the impact on different scenarios as discussed in the following section. The North West and National SAM serve as the underlying databases for the partial macroeconomic equilibrium model to determine both the local and national impact of the proposed institutional framework.

In addition to the partial macroeconomic equilibrium model, economic multipliers are also used to estimate the likely economy-wide impact of simulated changes or shocks imposed at micro-economic level. Van Seventer (2005) suggests that multiplier analysis be done in addition to macro equilibrium analysis as this helps to explain the functioning of an economy in a specific region. In contrast, Taljaard (2007) claims that one needs to keep the key assumptions (i.e. fixed relative prices and perfect elastic supply) of economic multipliers in mind when interpreting projected effects based on such an analysis. Thus, three types of Leontief multipliers, namely labour, production and value added multipliers, are also calculated to measure the potential impact of the proposed changes.

Results from the partial macroeconomic equilibrium model depict the direct, indirect and induced macroeconomic impact of the proposed institutional framework. Similar results from the multiplier analysis are reported. The following section details the formulation of the

different scenarios for the NWP. This is followed by a detailed discussion of the results of the partial macroeconomic equilibrium model and, finally, the multipliers.

7.2 Formulation of Scenarios

Since 1994, the land reform policy has been regarded as one of the main mechanisms for achieving, among other things: the restoration of a more equitable pattern of landholding, the alleviation of rural poverty through the creation of opportunities for employment (including self-employment), the economic development of rural areas, reparations (both symbolic and material) for historical injustices, and economic growth (Lahiff, 2008). Land reform is, therefore, a central part of government's strategy to ensure growth and development in all provinces of the country. However, the land reform programme has largely failed to meet its objectives. Lahiff (2008) argues that the failure of the land reform programme is most obvious in the crude statistics of the hectares of land transferred, the failure to restructure the agricultural economy, the widespread under-utilisation of much of the land that has been transferred, the high proportion of non-functioning communal property institutions and the lack of any firm evidence of job creation or poverty alleviation. Moreover, land reform and subsequent development, according to Lahiff (2008), results mainly from the challenges and threats faced by entrants or beneficiaries new to the agricultural sector, especially within the rural regions. The majority of these challenges and threats were discussed in Chapter 4.

The literature on development and land reform as a mechanism of development in South Africa, reveals little about the success of beneficiaries or participants in the NWP. Following their investigation of the success of projects funded by the Comprehensive Agricultural Support Programme (CASP) in the Free State Province, Idsardi, Jordaan and van Schalkwyk (2009) report that one in every five projects (20%) could be regarded as successful. The authors define success: "as the ability of a project/farming operation to uplift rural households in a successful and sustainable manner". This definition of success was adopted to formulate the scenarios for the impact analysis.

The baseline scenario used for the impact analysis, therefore, closely mimics the government's proposed legislation to transfer 30% of agricultural land to previously disadvantaged people by 2025. The scenario assumes 30% land redistribution coupled with a 20% success rate in the NWP.

Furthermore, the potential impact of the proposed institutional framework on the success rate of development and land reform projects is also simulated. It is well documented in the literature that institutions do influence economic performance and, consequently, economic growth. Kherallah and Kirsten (2002) argue that a two-way causality exists between institutions and economic growth. This means that some institutions have a profound influence on economic growth and that economic growth and development often results in changes in institutions. Several studies, including North (2000) and Kherallah and Kirsten (2002), conclude that functional institutions could positively influence factors such as transactions cost, co-ordination possibilities, and vertical integration, all of which contribute towards the success of development. While the literature gives significant qualitative evidence for the significant role played by institutions in ensuring economic growth and development, quantitative evidence appears to be absent. As a result, the success rates used for the different scenarios are derived from qualitative evidence which suggests that functional institutions do contribute towards economic growth and development. It is, therefore, assumed that the implementation of the institutional framework, as outlined in Chapter 5, will lead to an increase in the success rate of development initiatives in the NWP. To quantify the potential impact of the proposed institutional framework, the success rate is assumed to range between 20%, as reported by Idsardi, Jordaan and van Schalkwyk (2009), and a maximum success rate of 65%.

The various scenarios used to determine the potential impact of the proposed institutional framework for land reform in the NWP is as follows:

- The first scenario assumes that 30% of productive agricultural land is transferred to previously disadvantaged people in the NWP, with a 35% success rate. This implies that the introduction of the proposed institutional framework (as outlined in Chapter 5) might lead to a 75% increase in the success rate compared to the baseline scenario. The development of the proposed institutional framework draws on the concepts of the New Institutional Economic

Framework, as described by Williamson (2000), and focuses on enhancing economic development and social improvements by realigning and improving the current institutional environment using four dimensions. These dimensions are social embeddedness, institutional environment, governance structures, resource allocation and employment. This proposed structure addresses the challenges and issues inhibiting growth and development as identified by small-scale farmers in the NWP and consequently improves the success rate.

- The second scenario assumes a 30% redistribution of productive agricultural land coupled with a 50% success rate, and
- The final scenario explores a 30% transfer of productive agricultural land, assuming a success rate of 65%.

As mentioned, it is assumed that over the short to medium term the development success rate in the NWP will not exceed 65% on average. This assumption is based on the development process, especially with regard to the transfer of land to previously disadvantaged people, as a mechanism for accelerating rural agricultural development. Lahiff (2008) reports that land is purchased by the state without first identifying the intended new owners of the land, meaning that the approach is “supply led” rather than “demand led”. This implies that prospective beneficiaries may not be directly involved in the purchase decision or in the immediate post-purchase planning for the land, opening up the possibility of a top-down, “statist” approach. As a result, it is likely that beneficiaries who are not really interested in farming will receive land, increasing the possibility of failure. Even well-established agricultural producers, both commercial and small-scale, struggle to remain sustainable in an ever-changing economic environment (including variable consumer trends and price volatility). Trade liberalisation has also contributed towards the high level of competition between producers worldwide. These factors all contribute to difficulty in remaining sustainable. Thus, besides the institutional obstacles faced by new entrants or beneficiaries, many other exogenous factors also influence the success of development.

7.3 Simulating the Impact of the Proposed Institutional Framework

The following sections detail the results obtained from the partial macroeconomic equilibrium model, thus addressing the sub-objective of determining the impact of the proposed institutional framework on development initiatives such as the proposed land reform programme in the NWP. The potential impact of the proposed institutional framework on development initiatives was pursued by simulating different scenarios as discussed above. For convenience, a summary of these different scenarios, with their abbreviations and assumptions, is given in Table 7.1.

Table 7.1: Summary of the scenarios

Description	Abbreviation	Assumptions	
		Percentage of land transferred	Success rate
Baseline scenario	BLS	30 %	20 %
Scenario 1	SC1		35 %
Scenario 2	SC2		50 %
Scenario 3	SC3		65 %

Moreover, results from the model are detailed for seven different agricultural sectors in the NWP. These sectors, as discussed in Chapter 6, include: the cereal and grain sector (CGS), the citrus (CS), other fruit (OFS), vegetable (VS), livestock (LVS), dairy (DS) and the other agricultural sectors (OAS). For the purpose of this study, the CGS encompasses all grains and oilseeds and the OFS includes both deciduous and subtropical fruits produced in the NWP. The OAS is primarily compiled from data from the poultry industry in the NWP.

The simulation results for these different sectors are reported on in four sub-sections namely the impact on Gross Domestic Product (GDP), employment, household spending (social), and government (fiscal) impact.

7.3.1 Impact on Gross Domestic Product

As discussed in Chapter 3, the economy of the NWP is relatively small. In 2006, its GDP was valued at R 103 billion making it the third smallest contributor towards the national GDP. The

agricultural sector of the NWP contributed an estimated 16.8% or R 17.3 billion to the total provincial GDP in 2006. Despite the relatively small contribution of the agricultural sector towards the NWP GDP, the sector is still regarded as a major role player in ensuring economic growth and development in the province.

According to the simulation results for the partial macroeconomic equilibrium, the outcome of the BLS (i.e. transferring 30% of productive agricultural land with a 20% success rate) reflects a 0.19% decrease in national GDP. In other words, in this scenario, the national agricultural production will decrease by almost a fifth of a percent should government proceed in implementing their latest proposed legislation requiring that 30% of all agricultural land in the NWP be transferred to previously disadvantaged people (*ceteris paribus*). Results from SC1, SC2 and SC3 show a decline of 0.16%, 0.13% and 0.10% in national GDP, respectively. The decline in national GDP results partly from the direct decrease in agricultural production activities in the NWP, as well as the decrease in the demand for input from other industries and the decline in consumer spending power. The latter refers to the indirect and induced impact of the scenario under review. Moreover, as mentioned in Chapter 6, the indirect impact refers to those effects occurring in the economic sectors linked to the agricultural sector, such as the input-supplying industries. The induced impact refers to the chain reaction triggered by the salaries and profits that are ploughed back into the economy in the form of private consumer expenditure. For example, results from the BLS indicate that the indirect and induced effects have contributed 28.7% and 36.9%, respectively, towards the 0.19% decline in the national GDP. The induced effects of the BLS seem to be higher than the indirect effects which suggests that a reduction in agricultural production will have a significant impact on consumers' spending power in the NWP. This is most likely a result of lower profits causing new entrants or beneficiaries to struggle to remain sustainable as well as a reduction in the number of workers employed by the sector.

Figure 7.1 shows the impact that the different scenarios have on the contribution made by the agricultural industry towards the provincial GDP. From Figure 7.1, the BLS report an 18.5% decrease in agricultural contribution towards the provincial GDP. The reported decrease equates to an estimated R 3.2 billion. Results from SC1 (15.5%), SC2 (12.4%) and SC3 (9.4%), suggest

a lower impact which equates to R 2.6 billion, R 2.1 billion and R 1.6 billion, respectively. Despite the relatively small size of the agricultural sector, it is evident that in the best case scenario (SC3), the implementation of the land reform programme will still have a significant impact on the economy of the NWP.

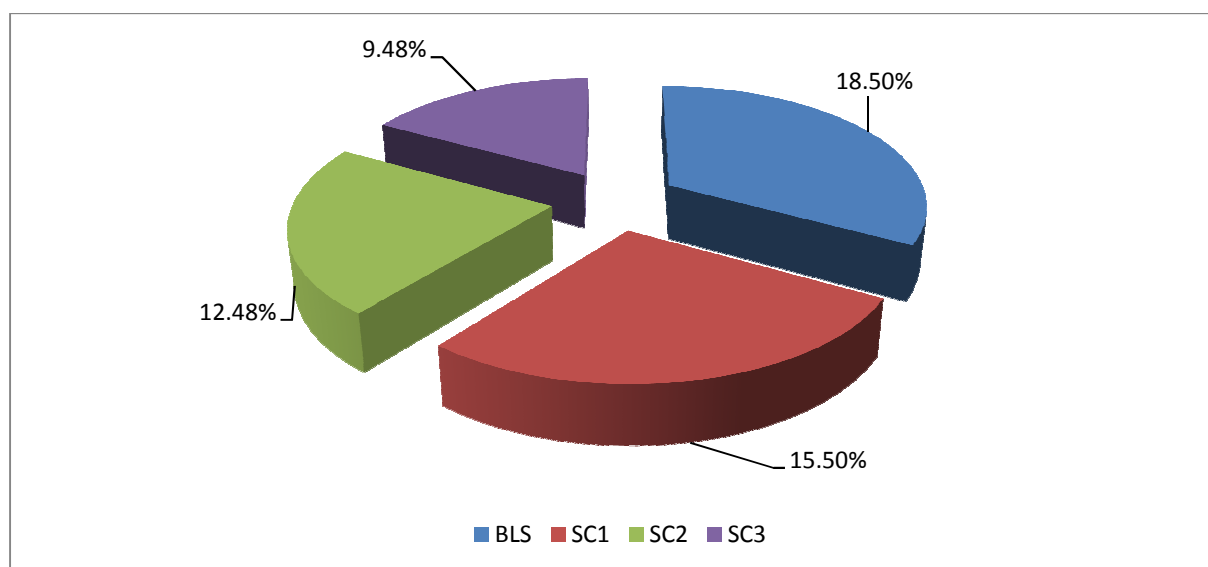


Figure 7.1: Impact of provincial GDP

Disaggregated simulation results from the partial macroeconomic equilibrium model for the different agricultural sectors in the NWP suggest that land transfers in the CGS will have the biggest impact on the contribution of the agricultural industry towards provincial GDP (see Figure 7.2). Under the assumptions of the BLS, the CGS reports a 6.19% or R 1 billion decline in agricultural contribution towards provincial GDP. The relatively large impact of the CGS is mainly due to the size of the sector in relation to total agricultural production. The CGS accounts for 51.3% of total agricultural production in the NWP. Land transfers in the livestock sector have the second highest impact on agricultural contribution towards provincial GDP at 4.19%. Comparing the BLS with SC3 for the CGS, the reported impact on GDP is remarkably lower. For example, the BLS reports a 6.19% decline in the contribution of the agricultural sector towards GDP compared to a decline of 3.19% in SC3. This suggests that the implementation of the proposed institutional framework might reduce the impact by 3% or an estimated R 396 million. This also applies to the LVS with a potential improvement of 2.22%

when compared to the impact under the assumptions of the BLS. The 2.22 % improvement equates to an additional contribution of R 380 million towards the GDP of the NWP.

