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Thabo Mofutsanyana Agri-Park Master Business Plan

Final Report



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Department:

Rural Development and Land Reform

REPUBLIC OF SOUTH AFRICA



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DOCUMENT APPROVAL

The **Thabo Mofutsanyana Agri-Park Master Business Plan**, submitted on the **13th April 2016** has now been received, fully reviewed, and accepted by the following key members:

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THABO MOFUTSANYANA DM MASTER AGRI-PARK BUSINESS PLAN ROAD MAP

Chapter 1: Introduction

Summary: An introduction to the master business plan report is provided in this chapter through: the project background, goals and objectives, the project's purpose and a demonstration of the project methodology.

Key words: concept, smallholder/small-scale farmer, FPSU, AH, RUMC, capital expenditure

Must read if the reader:

- Does not have a background on the Master Agri-Park Business Plan Project.
- Does not know what the goals and objectives of the project are.
- Is interested in the project process.

Chapter 2: Agri-Park Model

Summary: This chapter provides an overall overview to the Agri-Park model which was developed by the DRDLR.

Key words: Agri-Park model, small-scale/smallholder farmers, FPSU, AH, RUMC, production, facilities, information, large-scale/ commercial farmers

Must read if the reader:

- Is not familiar with the Agri-Park's concept.
- Seeks to understand the 3 units of the Agri-Park model.

Chapter 5: Main Role Players

Summary: A list of role-players that are important for the TMDM Agri-Park Development are listed in this chapter, along with potential duties that they may take on.

Key words: government, private, associations, organisations, financial institutions, companies, service providers, roles

Must read if the reader:

- Is not familiar with the role-players that are expected to be involved with the TMDM Agri-Park.
- Is interested in the potential duties to be taken up by the role players

Chapter 4: Location Context

Summary: This chapter provides an overview of the TMDM and its features that are important for the development of the Agri-Park.

Key words: TMDM, local municipalities, location, economic infrastructure, economic activities

Must read if the reader:

- Does not know the location of the TMDM
- Does not know the status of important locational features of the TMDM.
- Does not know the Agri-Hub location and its selection.

Chapter 3: Policy Review

Summary: The important policies that affect the TMDM Agri-Park are reviewed in this chapter and the alignment of the Agri-Park to the policy is identified.

Key words: policies, strategies, national, provincial, local, implications, alignment

Must read if the reader:

- Is not familiar with policies that are influential to the TMDM Agri-Parks Programme.
- Is not familiar with the policy implications for the Agri-Park.

Chapter 6: Economic and Socio-Economic Analysis

Summary: This chapter analyses the economic and socio-economic status quo of the TMDM through statistics of the following indicators: demographics, economic profile, unemployment status, skills level, income and poverty

Must read if the reader:

- Does not know the socio-economic status quo of the TMDM.
- Does not have knowledge of the effect of the socio-economic status quo on the Agri-Park development.

Chapter 7: Agricultural Industry Analysis

Summary: In this chapter, an analysis of TMDM's agricultural features is provided, as well as important factors that are influential to agricultural development. The three agricultural commodities to be produced in the district's Agri-Park are identified.

Key words: agricultural activities, GVA, commodities, climate, resources, projects, selection criteria, prioritisation, top three commodities

Must read if the reader needs to know:

- The current agricultural status of the TMDM.
- The status of resources and climate features affecting agriculture in the TMDM.
- The process of selection used for the three commodities.
- The three selected commodities.

Chapter 8, 9 & 10: Commodity Analysis

Summary: The three commodities that have been selected to be produced in the initial phase of the Agri-Park programme are individually analysed according to: The market; Value chain; Agro-Processing opportunities; Stakeholders and service providers; Technology; Socio-economic contributions and influences; Emerging/ Potential entrepreneurs; and SWOT analysis

Commodities: Dairy, Dry Beans, and Vegetables and Apples

Must read if the reader:

- Is interested in the commodities' market trends.
- Is interested in commodities' business enabling features
- Needs to know the value chain relations.

Chapter 12: Implementation Guidelines

Summary: The implementation guidelines for the development of the Agri-Park are discussed.

Key words: implementations, guidelines, process recommendations, programmes, action plan, timeframes

Must read if the reader needs to know:

- The implementation of the Agri-Park.
- How government programmes are aligned with the Agri-Park.
- The recommended action plan and timeframes.

Chapter 12: Agri-Park Organisational Structure

Summary: The organisational structure for the Agri-Park is demonstrated schematically and explored.

Key words: structures, organisational, advisory, approval, implementation, monitoring

Must read if the reader:

- Does not know how the Agri-Park is organised.

Chapter 11: Agri-Park Concept Development

Summary: The concepts for the Agri-Park are developed, based on the Agri Park Model, and a basic capital expenditure is provided.