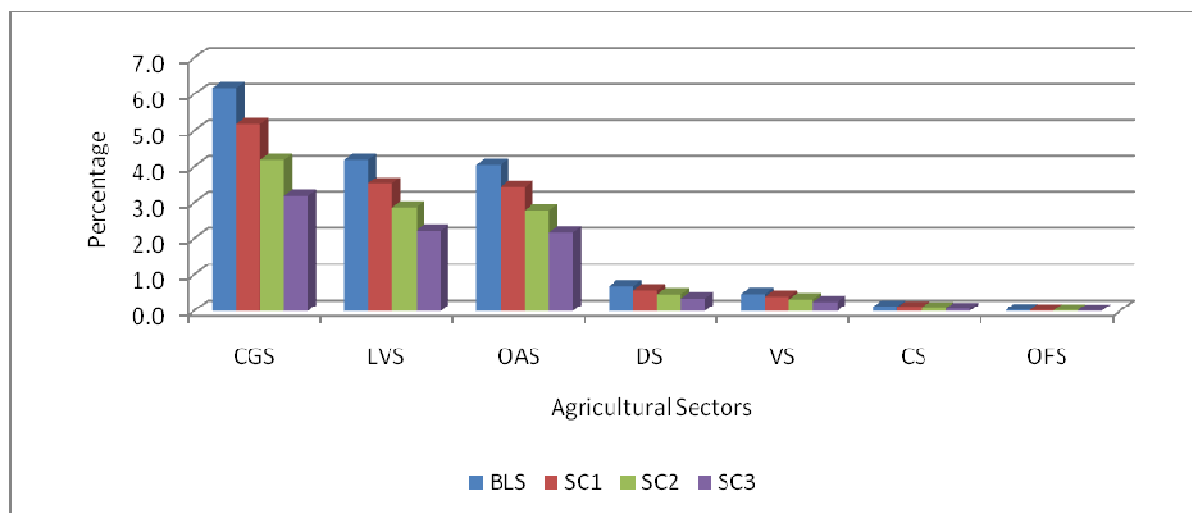


Figure 7.2: Impact of the different agricultural sectors on agricultural contribution towards provincial GDP

As mentioned previously, the total impact of the different scenarios and agricultural sectors as depicted in Figure 7.2 consists of the direct, indirect and induced impact. Of these three levels of impact, the direct impact is shown to be the biggest for all scenarios. However, the indirect and induced impact also make meaningful contributions. For example, both indirect and induced impact, in the case of the CGS under the assumption of the BLS, are reported to contribute 33.6 % and 13.3%, respectively, to the total decline of 6.19% in agricultural contribution towards provincial GDP. In value terms, the indirect impact accounts for an estimated R 36 million of the total R 1 billion decline in provincial GDP. This is similarly so for the induced component, which accounts for R 14 million. The reduction is accounted for by a decline in salaries paid to workers, jobs lost and a reduction in profits that are normally ploughed back into the economy.

Conclusively, as mentioned, imbalance and inefficiency fostered by the previous government policies necessitated changes in policy to reduce the imbalance and enhance competitiveness in the industry. Therefore, the policy of land reform is justified. However, implementing such policy should be radical and should not overlook the basic and enabling environment within which the farmers operate. From the results, it is evident that when the policy is implemented in

balance with the required institutions needed to create an institutional environment that will support rural agricultural development, the impact on the local economy will be significantly lower.

Moreover, government also need to consider the impact of land redistribution within the different agricultural sectors of the province. From the results, it is evident that the redistribution of arable land from commercial to small-scale farmers will have the biggest impact on the economy of the province. It is therefore proposed that government should seek other alternatives for establishing small-scale grain or oilseed producers in the province. One such an alternative lay within the former homelands, with large arable regions that are unproductive. Government could engage tribal leaders to ensure that these lands are revitalised through the establishment of small-scale grain and oil-seed producers on the land. However, this initiative should be engage along with the creation of an enabling environment for the selected beneficiaries.

7.3.2 Impact on employment

The agricultural sector plays an important role in employment in the NWP. As highlighted in Chapter 3, the sector is the fourth largest and employs an estimated 8.7% of the total workforce in the province. The sector is renowned for providing employment opportunities, especially in the rural regions of the province. This is also seen in the composition of the workforce employed by the industry with 70.6% of employees regarded as unskilled, 28.4% as semi-skilled, and 8.8% as skilled.

Moreover, labour is a key element in the agricultural production process. Figure 7.3 shows the potential impact on employment once government transfers 30% of agricultural land in the NWP. Analogous to the impact on GDP, land redistribution in the CGS results in the highest number of employment opportunities lost. Considering the BLS, an estimated 25 307 people could lose their jobs in the NWP. These include the direct jobs that will be lost in the agricultural sector itself, as well as the indirect and induced impact. However, simulated results from the partial macroeconomic equilibrium model reveal that the proposed institutional framework might reduce the number of jobs lost in the CGS by an estimated 3% for every 15%

increase in the success rate. Thus, should success rate increase from a mere 20%, as assumed in the BLS, to 65%, as used for SC3, the number of jobs lost will decline by 2 126 to 23 181 in total.

It is interesting to note that the OAS has the second biggest impact on employment. As mentioned, this sector comprises mainly the poultry industry. Considering the size of the industry, it is clearly more labour intensive than, for instance, the CGS or LVS. The same is true for the fruit and vegetable industries. Although, the impact of these industries appears to be small based on the numbers alone, these industries are significantly more labour intensive. The resulting labour/production ratio means that land transfers in these sectors lead to more people losing their jobs per R 1 of production than in the CGS and the LVS if the scenarios are applied.

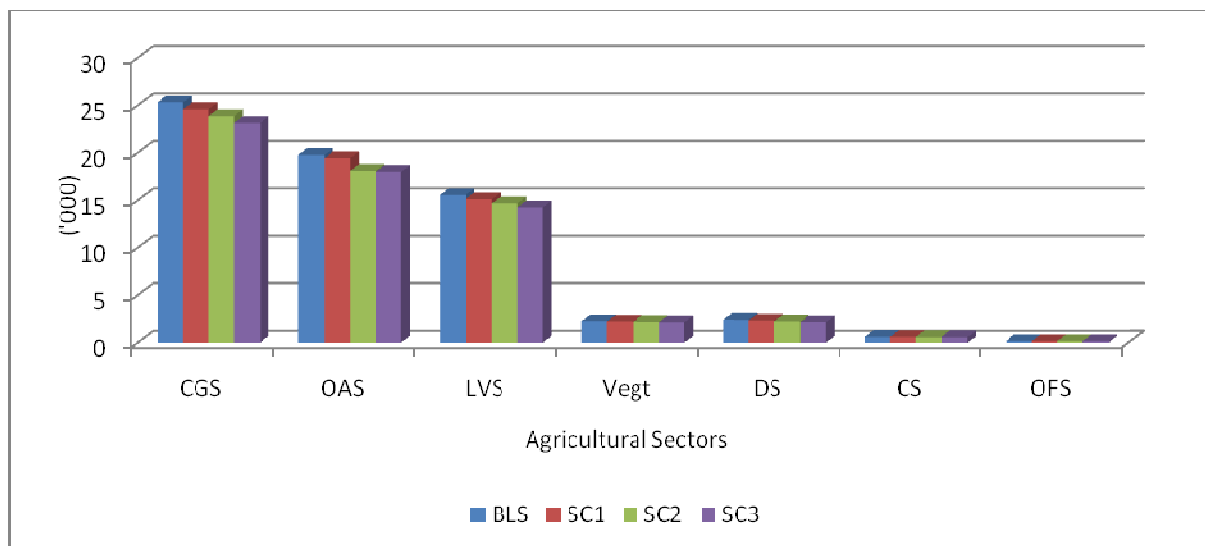


Figure 7.3: Number of job losses in the different sectors of the NWP

The impact as reflected in Figure 7.3 includes the direct number of jobs lost in the agricultural sector of the NWP as well as in other related industries of the economy. For example, when considering the BLS for the CGS, the biggest impact on number of jobs losses is accounted for by the agricultural sector itself with 82.8% (see Figure 7.4). This is followed by the manufacturing and trade industries (4.8%), the construction industry (3.4%) and the financial and business industry (1.7%).

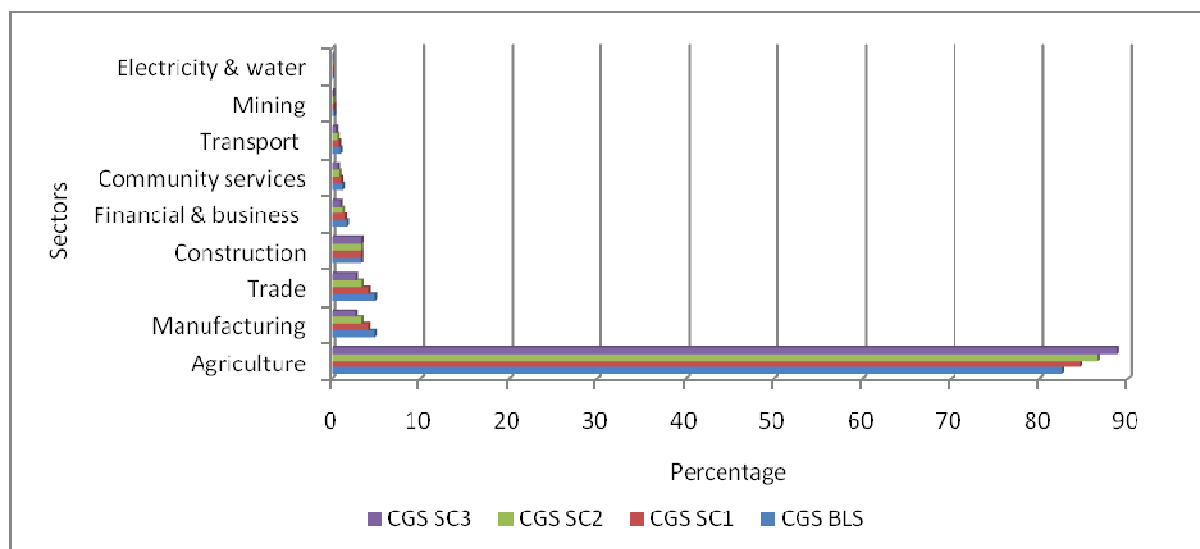


Figure 7.4: Distribution of job losses that result from the different scenarios in the cereal and grain sector (CGS)

7.3.3 Impact on household spending

According to the North West National Accounting Matrix (NW NAM), total household expenditure in the NWP amounted to R 68.5 billion in 2006. Of this amount, 88% (R 60 billion) is attributed to private consumption expenditure, 11.2% (R 7.7 billion) to taxes, and the rest savings and transfers to households in other provinces or countries.

Results from the partial macroeconomic equilibrium model reveal that household spending in the NWP is likely to decline by 1.6% or R 1.1 billion under the assumptions of the BLS. Should the institutional framework be implemented with the desired results, as set out in SC1, the impact on household spending will decline by R 191 million, which indicates that the total impact will equate to just over R 1 billion compared to the R 1.1 billion for the BLS. In the best case scenario, as defined in SC3, the impact on household spending is estimated to decline by a considerable R 572 million to a total impact of R 624 million. Thus, the impact on household spending in the NWP could be reduced by 52.1% should the proposed institutional framework fulfil the targets set out in SC3.

Figure 7.5 reveal how these impacts will transpire into the different household income levels for the different agricultural sectors. Figure 7.5 shows the impact in the CGS. This can be used as a

benchmark for the other agricultural sectors as the distribution of the types of impact is similar across the different sectors. The different household income groups were disaggregated into high, medium and low income households. This disaggregation was done based on skill levels and associated wages. Skilled employees were therefore classified under high income households, semi-skilled under medium income and unskilled under low income households.

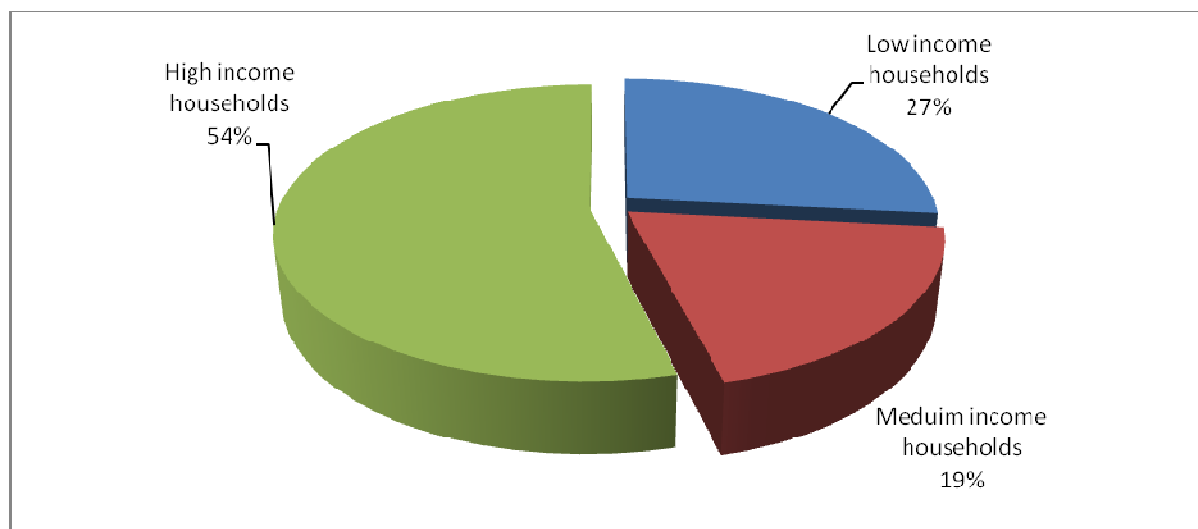


Figure 7.5: Disaggregation of the impact on household spending to three different household income levels

From Figure 7.5, it is evident that the spending of high income households will be most affected by the redistribution of agricultural land in the CGS of the NWP. This is followed by a reduction in the spending power of low income households by 27% and medium income households by 19%. Thus, it could be concluded that, out of the total decline of R 1.1 billion in household spending in the BLS, high income households account for R 594 million, followed by low income households with a decline in spending power of R 297 million and medium income households with a decline in spending power of R 209 million. Moreover, of the R 594 million decline in spending by high income households, R 522 million (88%) is estimated to be of a private nature with the rest being taxes, transfers to other households and savings. The same applies to the medium and low income groups.

7.3.4 Fiscal Impact

Government, through its three spheres (national, provincial and local), bears the main burden of responsibility for ensuring a better life for all citizens of South Africa. This was emphasised through the government's pro-poor programmes which are largely the functional responsibility of provincial and local government. These include social and municipal services which have a direct impact on the quality of life for all South Africans, especially the poor. However, without income or a reduction in national governments income there will be no or a smaller budget, and thus a reduction in spending in all three spheres of government. An understanding of the way in which funds are allocated at both national and local government levels is important to interpret the results. The paragraphs below touch briefly on the allocation of government funding.

Income for provincial and local governments is mainly sourced from national government, following a top-down approach to allocating funds. The chief source of income for national government is tax, with the four main contributors being personal income tax, company tax, value added tax and customs and excise tax. As mentioned, provincial government is financed by transfers from national government. Normally, these transfers are in the form of equitable shares, which account for 90% of the transfers to the province, and conditional grants, which account for the remaining 10%. The equitable shares are allocated "horizontally" among the different provinces of South Africa according to the equitable share formula. This formula takes into account the different economic profiles, demographic variations and socio-economic circumstances to allocate the funds. Conditional grants are normally earmarked to fund national priorities in the specific province (such as housing, HIV/AIDS and infrastructure (Idasa, 2006)) and are allocated accordingly.

Similarly, most local government funds are transfers from provincial and national government through equitable shares and conditional grants. A local government's equitable share is split between all the municipalities using a formula that takes into account the differences in revenue-raising capacity between municipalities, and the historical and geographic imbalances. Conditional grants are normally transferred from national departments and funded from the department's equitable share allocations (Idasa, 2006). Thus, the impact on GDP, labour and,

consequently, income of both private and commercial entities impacts on the income received by national government. Due to the top-down approach of transferring funds, the impact is likely to spiral down to local government level. As mentioned, the functioning and allocation of funds from national down to local government should be borne in mind when interpreting the results.

According to simulation results from the partial macroeconomic equilibrium model, the total fiscal impact of the BLS amounts to an estimated R 332 million. This impact is most visible in national government's income which is likely to decrease by an estimated R 297 million, followed by local government (municipalities in the NWP) decreasing by R 35 million, and the NWP government itself decreasing by a mere R 100 000. The low impact on the NWP government's budget is probably due to the equitable share formula which determines the amount of funds transferred from national to provincial governments as discussed above.

Figure 7.6 illustrates the fiscal impact of the different agricultural sectors and scenarios used in the study. The BLS for the CGS suggests that national government's income will decrease by R 160 million. Taking into consideration the impact of the proposed institutional framework, the impact might decline to R 77 million in the case of SC3. This reflects a 48.1 % decrease from the worst to best case scenario. In the case of the LVS, results for the BLS suggest that national government's income will decrease by R 63.2 million compared to R 33.2 million under SC3.

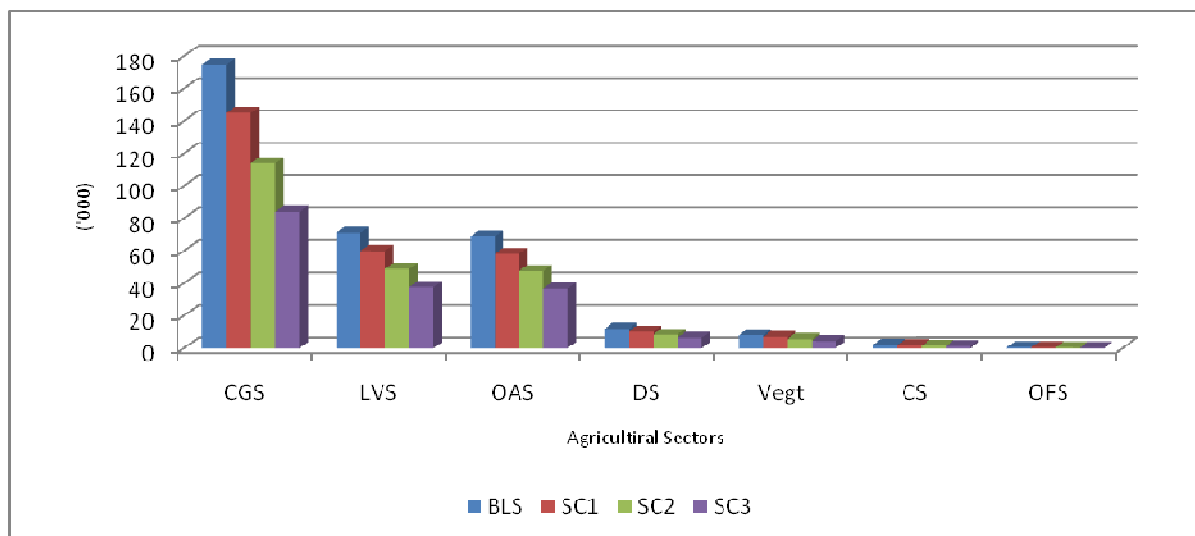


Figure 7.6: Fiscal impact

The decline in government's income could hold severe implications for the province. This is especially true when one considers that a decline in government's income is likely to result in a decrease in the budget for the province (including, for example, education, health, and safety). This will surely result in worse socio-economic conditions for the province, aggravating the economic hardship experienced by those living in rural regions in particular. Although it is impossible to prevent the impact that the land reform programme will have on the province, negative effects could be significantly reduced by the improvement of the institutional environment. This refers especially to an institutional environment (as proposed in Chapter 5) which addresses the challenges faced by new entrants or beneficiaries in the agricultural sector.

7.4 Multiplier Analysis

In addition to the simulated results from the partial macroeconomic equilibrium model, economic multipliers were also used to estimate the economy-wide impact of simulated shocks imposed at micro-economic level. In this study, economic multipliers are of great value as they enable a comparison of different sectors' multiplier effects for given economic quantities, which allows one to determine which sector or sectors have the greatest impact on specific economic quantities per R 1 production change. However, as mentioned, it is also important to remember that the justification of SAM-based economic multipliers as a methodology for impact analysis rests on the appropriate interpretation of the results. Thus, the key assumptions of fixed relative prices and a perfectly elastic supply of economic multipliers needs to be borne in mind when interpreting the results from the multiplier analysis for the different sectors. The economic multipliers for the different economic sectors of the NWP were calculated based on the NW SAM. For the purposes of this analysis, the NW SAM was aggregated from the original 34 different sectors to 9 sectors as shown in the results. The results of this analysis are discussed below.

7.4.1 Labour multipliers

Labour is an important element in production in the NWP, especially in labour-intensive sectors such as agriculture. Moreover, Conningarth Economist (2005) are of the view that labour

multipliers measure job creation and indicate the extent to which each sector contributes towards the creation of employment opportunities and, ultimately, each sector's contribution towards distributing salaries and wages amongst various types of labourers. This, in turn, should impact positively on the alleviation of poverty. In the context of this study, labour multipliers could also be interpreted as the number of jobs that could be lost due to unsuccessful land redistribution in the province. However, the labour multipliers provide an indication of the number of full-time job opportunities created per R 1 million production of a particular activity.

Table 7.2 summarises the labour multipliers calculated for the economic activities of the NWP. According to the results, agriculture has the largest direct labour multiplier in the NWP. The reported direct labour multiplier of 6.63 indicates that for each R 1 million of agricultural production, 6.63 full-time agricultural job opportunities are created in this sector. Seeing it the other way around, one can also argue that the reported labour multiplier of 6.63 suggests that for every R 1 million rand of production taken out of the sector through unsuccessful land redistribution practices, 6.63 full-time job opportunities are lost within the sector.

The indirect labour multipliers listed in Table 7.2 illustrate the impact (backward linkage) that a particular sector has on all other industries that supply inputs to that particular industry. In other words, the indirect labour multiplier reflects the number of full-time job opportunities that are created in the input-supplying sector as a result of a R 1 million increase in the original sector. From Table 7.2, it is apparent that the indirect labour multipliers for economic activities in the NWP range between 2.98, for building and construction, and 0.79, for wholesale and trade. The agricultural sector reports an indirect labour multiplier of 1.97. That is slightly lower than that for the mining and building and construction sectors. If the weighted average of 1.71 for all economic sectors in the province is compared, the indirect labour multiplier for agriculture is slightly higher.

Table 7.2: Labour multipliers

Activities	Labour Multipliers				
	Direct	Indirect	Direct+ Indirect	Induced	Total
Agricultural	6.63	1.97	8.60	0.66	9.26
Mining	3.01	2.22	5.23	1.00	6.22
Manufacturing	3.26	1.17	4.43	0.29	4.71
Wholesale and Trade	2.99	0.79	3.78	0.65	4.43
Electricity and Water	1.57	1.04	2.60	0.44	3.04
Building & Construction	3.76	2.98	6.74	0.69	7.43
Transport, Storage and Communication	1.25	1.77	3.02	0.75	3.77
Financial insurance, real estate and business services	1.67	1.81	3.48	0.88	4.36
Community, social & personal services	5.55	1.65	7.20	1.06	8.26
<i>Weighted Average</i>	<i>3.30</i>	<i>1.71</i>	<i>5.01</i>	<i>0.71</i>	<i>5.72</i>

According to Taljaard (2007), the induced effects measure the economic impact which results from salaries and wages paid to employees in both the particular or direct activity and the input-supplying sectors. Conningarth Economist (2005) explains that these additional salaries and wages lead to an increased demand for various consumable goods needed to be supplied by various economic activities throughout the broader economy. In the economy of the NWP the reported induced effects range from 0.29, in manufacturing, to 1.06, for community, social and personal services. The agricultural sector reports an induced effect of 0.66 which is slightly lower than the weighted average of 0.71.

The sum of the direct, indirect and induced effects provides an indication of the total employment effects resulting from a R 1 million change in agricultural production. In the case of agriculture, an estimated 9.26 full-time job opportunities are created on average as a result of a R 1 million change in production. The converse is also true, suggesting that a R 1 million reduction in agricultural production could lead to a loss of 9.26 full-time job opportunities in the sector.

7.4.2 Production multipliers

Conningarth (2005) explains that the economic term “production” refers to the total turnover (i.e. quantity produced multiplied by the corresponding price) generated by each activity/sector in the economy, which can be measured as the sum of the intermediate inputs plus the total value added by the specific sector.

Table 7.3 summarises the production multipliers (direct, indirect and induced effects) for economic activities in the NWP. The direct multiplier for all the economic sectors, as shown in Table 7.3, is equal to 1 (i.e. production divided by itself). The indirect multiplier for agriculture is the second highest at 0.68 following the 0.93 of the building and construction sector. This implies that an increase of R 1 in production in the agricultural sector has a backward effect of R 0.68 (i.e. an increase in sales) on the economic sector supplying inputs to the agricultural sector. The induced effect of the agricultural sector amounts to 0.22, indicating that a R 1 increase in agricultural production will result in a R 0.22 increase in salaries and wages paid in the province and a consequent increase in consumer spending. This could also be reversed with the redistribution of land which is seen as a vehicle for growth and development in the province. Should the redistribution of land result in a R 1 decrease in agricultural production, salaries and wages would decrease by R 0.22 and, consequently, consumer spending as well. This might seem like an insignificant decrease in consumer spending, but considering the current land reform programme and the success rate that it has achieved to date, the decrease in consumer spending will have a significant impact on the economy of the province, which will result in even more economic hardship for people in the province.

Table 7.3: Production multipliers

Activities	Production Multipliers				
	Direct	Indirect	Direct+ Indirect	Induced	Total
Agricultural	1	0.68	1.68	0.22	1.91
Mining	1	0.65	1.65	0.34	2.00
Manufacturing	1	0.38	1.38	0.09	1.48
Wholesale and trade	1	0.23	1.23	0.22	1.46
Electricity and Water	1	0.36	1.36	0.15	1.51
Building & Construction	1	0.93	1.93	0.23	2.16
Transport, Storage and Communication	1	0.63	1.63	0.25	1.89
Financial insurance, real estate and business services	1	0.67	1.67	0.30	1.97
Community, social & personal services	1	0.57	1.57	0.36	1.94
<i>Weighted Total</i>	<i>1</i>	<i>0.57</i>	<i>1.57</i>	<i>0.24</i>	<i>1.81</i>

The total production multiplier for the agricultural sector (1.91) compared well with that of the other economic sectors in the NWP. Moreover, the production multiplier of 1.91 is slightly higher than the weighted total for the province.

7.4.3 Value-added Multipliers

For the purpose of the multiplier analysis, GDP or value added is defined as the sum of the value added of all the sectors of the NWP economy. The value added multipliers for the different sectors of the NWP are shown in Table 7.4. The agricultural sector reported an estimated direct value-added multiplier of 0.36, which indicates that R 360 000 of direct value is added for every R 1 million worth of primary agricultural production in the province. Moreover, R 210 000 of indirect worth will be added for every R 1 million of primary agricultural production. In total, R 1 million of primary agricultural production in the NWP will result in a total value added of R 640 000.

Table 7.4: Value-added multipliers

Activities	Value-added Multipliers				
	Direct	Indirect	Direct+ Indirect	Induced	Total
Agricultural	0.36	0.21	0.57	0.07	0.64
Mining	0.49	0.21	0.70	0.11	0.81
Manufacturing	0.28	0.12	0.40	0.03	0.43
Wholesale and Trade	0.29	0.09	0.38	0.07	0.45
Electricity and Water	0.35	0.12	0.47	0.05	0.52
Building & Construction	0.23	0.27	0.50	0.08	0.58
Transport, Storage and Communication	0.36	0.20	0.56	0.08	0.64
Financial insurance, real estate and business services	0.34	0.21	0.55	0.10	0.65
Community, social & personal services	0.33	0.18	0.50	0.12	0.62
<i>Weighted Total</i>	<i>0.34</i>	<i>0.18</i>	<i>0.51</i>	<i>0.08</i>	<i>0.59</i>

Comparing the agricultural sector value-added multiplier with that of the other economic sectors, it is evident that the agricultural sector is slightly above the weighted average of 0.59. To be more specific, the agricultural sector value-added multiplier is reported to be the third highest in the NWP following that of the mining and the financial insurance, real estate and business services sectors. Moreover, the weighted total (in terms of original value added per activity) for the direct, indirect and induced value-added multipliers equates to 0.34, 0.18 and 0.08, respectively. These figures imply that on average (weighted in terms of original value added) a R 1 million change (increase or decrease) will result in a additional corresponding increase or decrease of R 340 000 worth of direct value added, R 180 000 worth of inputs required (backward linkages) and R 80 000 worth of additional consumer spending resulting from the additional salaries and wages that are paid out to employees in the economy.

7.5 Conclusion

Firstly, the chapter dealt with the results from the various scenarios as simulated by the partial macroeconomic equilibrium model. It is evident from the results that the proposed land reform programme will have a significant impact on the economy of the NWP. Although the impact of the proposed land reform programme is unavoidable, improving the success rate (through the creation of an enabling environment) will significantly reduce the potential impact of the

proposed land reform programme on GDP, labour losses, household spending and a potential decrease in government budget (fiscal impact). The indirect and induced impact, as calculated by the partial macroeconomic equilibrium model, has also emphasised that the impact of redistributing agricultural land will stretch beyond the agricultural sector itself, with significant impact on other economic sectors of the province.

Secondly, the chapter featured the results of the economic multiplier analysis, reporting on labour, production and value-added multipliers for the economic sectors of the province. Similar to the partial macroeconomic equilibrium model, direct, indirect and induced multipliers and effects were reported. Results from the multipliers analyses validated the results from the partial macroeconomic equilibrium model, suggesting that the unsuccessful redistribution of agricultural land will have severe ramifications for the NWP economy and its people.

In conclusion, the results of both analyses have underlined the importance of a proper functional institutional framework (as outlined in Chapter 5), especially one which will support developing agricultural in the NWP. Without the implementation of such a framework, agricultural development initiatives will have a negative impact on the local economy, which will further depress the socio-economic conditions of the province.

CHAPTER 8

Conclusions and Recommendations

8.1 Introduction

Rural agricultural development has been targeted by government as one of the main ways in which to improve the lives of previously disadvantaged people. The same is true of the North West Province (NWP), with large amounts of taxpayer's money being invested in agricultural development initiatives, most of which are unsuccessful. This has seen consensus being reached by government that agricultural development initiatives and projects are in severe difficulty. The study therefore aimed to develop an institutional framework that will serve as a mechanism to improve the success of rural agricultural development in the NWP. Hence, in order to develop an appropriate institutional framework, literature on institutional economics and its role in rural agricultural development was reviewed. In addition, a SWOT analysis was done and expert consultation workshops were organised throughout the NWP to determine potential opportunities as well as factors inhibiting growth and development in the province. This formed the basis for the development of an appropriate institutional framework for rural agricultural development in the NWP. Moreover, by simulating the impact of the proposed institutional framework on the economy of the NWP, the study addressed the concern of researchers that theory is extensively outstripping empirical research in the field of institutional economics.

The objective of this chapter is to review some of the conclusions drawn from previous chapters on the dynamics of rural agricultural development and the impact thereof on the economy of the province. Firstly, conclusion on the validity of the theoretical approach used to assist in the development of an institutional framework for rural agricultural development will be discussed. This will be followed by concluding remarks with respect to the environment as well as challenges and factors inhibiting growth and rural agricultural development, after which consideration will be given to the proposed institutional framework. The second part of the

chapter will draw some conclusions on the methodology used as well as the potential impact of the proposed institutional framework, followed by recommendations.

8.2 New Institutional Economic Approach to Agricultural Development

If institutions are invisible, why do they matter? According to Ostrom (1992 as cited by Herrera, 2005), there are several reasons for this. Institutions shape the patterns of human interaction and the results that individuals achieve. Herrera (2005) elaborated that institutions may increase the benefits from a fixed set of inputs; conversely, they may lower efficiency so that individuals have to work harder to achieve the same benefits or, under extreme conditions, to ensure their existence as economic agents. Moreover, incentives are the positive and negative changes in outcomes that individuals perceive as likely to result from particular actions taken within a set of working rules, combined with the relevant individual, physical, and social variables that also impinge on outcomes (Herrera, 2005).

Thus, if we accept that an important reason for the failure of rural agricultural development initiatives and projects in the NWP is due to the lack of sound and proper institutional structures, then institutional economics is a suitable theoretical framework with which to determine appropriate institutions and institutional arrangements needed to ensure successful rural agricultural development in the province. In this respect, the review of the literature in Chapter 2 is important as it allows us to conclude that institutional economics indeed confirm a consistent body of principles and concepts to identify key aspects of physical, cultural and institutional settings that are likely to affect the outcome of rural development initiatives in the NWP. With respect to this, Kherallah and Kirsten (2002) believe that the New Institutional Economics (NIE) is a useful framework that could help to determine and initiate the institutions required to improve economic performance and rural agricultural development in developing countries. Omamo (2006) was of the same view arguing that neo-classical economics is good at identifying and explaining problems such as diversified subsistence orientated agricultural, and what needs to be done about these problems, but is largely silent on how to go about addressing them. He suggests that the NIE is well-suited to farming and answering how-questions.

Thus, following the review of the theoretical framework of the NIE and how it relates to the success of rural agricultural development in the province, the second step was to review the environment within which developments are taking place. This is of importance as it provides an overview of the current social, infrastructural, economic and institutional environment in the province. It is important that one has a clear understanding of the conditions and supporting structures in the province before recommending institutional arrangements to improve rural agricultural development. The following section will therefore draw some conclusions from Chapter 3.

8.3 Environment within which developments are taking place in the North West Province

It is evident from the review in Chapter 3 that the institutional structures supporting development in the NWP have largely failed its residents with a large proportion of the population finding themselves in some degree of economic hardship. This economic hardship is partly a result of the high level of unemployment in the province, with the inequalities amongst the people and racial groups that make it increasingly difficult to reduce unemployment levels. Foremost amongst these difficulties is the high level of functional illiteracy, with the quality and quantity of education limiting employment opportunities for the residents. This has directly contributed towards income inequalities, with people with little or no education finding it difficult to access skilled employment opportunities and to earn associated wages. Moreover, the lack of access to basic healthcare and services such as clean running water, sanitation, housing and good nutrition have contributed towards the economic hardship experienced by many in the province.

However, actions by local and provincial government have resulted in slight improvements, especially with regard to the backlogs in basic governmental service delivery and the improvement of the healthcare system. Despite the decline in overall government healthcare personnel and equipment, support structures from the private sector have improved, contributing towards a decrease in the mortality rate of infants and an increase in the life expectancy of people residing in the province. Moreover, predictions indicate a decrease in the prevalence of HIV/AIDS in the foreseeable future which is of utmost importance for the success of rural

agricultural development. This is probably the single most important driver that will shape future socio-economic and economic development in the NWP.

Despite slight improvements, a range of institutional structures are not functioning adequately which has resulted in the socio-economic environment being unsatisfactory. This relates especially to education, healthcare and basic service delivery. The situation holds serious implications for the success of rural agricultural development in the NWP, as development beneficiaries will not be able to succeed in terms of their social requirements without the necessary institutional support.

In spite of a socio-economic climate reflecting the hardship of many in the province, the economy has reported a reasonable growth rate over the past decade. The agricultural, mining and manufacturing economic sectors had the highest sectoral growth rates in the province. As for the agricultural sector, field crops and livestock were the foremost contributors to gross farm income in all regions of the province, with the contribution of horticultural being modest in most regions.

Moreover, it was revealed that the governmental institutional structures responsible for implementing and monitoring development initiatives in the NWP lack the necessary technical capacity. Despite government's acknowledgement that they have little to contribute to ensuring the success of agricultural development in the province without cooperative government and public/private partnerships, little attempt has been made to engage in cooperative government or public/private partnerships. Thus, to address the shortcomings within the institutions responsible for development, private/public partnerships need to be formed that will ensure the full development and utilisation of human and other resources.

8.4 Challenges and Factors inhibiting Growth and Rural Agricultural Development

To make recommendations as to what institutional structures and arrangements could activate a process of institutional change to allow society in the NWP to reach a new institutional equilibrium, one that will ensure sustainable rural agricultural development, a bottom-up

approach was used. Therefore, in addition to the NIE principles, the challenges and factors inhibiting growth and rural agricultural development were also considered. This highlighted the importance of Chapter 4, where the results of the SWOT analysis were discussed to identify needs to be address to ensure successful rural agricultural development in the NWP.

Moreover, the results in Chapter 4 suggested that the challenges and factors inhibiting rural agricultural development could mainly be divided into four categories namely: human, institutional, infrastructural and natural resources.

The conclusion of Chapter 4 was that the NWP faces significant human development challenges (i.e. inadequate knowledge and skills, lack of entrepreneurship, predetermined mind-sets surrounding production practices, etc.). This could be ascribed mainly to inadequate education and training. Inadequate education and training is a direct result of educational institutions in the province not addressing the educational needs of the rural people. In certain areas, especially the remote, rural regions, education and training facilities were either closed down, understaffed or unproductive. Insufficient education and training are also believed to contribute towards the high levels of crime within the rural regions of the province. The increased crime level poses several threats to the success of rural agricultural development in the NWP, and is one of the main reasons behind the migration of skilled farmers and workers from the sector.

Capacity and knowledge within governmental institutions are believed to be an additional stumbling block for the success of rural agricultural development, especially with regard to the successful implementation and management of development initiatives in the NWP. Moreover, it is concluded that the problems in governmental departments in several instances originate from officials not being properly committed or trained/educated to execute their respective responsibilities.

Conflict between beneficiaries, tribal or community leaders and government have been identified as another stumbling block for ensuring successful rural agricultural development in the NWP. These scuffles generally result in the illegal occupation of restituted land by communities, subsequently taking farmland out of production.

Institutional factors inhibiting the success of rural agricultural development relate primarily to governmental departments and their respective roles. The malfunctioning of government institutions as well as the development, implementation and management of structures required to facilitate development initiatives remain constraints for development capacity in the NWP. Hence, human factors remain the root of most shortcomings and tribulations experienced within government institutions. This also relates to the implementation or execution of policies on ground level and refers to the slow process of land reform in the NWP. Numerous role players in the province are of the opinion that the slow restitution process creates an environment of uncertainty amongst producers, negatively influencing production capacity and subsequently food security in the province. Moreover, the slow restitution processes have resulted in the establishment of informal settlements on previously productive (restituted) agricultural lands.

Ancillary to the ineffective implementation or execution of policy on ground level is the inadequate post-settlement support (i.e. funding, training, mentorship, etc.) provided by local government. This has contributed to the failure of several rural agricultural development projects in the NWP. Hence, ineffective implementation and inadequate post-settlement support could mainly be ascribed to the incapacity of understaffed departments of local government on the one hand, and bureaucratic red tape on the other.

The same applies to the extension services in the NWP, with results from the SWOT analysis revealing that several extension officers are not able to fulfil their duties and responsibilities. Moreover, when educational shortcomings and other factors, including deprived infrastructure, inadequate financial resources and weak institutional structures are taken into account, these factors collectively limit the extent to which extension services can support commercial and upcoming farmers, with the latter invariably being located in remote, rural areas which made it difficult to access them. Failure to provide extension support to emerging farmers triggers a chain reaction that impedes the good faith between farmers and public institutions.

Foremost amongst infrastructure deficiency concerns is the state of transport which serves as the gateway to markets and inputs for producers in the NWP. Roads that serve communities in the rural areas are in a deprived condition. Thus, one of the greatest infrastructural difficulties which

small-scale farmers experience is accessing markets for their products. In addition, these farmers are further constrained by limited access to other factors of production, including credit facilities, information flow, extension advice, etc. Moreover, many areas have inadequate market structures or insufficient market facilities with social development infrastructure (i.e. health systems, schools, police, etc.) indirectly influencing the functionality of the agricultural sector in the province.

Natural resource endowments inhibiting rural transformation relate closely to land being degraded as a result of both human influence and natural causes. Moreover, it is concluded that most of the challenges and factors that inhibit rural agricultural development are manageable and destined for improvement once the necessary institutional changes are made. However, the effectiveness of the proposed institutional structures and arrangements will depend to a large extent on how well the challenges and factors as discussed are addressed.

It is furthermore concluded in Chapter 4 that functionality within government institutions needs to be revived as these institutions serve as the foundation from which most of the factors preventing the success of rural agricultural development need to be resolved.

8.5 Institutional structure and arrangement

As mentioned, findings from the previous chapters are of utmost importance to recommendations of institutions and institutional arrangements needed to improve the success of rural agricultural development in the NWP. Moreover, while many opportunities might be available to local communities, the most important prerequisite for the success of development efforts is creating the right institutional framework. It is concluded in Chapter 5 that the institutional framework should allow good administration, foster cooperation between national, provincial and local government structures, follow a participatory approach to development, and involve private sector and non-government organisations.

Based on the requirements with which the proposed institutional environment must comply, a few institutions and institutional arrangements were proposed. The first detailed arrangements to

address the current state of infrastructural shortcomings or backlogs. These include transport, water supply, electricity and telecommunications. However, due to the magnitude of the capital outlay required, it was concluded that roads and electricity supply should be addressed as a departure point. These two infrastructural requirements are seen as the most important as they could significantly reduce transaction costs and improve social capital in the province. It was proposed that government, which is responsible for the upgrade, expansion and modernisation of this infrastructure, should engage with the private sector to assist them in upgrading and expanding the current infrastructure. Moreover, Garvin (2005) reported that worldwide infrastructure owners are turning to the private sector to help with infrastructure upgrades, expansions and modernisation.

Following road and electricity supply, focus shifted towards the supply of water to rural regions and underprivileged communities. Government could also link with the private sector by forming public-private partnerships to ensure water supply to underprivileged communities. However, for irrigation purposes, it was proposed that so-called “water user’s associations” be established. Past studies revealed that water user’s associations are a suitable solution in areas that experience water shortages, poor management of water, insufficient use of water, and so on, as is the case in some regions of the NWP. Moreover, these studies have confirmed that water user associations safeguards farmers’ interests, help to reduce labour inputs and disparities about water, reduce irrigation costs, and promote efficient water use. This bring one back to institutional economics, with water associations that will provide an institutional framework or arrangement that improves social capital and reduces transaction cost which is a prerequisite for successful rural agricultural development.

The second institution or institutional arrangement deals with a rural finance system. In the literature, various different rural finance models are to be found. However, based on the North West environment, a village banking concept was proposed. Moreover, several authors including Nigrini (2001) and Westley (2004) strongly proposed village banks as a financial model to address financial shortcomings. Amongst their motivations for using the village bank concept, the authors stated that the introduction of rural village banks will be better than trying to lure urban financial institutions out to rural areas, with the lack of lending experience to rural

markets that will constitute a formidable barrier to entry. Moreover, research results from Latin America revealed that village banks have a stronger poverty focus; therefore, by introducing, strengthening or expanding the concept, village banks will help to alleviate social problems at the same time as they extend the reach of their rural finance system.

Hence, a village banking system will provide general solutions to most of the challenges and factors inhibiting growth and rural development in the NWP. This institutional arrangement will link borrowers, groups and microfinance providers in a way that will improve social capital, reduce transaction costs and address the institutional environment in terms of providing assistance with respect to production limitations, creating access to credit, providing an access channel to the marketplace and, in the long run, developing human capacity.

The literature revealed that it is widely recognised that access to physical, technical and financial resources is not always a sufficient condition for ensuring rural agricultural development. Therefore, in some instances, local organisations or producers are an important mechanism for involving people in rural development. Nepal (2009) suggests that equity sharing provides a mechanism through which organisations or producers can contribute towards addressing the factors inhibiting growth and rural development. Therefore, in addition to a village banking system, the equity sharing concept was proposed as an institutional arrangement to support rural agricultural development.

Much debate exists around the merits and demerits of equity sharing schemes in generating the expected results. However, after reviewing several articles arguing in favour of and against equity sharing schemes, it was concluded that equity sharing schemes could be regarded as a workable institutional arrangement for the improvement of rural development in the NWP.

Moreover, equity sharing is regarded as an institutional arrangement that could work especially well for farm workers and labour tenants, but is not limited just to them. It was concluded that equity sharing could be implemented alongside the village banking system or could also be seen as an alternative should village banking not be feasible. Equity sharing provides another solution to production limitations, but it also has the potential to assist and overcome other shortcomings such as lack of skills, infrastructure, knowledge and good governance.

Cooperation between the main institutions responsible for rural agricultural development and other institutions involved in the agricultural sector should also be improved. In order to improve this, more light was shed on the role that agribusinesses could or should play in improving rural development in the NWP. It is clear that a new era has dawned for agribusinesses, with the latest land reform policies which could see agribusinesses losing 30 % of their business should the proposed 30 % of reformed land be taken out of production. Moreover, the literature revealed that agribusinesses have an important role to play in rural agricultural development as they are regarded as institutions with knowledge, know-how, and the capacity to contribute towards the success of rural agricultural development. Agribusinesses could adhere to their responsibility by providing new entrants or small-scale farmers with production contracts, mentorships, and so on to improve market access, finance, mentorship, etc. It was noted that agribusinesses are also experiencing problems of their own, especially with regard to providing finance to small-scale farmers. It is, however, proposed that these challenges be addressed through public-private partnerships between agribusinesses and government.

Training and education was another issue that was addressed in the proposed institutional framework. Insufficient education and training was identified as one of the underlying reasons for most human factors inhibiting growth and development in the NWP. Gomes and Camara (2004) highlighted that, for education and training strategies to be successful in a rural development context, they need to be integrated within all aspects of sustainable rural development (i.e. into plans and actions that are multisectoral and interdisciplinary). Moreover, additional literature revealed that traditional, rural agricultural training systems have failed in general, with farmers, extensionist, and researchers that were seen to be three separate strata with normally weak or non-existent links between them. This entails that new partnerships be created between all role players involved in rural agricultural development and education. Therefore, a participatory partnership should be implemented to allow for the simultaneous strengthening of the development process and the provision of farmer training and support in various aspects of agricultural production and marketing. In the light of this, the study proposed an interactive research training programme that is based on a learning-by-doing process. A learning-by-doing training process is not a new concept in rural agricultural development, with the so-called “farmer field schools” that have proved to be very successful learning-by-doing processes in

other African countries. The proposed training programme should therefore integrate research, training and direct field production. This will enable participants to test new techniques learned, with the curriculum that could be modified accordingly to accommodate emerging issues.

The last part of the proposed institutional framework deals with an alternative to market access for small-scale farmers. The BATAT document was found to be the most comprehensive in analysing and addressing the various marketing problems experienced by small-scale farmers. Moreover, in order to improve market access, it was proposed that an efficient market extension network be established, followed by a marketing information service.

Lastly, the chapter concluded with a proposed strategic framework to assist with the implementation of the anticipated institutional framework. The recommendation made with regard to the strategic framework was based on the experiences and knowledge that was obtained during the field work sessions undertaken for this study. Moreover, Davis, Reardon, Stamoulis and Winters (2002) highlighted that evidence from developing countries points towards the growing importance of industry knowledge when developing strategies for rural agricultural development. The strategic framework for the implementation of the proposed institutions and institutional arrangements consists of four objectives, each needing their own respective strategies. The first objective focuses on the creation of micro-finance and other related institutions. The second objective is to promote market-orientated production, the third focuses on the improvement of market efficiency and the final objective entails the promotion of household food security.

8.6 Impact Analysis

As mentioned, simulating the impact of the proposed institutional framework on the economy of the NWP, the study addresses the concern of researchers that theory is extensively outstripping empirical research in the field of institutional economics. Hubbard (1997) highlighted that due to the complexity of institutions, they do not lend themselves to easily to measurements, thus their economists are challenged with the broad and complex task of measuring the institutions' effect on markets and the economy among other elements.

Conducting an impact analysis proved to be a challenge, with quantitative research measuring the impact of institutions on economic growth and development that appears to be absent. However, several qualitative studies have revealed that functional institutions and institutional arrangements do contribute towards economic growth and rural agricultural development. Thus, based on qualitative literature, the study concluded that functional institutions do contribute towards growth and rural development. It is, therefore, assumed that an improved institutional environment will lead to an increase in the success rate of development initiatives in the NWP. The study, therefore, used the current land reform policy and associated success rate (i.e. 30 % land redistributed coupled with a 20 % success rate) as the baseline scenario for the impact analysis. The baseline scenario used closely mimics the reality of rural agricultural development in the NWP. Moreover, for the purpose of the impact analysis, alternative scenarios assumed that the success rate of development will increase by 15 % from the current reality of 20 % up to a maximum of 65 %.

Conclusions from the results of the impact analysis are provided in the next section, firstly in terms of the applied methodology and secondly considering the major result of the scenarios.

8.6.1 Methodology

Two methodological approaches were followed to reach the objective i.e. quantifying the potential impact of the proposed institutional changes on the economy of the NWP. Firstly, in order to run selected macroeconomic simulations, a static partial macroeconomic equilibrium model calibrated to the North West Social Accounting Matrix (NW SAM) was used. The partial macroeconomic equilibrium model used for the purpose of the impact analysis is based on the model developed by Conningarth Economist (2009). Moreover, the SAM database did not include disaggregated detail for the different agricultural sectors. Thus, the agricultural sectors of the NWP were disaggregated into seven sectors which were used to determine the impact of the proposed institutional changes on the respective agricultural sectors in terms of GDP contribution, employment, household spending and the fiscal impact.

Secondly a SAM-Leontief multiplier analysis was conducted based on the same SAM used as a database for the partial macroeconomic equilibrium model. Taljaard (2007) highlighted that two key assumptions are made by typical SAM-Leontief multiplier models, including, firstly, fixed

relative prices are assumed and, secondly, that perfect elastic supply conditions, i.e. excess production capacity in all sectors. Taljaard (2007) furthermore argued that these assumptions lead to the central assumption that sectoral production is completely demand-driven and that the underlying production function assumes constant returns to scale and no substitution among the different inputs.

Despite these shortcomings, in order to estimate the macro-economic impact of potential changes at a regional level, three sets of economic multipliers (i.e. labour, production and value-added) are calculated from an aggregated version of the NW SAM.

8.6.2 Main findings

In the case of the partial macroeconomic equilibrium model, the different scenarios were simulated to estimate the potential impact of institutional changes on current rural development initiatives, i.e. 30 % land reform in the NWP. Some of the main results from the different scenarios are discussed below.

Impact on GDP:

- Simulation results under the assumptions of the baseline scenario (BLS i.e. 30 % land redistribution coupled with 20 % success rate) suggest that national GDP will reduce by 0.19 %;
- Under the same assumption (BLS), provincial GDP will decrease by 18.5 %;
- Results from Scenario 1 (SC1, i.e. 35 % success rate), Scenario 2 (SC2, i.e. 50 % success rate) and Scenario 3 (SC3, i.e. 65 % success rate) reported 15.5 %, 12.4 % and 9.4 % reduction in provincial GDP respectively;
- Simulated results indicated that land redistribution in the Cereal Grain Sector (CGS) of the NWP will have the biggest impact on provincial GDP. The BLS reported a 6.19 % decline in provincial GDP. When considering the assumptions of SC3, the impact on GDP will decline by 3.19 %. Land suitable for livestock will have the second biggest impact with a 4.19 % decline in GDP, and 2.22 % in the case of SC3.

It is evident from the above that the proposed institutional changes might be able to significantly reduce the negative impact that current development initiatives could have on provincial GDP and subsequently an array of other impacts will result from a reduction in GDP.

Impact on employment:

- Analogous to the impact on GDP, land redistribution in the CGS results in the highest number of employment opportunities lost. The relatively large impact of the CGS is mainly due to the size of the sector in relation to total agricultural production. Considering the BLS, an estimated 25 307 people could lose their jobs. Considering the assumptions of SC3, the number of employment opportunities lost is likely to decline by 2 126 to 23 181 in total. The agricultural sector will account for 82.8 % of the total employment opportunities lost due to land transfers in the CGS, followed by manufacturing and trade (4.8 %), construction (3.4 %) and financial and business industry (1.7 %);
- The labour intensive industries, i.e. poultry and vegetable farming are also likely to have significant employment opportunity losses compared to the size of the respective industries in the NWP, with poultry employing 19 783 fewer people followed by vegetables decreasing by 2 325 people when considering the BLS.

Impact on household spending:

- Household spending in general is likely to decline by 1.6 % or R 1.1 billion under the assumptions of the BLS. Should the institutional changes yield outcomes as assumed in SC1, the impact on household spending is likely to decline by 0.14 % or R 191 million.
- In the best case scenario (SC3), the impact on household spending is estimated to decline by 0.91 % or R 624 million in total;
- Considering the BLS, the impact on the different income groups revealed that high income household spending is likely to reduce by 54 %, followed by low income (27 %) and medium income (19 %) households.

Fiscal impact:

- Simulated results from the partial macroeconomic equilibrium model revealed that the BLS will result in a total decline in government income of R 332 million, with national

government absorbing 89.4 %, local 10.5 % and provincial government 0.03 % of the total impact;

- As for the different agricultural sectors, the CGS is the sector reported to have the biggest fiscal impact. Considering the BLS, the CGS will inflict a decline of R 160 million in government income. An improvement in the institutional framework could reduce the impact to R 77 million. This reflects a 48.1 % decrease from the worst to best case scenario;
- In the case of the livestock sector (LVS), results from the BLS suggest that national government's income will decrease by R 63.2 million compared to the R 33.2 million in the case of SC3.

Thus, although it is impossible to prevent the impact development initiatives (i.e. the land reform programme) will have on the province, results from the partial macroeconomic equilibrium model showed that the improvement in the institutional environment could significantly reduce the impact.

The economic multipliers are calculated using an aggregated version of the NW SAM used for the partial macroeconomic equilibrium model. Three sets, i.e. labour, production and value added multipliers are calculated for all economic activities in the economy as grouped in the SAM. The direct, indirect and induced multipliers, which sum to the total multipliers, are all reported on in Chapter 7. Some of the main multiplier results include:

Labour impacts:

- Agricultural sector has the largest direct labour multiplier in the NWP, with 6.63 jobs generated for every R 1 million of production. Thus, according to the annual R 17.3 billion output generated from agricultural production (from the NW SAM), 115 133 full time jobs (direct) are created within the agricultural sector of the NWP, which leads to an additional 34 209 full-time job opportunities in the industry supplying production inputs to the agricultural sector (i.e. indirect effect). In terms of induced effects, a further 11 461 full-time jobs are created as a result of the demand for consumables created from wages and salaries paid out in direct and indirect sectors. The total employment effect therefore adds up to 160 804 full-time jobs created from the R 17.3 billion agricultural output in the NWP.

- Considering the impact of development initiatives (i.e. the land reform policies), the BLS will result in a total agricultural production decline of 24 % (R 4.1 billion) to R 13.1 billion. Direct labour opportunities generated by the agricultural sector are likely to decline by 27 631 to 87 501. The indirect effect will see labour opportunities in the industries supplying production inputs to the agricultural sector of another 8 209. Considering the induced effect of 2 750 lost opportunities, the total impact of the BLS on labour opportunities generated by the R 13.1 billion in agricultural production is likely to decline by 38 590.
- Should the introduction of the institutional changes yield the results as assumed under the best case scenario (SC3), total agricultural production is likely to decline to R 15.5 billion. This will result in 16 883 fewer jobs opportunities (direct, indirect and induced) being generated by the sector in the NWP.

Production impacts:

- The R 17.3 billion output from agricultural production in the NWP results in additional indirect production to the value of R 11.8 billion and an induced production demand of R 3.8 billion, aggregating to a total production (output) of R 33 billion.
- In the case of the BLS, total agricultural production will decline to R 13.1 billion which will result in the additional indirect production to the value of R 8.9 billion and an induced production demand of R 2.9 billion.
- In the case of SC2, the additional indirect production will be slightly higher at R 9.5 billion, with the additional induced production at R 3 billion. The total aggregated production (output) for SC2 will equate to R 26 billion, which is 5.5 % higher than the BLS.

Value added impacts:

- The BLS will reduce agricultural output to the value of R 13.1 billion, which will result in R 4 billion worth of direct value added, R 2.7 billion worth of indirect value added and R 923 million worth of induced value added.
- The potential ability of the improved institutional environment to reduce the impact of development initiatives on total agricultural production to the value of R 15.5 billion in the NWP (in the case of SC3), will result in R 5.5 million worth of direct value added, R 3.2 billion of indirect value added and R 1 billion worth of induced value added.

Similar to results from the partial macroeconomic equilibrium model, it is clear that the proposed institutional changes could significantly reduce the potential impact of development initiatives (such as the land reform programme) on the economy of the NWP. Thus, should government fail to address the institutional shortcomings in the NWP, the success rate of development initiatives will remain a mere 20 %, which will have severe consequences for the economy and the people residing in the province over time.

8.7. Recommendations

In this sub-section, recommendations will be made based on the findings and conclusions of the study. The first part will focus on policy recommendations, followed by the institutional responses required as part of creating an enabling environment, and finally recommendations with regard to future research will be made.

8.7.1 Policy recommendations

Imbalance and inefficiency fostered by the previous government policies necessitated changes in policies to redress the imbalances of the past, and enhance competitiveness in the agricultural sector. Hence, it can be concluded that the policy of land reform and other development initiatives are justified. Implementing such a policy should not overlook the basic and enabling environment in which the farmer operates. To this end, a number of policy recommendations are made based on the outcomes of this study:

- Relatively rapid and massive transfers of farmland from large scale commercial farmers to settle more small-scale farm represents the political imperatives of the land reform program. However, the results show that implementing this land reform objective without the necessary enabling environment will result in a poverty trap for most in the NWP. Development policies should therefore discourage the implementation of the land reform program without the initial creation of the required enabling environment.
- The impact of the land reform policy is reported to differ between the different agricultural sub-sectors of the province. The land reform policy should therefore foresee that agricultural

sub-sectors which have a smaller impact on the economy are targeted for resettling small-scale farmers on commercial owned farm land.

- Larger focus on the revitalization of unproductive arable agriculture land in the former homelands is required in the NWP. This is in the best interest of all stakeholders, as it will reduce the economic impact of the land reform policy.
- Analogous, development policies should focus on the eradication of bush encroached regions in the province, especially on land that's already transferred. This will improve carrying capacity and subsequently productivity and profitability.
- Policies should address the risk of production. This could be done by creating incentives for agribusinesses and other role players to assist small-scale farmers in their production practices

8.7.2 Institutional responses

As mentioned, cooperation between the different institutions involved in the agricultural sector needs to be improved to ensure successful rural agricultural development. This will require the assignment of roles and responsibilities to each of the participants. However, government, through their three spheres (national, provincial and local), should still remain the main player implementing the proposed institutional changes and ensuring successful development in the NWP. Moreover, the role of government should be to provide an enabling environment which will facilitate sustainable development. Although this study made some recommendations as to what institutions need to have in place to improve development success, provincial government must also be responsible for certain initiatives which include:

- Investments in the training of employees, extension officers and beneficiaries of development initiatives,
- Provision of effective extension services to development beneficiaries,
- Investment in research initiatives (such as this study) to improve the success of development,
- Balance of development initiatives with food security,
- Crafting of clear selection criteria for possible beneficiaries of agricultural development,
- Provision of clear expectations to potential development beneficiaries, i.e. clearly define the role and responsibility of beneficiaries,
- Improvement of infrastructure, especially in rural areas,

- Maintenance of current infrastructure, i.e. markets, roads, auction facilities etc.
- Improvement of the process of post-settlement support to development initiatives, i.e. provincial government must have a holistic approach to post-settlement support.
- Ensuring that ownership is created within development initiatives,
- Ensuring incentives that will stimulate agricultural production,
- Improvement of the rate of land reform,
- Improvement and maintenance of social structures, i.e. hospitals and police stations.

Similar to provincial government, national government should also assist in the creation of an enabling environment that will improve development success. All major policies that impact on the agricultural sector or that directly relate or indirectly relate to agricultural development are determined by national government. The role of national government, therefore, relates more to the policies supporting rural agricultural development. Thus, national government should:

- Develop agricultural development policies that are “development friendly” and structured in such a way that they will minimise the impact on the local economy and its people,
- Develop policies and structures (as proposed in the study) that will protect development beneficiaries from exploitation by the mainstream economy,
- Create and maintain the capacity to negotiate and protect development beneficiaries from international competition, especially in the early stages of production,
- Reduce the bureaucratic red tape surrounding agricultural development support programmes and policies,
- Promote the effective implementation of development policies,
- Provide research support for various disciplines that will promote rural agricultural development,
- Provide support to agricultural training institutions,
- Develop and maintain supporting infrastructure, including logistics which are one of the largest challenges,
- Ensure the successful establishment and sustainable future production practices of development beneficiaries, and
- Provide support to private institutions in their development initiatives.

With regard to the last point, government should seek to establish alliances with private institutions (i.e. agribusinesses, banks, organised agricultural, and so on) to form public/private partnerships in their search for successful development. Moreover, institutions such as the Land Bank have recognised that, as an institution, it may not always directly provide for all the elements, as some are not in its competence. However, they will seek out partners and create alliances to ensure that, collectively, the key ingredients that a farmer requires to be successful are delivered. The alliances and partnerships entered into will ensure delivery on the most important aspects for the success of emerging farmers, which are land, capacity and skills, and financial resources.

The role and responsibility of other participating institutions like agribusinesses and organised agricultural should relate to the direct and indirect marketing and operational functions that cannot be managed efficiently by development beneficiaries. These functions should be reviewed on a regular basis and include amongst others:

- The provision of timely and accurate industry statistics i.e. crop estimates, price expectations, stock levels, national and international industry overviews, production cost, etc. Moreover, the impact that these indicators might have on a specific enterprise should be clearly communicated to the beneficiaries and they should be assisted with management decisions as to how to oppose some of the challenges that might originate from this,
- The provision of mentorship to development beneficiaries,
- Assistance with training initiatives, i.e. learning-by-doing concepts,
- The support of government with industry information, research initiatives, capacity transfer of research results and new technological developments, etc.,
- Support of public institutions (i.e. universities, the national agricultural marketing council, etc.) with agriculture-related research,
- Assistance to development beneficiaries to enable them to provide inputs on various forums where agriculture-related policies are discussed and negotiated,
- Assistance to development beneficiaries in overcoming the red tape of governmental support structures,
- Assistance to development beneficiaries in easing access to both input and output markets.

There are certainly many other support services that the private agricultural industry can provide to support rural agricultural development. However, the most important is to supply these farmers with independent, accurate and timely information and to see that they use it in an appropriate manner. After all, another important role of the industry is to reduce the cost of doing business for development beneficiaries.

8.7.3 Future research

The study concentrated on the institutions required to ensure sustainable rural agricultural development in the NWP, as well as the impact of these institutions on the economy of the province. Although the empirical analysis highlighted the importance of institutions in determining economic outcomes, to my knowledge no other study has attempted to measure the impact of proposed institutional changes on economic outcomes. Thus, it is recommended that more research on sustainable methodologies for undertaking institutional analysis of this nature be conducted. The emphasis of determining the impact of institutions should, however, be shifted from the traditional assessment of benefits resulting from property right regimes or allocation of mechanism in isolation under transaction cost-minimizing criteria, to assessing the impact of different institutional hierarchies on the entire economy of a region or country.

In conclusion, given the importance of institutional economics in determining the outcome of rural agricultural development initiatives, it is recommended that economists should pay more attention to research that will ensure that the institutional environment in specific regions satisfies the demands of the people residing in those regions. This may require that different institutions and institutional arrangements be developed through research initiatives than those present in urban areas. It is furthermore recommended that rural agricultural development be used as an interesting case study to further develop the research field.

REFERENCES

ARC (Agricultural Research Council). (2008). North West Province Maps and Spatial Database. Pretoria: ARC.

ASSA (Actuarial Society of South Africa). (2002). Health Statistics. <http://www.hst.org.za/>

Asiabaka, C. (n.d.). Promoting Sustainable Extension Approaches: Farmer Field Schools (FFS) and its role in sustainable agricultural development in Africa. *Department of Agricultural Economics and Extension, Federal University of Technology, Nigeria.*

Ault, D.E. and Rutman, G.L. (1979). The Development of Individual Rights to Property in Tribal Africa, *Journal of Law and Economic*, 22, 166.

Awosola, O.O.O. (2006). Farm-Level Resource Use and Output Supply Response: A Free State Case Study. *Unpublished Research Report*, Department of Agricultural Economics, Faculty of Natural and Agricultural Sciences at the University of the Free State, South Africa, 2006.

Bardhan, P. (2007). Institutional Economics of Development: Some General Reflections, University of California at Berkeley. <http://www.cirpee.uqam.ca>

Baer, P. (2009). Equity in Climate-Economy Scenarios: The Importance of Subnational Income Distribution. *Environmental Research Letter*, 4 (2009): 1-11.

Bank of Mozambique. (1998). Economic Development of Rural Areas Through Decentralization in Mozambique: Achievements, Challenges and Prospects. *Paper presented at the AFRACA's Technical Workshop on Innovations in Addressing Rural Finance Challenges in Africa*, 25th to 26th November 2008, Dar Es Salaam, Tanzania.

Beinart, W. (1984). Soil Erosion, Conservation and Ideas about Development: A Southern African Exploration. *Journal of Southern African Studies*, 11 (1): 1900-1960.

Beugelsdijk, S. and Schaik, T. (2001). Social Capital and Regional Economic Growth. *CentER Discussion Paper*. Tilburg University, the Netherlands.

Bierman, N.L. (2007). Chapter 3: The Role of Transport in the South African Economy. *Chapter from unpublished thesis*, Rand Afrikaans University (RAU), Pretoria, South Africa.

Boyce, T. (2006). Reviewing Farm Worker Equity Schemes: A Case Study of 'Saamwerk' Wine Farm in the Overberg Region, Western Cape. *Unpublished Master Thesis*, Faculty of Economic and Management Science, University of the Western Cape, December 2006.

Bwalya, M. (2007). Conservation Agricultural Field Schools. *Guide for Educators and Farmers*. SARD.

Casson, M.C., Della Giusta, M. and Kambhampati, U.S. (2008). Formal and Informal Institutions and Development. *World Development*, 28 (2) 137-141.

Cloete, P.C., Taljaard, P.R. and Grove, B. (2006). A Comparative Economic Case Study of Switching from Cattle Farming to Game Ranching in the Northern Cape Province. *South African Journal of Wildlife Research*, 37 (1): 71-78.

Chain Empowerment. (n.d.). Farmer Field School Networks in Western Kenya. <http://www.fao.org>

Conningarth Economists. (2005). Economic Multipliers for the Free State Province. *Unpublished research report*, Pretoria.

Coleman, J.S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, Vol 94: 95-120.

Cook, M.L. and Iliopoulos, C. (2000). Ill-Defined Property Rights in Collective Actions: The Case of US Agricultural Cooperatives. Chapter 22 in: Menard, C. (ed.) *Institutions, Contracts, and Organizations: Perspectives from New Institutional Economics*. Cheltenham: Edward Elgar.

Cross, C. & Coetzee, G.K. (2001). The Role of Self-Help Member Based Financial Institutions in South Africa: Can it Contribute to Improve Access to Financial Services for the Poor. *Paper prepared for the DGRV Seminar on Member Based Financial Self-Help Organisation in South Africa*, Farm Inn, Pretoria, 31 May 2001.

Dawson, J. & Barwell, I. (1993): *Roads are not Enough: New Perspectives on Rural Transport Planning in Developing Countries*. London: Intermediate Technology Publications.

Davis, B., Reardon, T., Stamoulis, K.G. & Winters, P. (2002). Promoting Farm/non-farm Linkages for Rural Development. Case Studies from Africa and Latin America. *Food and Agricultural Organisation of the United Nations*, Rome, 2002.

Dentino, D. (2002). Pruning Fruit Trees. *Agriculture and Natural Resources Cooperative Extension*, University of California, USA.

Delius, P. and Schirmer, S. (2001). Towards a Workable Rural Development Strategy. Trade and Industrial Policy Secretariat (TIPS) *Working Paper 3-2001*.

DBSA (Development Bank of Southern Africa). (2008). *Socio-Economic Data*. Pretoria, South Africa.

DEAT (Department of Education and Training). (2002). *World Summit on Sustainable Development*, Johannesburg, South Africa. August/ September 2002.

Department for International Development. (2003). Agricultural and Poverty Reduction: Unlocking the Potential. *A DFID policy paper*. December 2003.

Department of Agriculture (DoA). (2004). Broadening Access to Agricultural Thrust (BATAT). *Department of Agriculture*, Pretoria.

Department of Transport, Roads and Community Safety North West Province. (2008). *Infrastructure Plan 2009/2010*. South Africa.

Dixon, P.B., Parmenter, B.R., Powel, A.A. and Wilcoxon, P.J. (1992). Notes and Problems in Applied General Equilibrium Economics. Amsterdam: North-Holland.

Dorward, A., Kydd, J., Morrison, J. and Poulton, C. (2005). Institutions, Markets and Economic Co-ordination: Linking Development Policy to Theory of Praxis. *Development and Change*, 36 (1): 1-25.

Dry Bean Producers' Organisation. (2006). Our Product. <http://www.beans.co.za>

Du Toit, P.J.D. (2003). A Lost Generation: Farmers and Tribal Land. *Paper delivered at the Economic Society of South Africa Conference*, June 2003. <http://www.essa.org.za>

ECI Africa. (2005). Analysis of the Cattle and Beef Sub-Sector in North West Province: Expanding Opportunities Throughout the Value Chain for Emerging Farmers. *Final report*, May 2005.

Elias, E. (2002). Integrated Nutrient Management to Attain Sustainable Productivity in East African farming systems (INMASP). *SOS Sahel International (UK)*. Addis Ababa, Ethiopia.

Fast, H. (1999). Impact of Share Equity Schemes on Farmworkers. *A Joint Research Report of the Surplus Project and Land and Agricultural Policy Centre*, South Africa

FAO. (2007). Globalization, Agriculture and the Least Developed Countries: Making Globalization Work for the LDCs. Istanbul. *United Nations Ministerial Conference of the Least Developed Countries, 9-11 July 2007*.

FDI Atlas. (2008). *Sector Strengths*. <http://www.fdiatlas.com/>

Francis, E. (2002). Rural Livelihoods, Institutions and Vulnerability in South Africa. *Working Paper Series No. 02-30*, Development Studies Institute, London School of Economics and Political Science

Frank, S.D. and Henderson, D.R. (1992). Transaction Costs as Determinants of Vertical Coordination in the US Food Industries. *American Journal of Agricultural Economics*, 74 (4): 941-950.

Fukuyama, F. (1995). *Trust: The Social Virtues and the Creation of Prosperity*. New York: The Free Press.

Garvin, M.J. (2005). Real Option Analysis: Can It Improve Infrastructure Development Decisions? *Congress Proceedings: Construction Research Congress (2005)*.

Green, C.A., Aberman, L. & Dominik, T. (2002). Typology and Prioritisation System for the Planning and Development of Viable Corridors. *Thekwini Municipality*, South Africa.

Giehler, T., Yinhong, S., Changqing, R. & Pei, G. (n.d.). Microcredit Companies and Village Banks – Competition or Pluralism. www.microfinancegateway.org

Gomes, C.A. & Camara, J. (2004). Training for Rural Development in Brazil: SENAR. Food and Agricultural Organisation of the United States, *International Institute for Educational Planning*, Paris.

Grosh, B. (1994). Contract Framing in Africa: An Application of the New Institutional Economics. *Journal of African Economics*, 3 (2): 231-261.

Gulati, R. (1998). Alliances and Networks. *Strategic Management Journal*, 19: 293-317.

Gupta, V. & Kunwar, M.S. (n.d.). Role of Extension In Agriculture and Rural Development – A Model. *Himalayan Action Research Centre- 6*.

Hai, L.T.D. (2003). The Organization of the Liberalized Rice Market in Vietnam. *Unpublished PhD thesis*, Rijks University, Groningen, The Netherlands.

Herrera, P.A. (2005). Institutional Economic Assessment of the Governance of Irrigated Agricultural: The Case of the Peninsula of Santa Elena, Ecuador. *Unpublished PhD thesis*, Faculty of Bioscience Engineering, University of Gent, Belgium.

Herrera, P.A., Van Huylenbroeck, G. and Espinel, R.L. (2005). A Generic Four-Step Methodology for Institutional Analysis of Governance Structures. *Paper presented at the 99th Seminar of the European Association of Agricultural Economics*, Copenhagen, Denmark.

Howe, J. (1999): Poverty Alleviation: Transport Policy and Socially Sustainable Development. *World Bank Transport-Expo '99*. Transport for People in the New Millennium. April 12-16. Washington, DC.

Hubbard, M. (1997). The 'New Institutional Economics' in Agricultural Development: Insights and Challenges. *Journal of Agricultural Economics*, 48 (2): 239-249.

Hussain, S., Jafri, A., Buland, D. and Randals, S. (2003). Economic Impact of the Dairy Industry in the Erath County, Texas. *Annual meeting of the Southwestern Social Sciences Association*, San Antonio, Texas, April 2003.

Idasas (2006). Toolkit: Reporting on Local Government Budgets. www.wordonthestreet.org.za.

Idsardi, E., Jordaan, H. and van Schalkwyk, H.D. (2009). A Characterisation of Success Factors of Projects Funded by the Comprehensive Agricultural Support Programme in the Free State Province. *Paper presented at the annual conference of the South African Society for Agricultural Extension: Potchefstroom*, South Africa.

Jaiyesimi-Njobe, F. (n.d.). Report of the BATA Human Resource Development Design Team. <http://www.nda.agric.za>

Jordaan, F., Steven, B., Jordaan, D. and Kowang, T. (2006). LandCare, Civil Society Mobilisation Project. *Gauteng Department of Agriculture, Conservation, Environment and Land Affairs*. Johannesburg, South Africa.

Jordaan, H., Grovè, B., and Khaile, M. (2008). Assessment of the Contribution of Water Use to Value Chains in Agriculture: A Conceptual Framework. *Paper presented at the 2008 Symposium of the South African National Committee on Irrigation and Drainage (SANCID)*, Club Mykonos, November 2008.

Juana, J.S. and Mabugu, R.E. (2005). Assessment of Small-Holder Agriculture's Contribution to the Economy of Zimbabwe: A Social Accounting Matrix Multiplier Analysis. *Agrekon*, 44 (3): 344-362.

Key, N., Sadoulet, E. and de Janvry, A. (2000). Transaction Cost and Agricultural Household Response. *American Journal of Agricultural Economics*, 82 (2): 245-259.

Kherallah, M. and Kirsten, J.F. (2002). The New Institutional Economics: Applications for Agricultural Policy Research Developing Countries. *Agrekon*, 41 (2): 110-133.

King, B.B. (1985). What is a SAM? *In Social Accounting Matrixes: A Basis for Planning*. Edited by Pyatt, G. and Round, J. Washington, DC: World Bank.

Kirsten, J.F. and Van Zyl, J. (1990b). Die Ekonomiese Impak van Besproeiingslandbou in die Suidwes-Vrystaat – n Toepassing van Streeksinset-Uitsettable. *Agrekon*, 26 (3): 162-170.

Kilkenny, M. and Robinson, S. (1990). 'Computable General Equilibrium Analysis of Agricultural Liberalisation: Factor Mobility and Macro Closure', *Journal of Policy Modelling*, Vol 12: 527-556.

Koelle, B., Oettlé, N, Thobela, M, & Arendse, A. (2003) A Learning in Partnership to Conserve Biodiversity. Cape Town, South Africa.

Kydd, J. and Dorward, A. (2004). Implications of Market and Coordination Failures for Rural Development in Least Developed Countries, *Journal of International Development*, 16: 951-970.

Layman, B. (2000). The Use and Abuse of Input-Output Multipliers. *Western Australian Economic Summary*, December quarter, 2000.

Lahiff, E. (2008). *Research Report no. 38. Land Reform in South Africa: A Status Report 2008*. Programme for Land and Agrarian Studies, School of Government, University of the Western Cape.

Leinbach, T.R. (2000). Mobility in Development Context: Changing Perspectives, New Interpretations and the Real Issues. *Journal of Transport Geography*, 8 (2000), 1-9.

Lebo, J. and Schelling, D. (2001). Design and Appraisal of Rural Transport Infrastructure – Ensuring Basic Access for Rural Communities. *World Bank Technical Paper No. 496*, Washington, DC.

Lehohla, P. (2005). *South African Statistics, 2004/05*. Pretoria: StatsSA.

Löfgren, H., Harris, R.L. and Robinson, S. (2002). A Standard Computable General Equilibrium (CGE) model in GAMS. *Microcomputers in Policy Research 5*. International Food and Policy Instituted (IFPRI), Washington, D.C.

Ling, Z. & Zhongyi, J. (1996). *Public Works and Poverty Alleviation in Rural China*. New York: Nova Science Publishers.

Lyne, M.C. (1996). Transforming Developing Agriculture: Establishing a Basis for Growth. *Agrekon*, 35 (4): 188-192.

Lyne, M. & Roth, M. (2004). Establishing Farm-based Equity-Share Schemes in KwaZulu-Natal: Lessons from USAID's Basis Research Programme. *Proceedings of a Mini-Conference Held at Victoria Country Club, Pietermaritzburg, July 2004.*

Matthews, R.C.O. (1986). The Economics of Institutions and the Sources of Growth. *The Economics Journal*, 96: 903-918.

Mayson, D. (2003). Evaluating Land and Agrarian Reform in South Africa. An Occasional Paper of the Skilful People Project. *School of Government, University of the Western Cape and Surplus People Project, South Africa.*

Makhura, M.N. & Mokoena, M. (2003). Market Access for Small-Scale Farmers in South Africa. In *The challenge of change: Agriculture, Land and the South African Economy*. Edited by Nieuwoudt, L. & Groenewald, J. Pietermaritzburg: University of Natal Press. pp.137-148.

Madikizela, Z., Roets, M., Roets, A., Mxoli, T., and Vos, J. (2006). An Integrated Red Meat Industry in the Bophirima District. *Prepared for SEDA by Scientific Roets*. North West Province, South Africa.

Magomola, E.M.N. (2008). *North West Province Fifteen-Year Review: 1994-2008*. Mafikeng: North West Provincial Government, Office of the Premier.

Mboweni, T.T. (2005). The Challenge of Stronger Economic Growth and Development in South Africa. Address by Mr T.T. Mboweni, Governor of the South African Reserve Bank, at the *Fedusa Third National Congress* held at Gold Reef City on 15 and 16 September 2005

Mbongwa, M., Van den Brink, R. & Van Zyl, J. (1996). Evolution of the Agrarian Structure in South Africa. In *Agricultural Land Reform in South Africa: Policies, Markets and Mechanisms*. Edited by van Zyl, J., Kirsten, J. & Binswanger, H. Cape Town: Oxford University Press. pp.36-63.

McDonald, S. and Punt, C. (1999). A Social Accounting Matrix for the Western Cape. University of Sheffield, United Kingdom.

McDonald, S. and Punt, C. (2004). Analysis with a Social Accounting Matrix for the Western Cape. *Department of Agriculture*, Western Cape Government.

McDonald, S., Kirsten, J.F. and Van Zyl, J. (1997). A Social Accounting Matrix for Modelling Agriculture Policy Reform in South Africa, *Agrekon*, Vol 36(4), December, 1997.

Milagrosa, A. (2007). Institutional Economic Analysis of Vegetable Production and Marketing in Northern Philippines: Social Capital, Institutions and Governance. *Unpublished PhD thesis*, Wageningen University, Netherlands.

Molefe, P.S. (1997). North West 2001: Strategic Planning and Development. *Discussion Document*.

Moulton, J. (2001). Improving Education in Rural Areas: Guidance for Rural Development Specialists. *World Bank*, January 2001.

Murray, C. (2005). Social Capital and Cooperation in Central and Eastern Europe, A Theoretical Perspective. Institutional Change in Agricultural and Natural Resources (ICAR). *Discussion Paper 9/2005*. Humboldt University, Berlin, Germany.

Musvoto, C. (2008). Agricultural-induced land degradation: A consideration of key emerging issues that may impact the state of the environment, *Department of Environmental Affairs and Tourism*, Pretoria, South Africa

Nabli, M.K., and Nugent, J.B. (1989). The New Institutional Economics and its applicability to development. *World Development*, 17 (9): 1333-1347.

Narayansuwami, C. (1991). Institution Building for Development: Lessons Learned and Tasks Ahead. *Asian Development Review*, 9. (2): 137-155.

National Agricultural Marketing Council. (2007). The South African Food Cost Review: 2007. *Department of Agriculture*. Pretoria, South Africa.

National Department of Agriculture. (2006). Cotton. <http://www.nda.agric.za>

NDA (National Department of Agriculture). (2004). Provincial livestock statistics: Estimated provincial livestock numbers for May 2004. Pretoria: *Directorate of Agricultural Statistics*. South Africa.

Nepal, P. (2009). Local Organisations: Viable Mechanism for Ensuring Participation in Rural Development. *Tribhuvan University Journal*, XXVI (1): 55-68.

Nigrini, M. (2001). Empowering Poor Rural Villages Through the Provision of Financial Services by Means of Financial Service Cooperatives: A Preliminary Investigation into Financial Services Cooperatives in South Africa. *Paper prepared for the International Jubilee Conference of the Economic Society of South Africa*, 13-14 September 2001, Glenburn Lodge.

North, D.C. (1984). Transaction Cost Institutions, and Economic History. *Journal of Institutional and Theoretical Economics*, 140: 34-49.

North, D.C. (1990). *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press.

North, D.C. (1991). Institutions. *Journal of Economic Perspective*, 5 (1): 97-112.

Norton, G.W. and Alwang, J.R. (1993). Introduction to Economics of Agricultural Development. *American Journal of Agricultural Economics*, Vol 75(4): 1086-1087.

North West Provincial Government. (1997). North West 200, Strategic Planning and Development, North West Province. Mmabatho, September 1997.

North West Government. (2002). North West State of Environmental Report: Impacts on the Environment of the North West Province. <http://www.environment.gov.za>

North West State of Environmental Report. (2002). <http://www.nwpg.gov.za>

North West Provincial Government. (2005). North West Barometer. Mafikeng, South Africa.

North West Water Sector Forum. (2006). *Provincial Water Sector Plan: Five-Year Water Sector Plan (2007/08-2011/12)*. Mafikeng: North West Provincial Government, South Africa.

North West Provincial Government. (2007). *State of the Environment Report 2006*. Mafikeng: North West Provincial Government, South Africa.

North West Department of Economic Planning and Industrialisation. (2007). Business plan: The Western frontier beef beneficiation project. North West Province, South Africa.

North West Department of Tourism. (2008). Biological Diversity – North West, <http://tourismnorthwest.co.za>

North West Provincial Government. (2008). *North West Department of Economic Development and Tourism Budget Speech 2008*. <http://www.info.gov.za/>

OECD. (2006). *Successful Partnerships: A Guide. OECD LEED Forum on Partnership and Local Governance at ZSI (Centre for Social Innovation)*. Paris, France.

Omamo, S.W. (2006). Institutional Economics as a Theoretical Framework for Transformation in Agriculture. *Agrekon*, 45 (1): 17-23.

Ortmann, G. and Machethe, C. (2003). Problems and Opportunities in South African Agricultural. In Nieuwoudt, L and Groenewald, J (Eds.). *The Challenges of Changes: Agricultural, Land and the South African Economy*. Pietermaritzburg: The University of Natal Press.

O'Teele, R., and Matthews, A. (2002). General Equilibrium, Partial Equilibrium and the Partial Derivative: Elasticities in a CGE model. *Paper presented at the International Conference on Global Modelling, EcoMod2002*, Brussels, July 4-6, 2002.

Pande, R., and Urdy, C. (2005). Institutions and Development: A View from Below. In R. Blundell and T. Persson (eds.) *Proceedings of the 9th World Congress of the Econometric Society*. Cambridge: Cambridge University Press.

PPT (Pro-Poor Tourism). (2004a). *Poverty in the North West Province*. www.pptpilot.org.za/Poverty_NorthWestProvince.pdf

PPT (Pro-Poor Tourism). (2004b). PPT Pilots Project in Southern Africa: The North West Province. www.pptpilot.org.za/North_west_Province.pdf

Provide (2003). Social Accounting Matrices and Economic Modelling. *Provide background paper series, September, 2003:4*. Provide Project, Elsenburg. www.elsenburg.com/provide.

Pyatt, G. (1988). A SAM Approach to Modeling. *Journal of Policy Modeling*, 10 (3): 327-352.

Qiao, G., Zhao, L. & Klein, K. (2009). Water User Associations in Inner Mongolia: Factors that Influence Farmers to Join. *Agricultural Water Management*, 96 (5): 822-830.

Rao, J.S. & Pattnaik, S.N. (2006). Technology for Rural Development, Role of Telecommunication Media in India. *India Media Studies Journal*, 1 (1): 86-92.

Round, J.I. (1981). Income Distribution within a Social Accounting Matrix: A Review of Some Experiences in Malaysia and other LDCs. Development Economic Research Centre, University of Warwick, *Discussion paper No 3*, March.

Roberts, D. (1991). A Comparison of Input-Output Methods for Analysis in Agricultural Economics. As in Midmore, P. (1991). *Input-Output models in the Agricultural Sector*. Avebury, England. Chapter 4.

Robinson, S. and Löfgren, H. (2005). Macro Models and Poverty Analysis: Theoretical Tensions and Empirical Practice. *Development Policy Review*, 23 (3): 267-283.

Sartorius, K., Kirsten, J. and Masuku, M. (undated). A New Institutional Economic Analysis of Small Farmer Contracts and Relations in the Sugar Supply Chain in South Africa and Swaziland.

Sadoulet, E. and De Janvry, A. (1995). Quantitative Development Policy Analysis. Baltimore: John Hopkins University Press.

Sacht, J. (2002). Critical Success Factors to Support the Management of Performance in Public and Private Sector Organisations. <http://www.workinfo.com>

Schmid, A. (2004). Conflict and Cooperation: Institutional and Behavioural Economics. Oxford: Blackwell.

Sexton, R., & Iskow, J. (1988). Factors Critical to the Success or Failure of Emerging Agricultural Cooperatives. Giannini Foundation *Information Series No. 88-3*, University of California, 1988.

Sen, H. (1996). Social Accounting Matrix (SAM) and its Implications for Macroeconomic Planning. *Unpublished Assessed Article*, Bradford University, Development Project Planning Centre (DPPC): Bradford, UK.

Slangen L.H.G., van Kooten, G.C. and Suchanek, P. (2004). Institutions, Social Capital and Agricultural Change in Central and Eastern Europe. *Journal of Rural Studies*, 20 (2004): 245-256.

Slangen, L.H.G. (2005). Institutional Economics and Economic Organization Theory Syllabus. *Agricultural Economic and Rural Policy Group. Social Science Department*, Wageningen University, Netherlands.

Song, B., Woods, D.M., Doeksen, G.A. & Schreiner, D. (2005). Multiplier Analysis for Agricultural and Other Industries, *F-821, Oklahoma Cooperative Extension Services*, Oklahoma State University, USA.

Spio, K., Groenewald, J.A. and Coetzee, G.K. (1995). Savings Mobilization in Rural Areas: Lessons from Experience. *Agrekon*, 34 (4): 254-259.

Staal, S.J., Delgado, C. and Nicholson, C. (1997). Smallholder Dairying Under Transaction Cost in East Africa. *World Development*, 25: 779-794

Starkey, P., Ellis, S., Hine, J. & Ternell, A. (2002). Improving Rural Mobility – Options for Developing Motorised and Non-Motorised Transport in Rural Areas. *World Bank Technical Paper No. 525*. Washington, DC.

StatsSA (Statistics South Africa). (2003). *Population Census 1996 & 2001*. Pretoria: StatsSA.

StatsSA (Statistics South Africa). (2004). *Census of Commercial Agriculture 2002*. Pretoria: StatsSA.

StatsSA (Statistics South Africa). (2006). *Census of Provincial Agricultural Statistics 2002: North West [Report number: 11-02-07 (2002)]*. Pretoria: StatsSA

StatSA (Statistics South Africa). (2007a). Provincial Profile 2004: North West [*Report number: 00-91-06 (2004)*]. Pretoria: StatsSA.

StatsSA (Statistics South Africa). (2007b). Report on Survey of Large-Scale Agriculture 2006. Pretoria: StatsSA.

Strategic Environmental Focus (Pty) Ltd. (2008). Soil and Agricultural Potential Report for Madibeng Local Municipality Environmental Management Framework. <http://sefsa.co.za>

Sykuta, M.E., and Cook, M.L. (2001). A New Institutional Economic Approach to Contracts and Cooperatives. *American Journal of Agricultural Economics*, 83 (5): 1273-1279.

Taljaard, P.R. (2007). The Macro Economy and Irrigation Agriculture in the Northern Cape Province of South Africa. *Unpublished PhD Thesis*, University of the Free State, Bloemfontein, South Africa.

Tlou, T., Mosaka, D., Perret, S., Mullins, D. and Williams, C.J. (2006). Investigation of Different Farm Tenure Systems and Support Structures for Establishing Small-Scale Irrigation in Long Term Viable Conditions. *WRC Report No 1353/1/06*. Water Research Commission, Rietfontein, Pretoria.

Townsend, R.F. (1997). Policy Distortions and Agricultural Performance in the South African Economy. Development Bank of Southern Africa, *Development Information Business Unit, Discussion Paper No 138*, November 1997. Pretoria, South Africa.

Townsend, M. and Ngatea, R.D. (n.d.). Equity Share-Farming. <http://www.side.org.nz>

Triantafyllopoulos, N. (2008). Does Land Property Structure Affect Local Development Patterns? Evidence for a Greek Tourist Area. *Urban Studies Journal*, 45 (4): 797-824.

Tswelopele Environmental (Pty) Ltd. (2007). North West Province Environmental Outlook 2007. *Prepared for the North West Department of Agricultural and Environmental Affairs*. Mafikeng: North West Provincial Government.

UNICEF (2006). Life Skill-Based Education for HIV/AIDS Prevention, Health/Sanitation, Peace Education and the Environment in Southern Sudan. Programme for every child. Health, Education, Equality, Protection. *Advance humanity unit*. <http://www.unicef.org>

UNEVOC (2006) Entrepreneurial Skills for Small Business. International programme on technical and vocational education. <http://www2.tafe.sa.edu.au/>

United Nations. (1999). Handbook of Input-Output Table Compilation and Analysis, Studies in Methods. *Handbook of National Accounting, Series F, No 74, Department of Economic and Social Affairs, Statistics Division*, New York.

Urban-Econ Development Economist. (2003). North West Barometer, Section 2; Resource Base. <http://www.nwpg.gov.za>

Urban-Econ. (2007). Growth and Development Strategy. Mafikeng: North West Provincial Government, Merafong City Local Municipality.

USDA (2002). Agricultural Cooperatives in the 21st Century. Rural Business-Cooperative Service, *Cooperative Information Report 60*.

Uzzi, B. (1996). The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: the Network Effect. *American Sociological Review*, 61 (4): 674-698.

Van Renen, E. (1997). The Batat Marketing Drive: Improving Market Access For Small-Scale Farmers. *Agrekon*, 36 (4): 648-655.

Valentinov, V. and Baum, S. (2008). The Institutional Economics of Rural Development: Beyond Market Failure. *Journal Central European Agricultural*, 9 (3): 457-462.

Van Seventer, D.E.N. (1999). The Estimation of a System of Provincial Input-Output Tables for South Africa. *Journal of studies in economics and econometrics*, 23 (2): 55-75.

Van Schalkwyk, H., Groenewald, J. & Jooste, A. (2003). South Africa Agriculture and International Trade. In *The challenge of change: Agriculture, Land and the South African Economy*. Edited by Nieuwoudt, L. & Groenewald, J. Pietermaritzburg: University of Natal Press.

Van Schalkwyk, H.D., Carstens, J.P., Cloete, P.C., and van der Merwe, J.D. (2009). Master Plan for Agriculture in the North West Province. *North West Department of Agriculture, Conservation, Environment and Rural Development*, Mafikeng, South Africa.

Westley, G.D. (2004). A Tale of Four Village Banking Programs, Best Practices in Latin America. *Micro, Small and Medium Enterprise Division, Inter-American Development Bank*, Washington DC.

Williamson, O.E. (1996). *The Mechanisms of Governance*. Oxford University Press, New York.

Williamson, O.E. (1998). Transaction Cost Economics: How it Works; Where is it Headed. *De Economist*, 146: 23-58.

Williamson, O.E. (2000). The New Institutional Economics: Taking Stock, Looking Ahead. *Journal of Economic Literature*, 38 (3): 595-613.

Wilson, G.W. (1973): Towards a Theory of Transport and Development. *Transport and Development*. Edited by Hoyle, B.S. London: Macmillan.

References

World Bank (1994). *World Development Report 1994: Infrastructure for Development*. New York: Oxford University Press.

World Bank. (1998). *Microfinance Case Studies Indonesia. Indonesia's Rural Finance System: The Role of the State and Private Institutions*. <http://www.ifad.org>

Yaron, J., McDonald, B. & Charitonenko. S. (1998). Promoting Efficient Rural Financial Interventions. *The World Bank Research Observer*, 13(2): 147-170.

Yaron, J., Benjamin, M.P. and Piprek, G.L. (1997). *Rural Finance: Issues, Designs and Best Practices*. World Bank, Washington, USA.