Key words: concept, smallholder/small-scale farmer, FPSU, AH, RUMC, capital expenditure

Must read if the reader needs to know:

- What the concept of the Agri-Park is.
- How the 3 units in the Agri-Park model will function.



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AGRI-PARK

EXECUTIVE SUMMARY

The concept together with the introduction of an Agri-Park per each district municipality is a relatively new notion in South Africa. This document represents the **Thabo Mofutsanyana District Municipality (TMDM) Master Business Plan** which will serve as a guiding document in the implementation of the Agri-Park model that was developed by the Department of Rural Development and Land Reform (DRDLR).

Chapter 1: Introduction

The introduction provides the background information on the concept of an Agri-Park. The chapter provides the goals and objectives of the project. Lastly, the chapter also presents the purpose of the master Business Plan and outlines the various steps that are undertaken in completing the master Business Plan i.e. the project methodology.

Chapter 2: Agri-Park Model

Chapter 2 provides an insight into the Agri-Park model, provides the definition of the Agri-Park, and describes the three basic units within the Agri-Park. All the basic functions together with how the basic units will interact are also described in this chapter.

Chapter 3: Policy Review

In order to achieve set objectives, the Agri-Park Model seeks to align with some of the key government strategies and existing policy frameworks. For this reason, the chapter 3 of this document provides an overview of the national, provincial, and local policies that will guide the development of the Agri-Park Project. The policy review chapter provides a background on the relevant policies; identifies key focus areas and targets; and discusses the implications of the policies for the TMDM Agri-Park.

Chapter 4: Locational Context

It is important to have a good understanding of the strength, weaknesses and the comparative advantages that the district holds in order to establish an Agri-Park in the TMDM. Chapter 4 therefore describes some of the main features and major economic infrastructure that are crucial to the development of the Agri-Park in the TMDM. The proposed location of the Agri-Hub together with some of the existing infrastructure that can be utilised by the Agri-Park are also described.

Chapter 5: Main Role-Players per District

Chapter 5 outlines the main role-players that could potentially be involved in the TMDM Agri-Park at varying levels of the development process. The role-players are summarised into three categories such as: Government and Public Sector; Private Companies; and Associations and Organisations. The purpose of this chapter is to provide an insight into the possible partnership opportunities with regards to the recommended agricultural opportunities.

Chapter 6: Economic and Socio-Economic Analysis

The purpose of this chapter is to describe the economy of the TMDM in relation to population and economic growth; job creation; and income and poverty level, as viewed against the economic performance of Free State Province. A sectoral analysis is also provided, setting out the structure of the TMDM economy with respect to the different economic sectors and their output and employment contributions to the district's economy.

Chapter 7: Agricultural Industry Analysis

Part of the objectives of the Agri-Park project is to identify the three dominant or most feasible commodities within the district. Hence, this chapter provides an overview of the main agricultural activities occurring in the district, focusing on the types of commodities or products farmed and produced. Part of the purpose of this chapter is to provide relevant information regarding the current agricultural practices as well as the various opportunities and constraints that the TMDM's agricultural sector presents. Furthermore, this chapter identifies the three





dominant commodities in the TMDM, through a thorough prioritization process. Products related to the three (3) selected commodities are also briefly discussed during this chapter.

Chapter 8: Dairy Analysis

This chapter provide an analysis of the local, global, capital, and commodity markets for the dairy industry. Other major topics covered in the chapter include: value chain assessment, agro-processing opportunities, main inputs suppliers, competitors, stakeholders, technology requirement, the demand and need analysis, job creations opportunities, contribution to food security, regulatory requirements, substitute products and services, barriers to entry, societal and cultural trends and SWOT analysis.

Chapter 9: Dry Bean Analysis

This chapter provide an analysis of the local, global, capital, and commodity markets for the dry bean industry. Topics such as: agro-processing opportunities, technology requirement, value chain assessment, main inputs suppliers, competitors, stakeholders, regulatory requirements, societal and cultural trends, the demand and need analysis, job creations opportunities, contribution to food security, substitute products and services, barriers to entry, and SWOT analysis are also explored within this chapter.

Chapter 10: Vegetables and Apple Analysis

This chapter provide an analysis of the local, global, capital, and commodity markets for the vegetable and apple industries. Other major topics covered in the chapter include: SWOT analysis, value chain assessment, agro-processing opportunities, main inputs suppliers, competitors, stakeholders, technology requirement, the demand and need analysis, job creations opportunities, contribution to food security, regulatory requirements, substitute products and services, barriers to entry, and societal and cultural trends.

Chapter 11: Agri-Park Concept Development

This chapter describes the Agri-Park concept in relation to the three (3) identified commodities in the TMDM. The purpose of this section is to align the value chain that has been developed for each commodity with the Agri-Park model.

Chapter 12 – Agri-Park Organisational Structure

The proposed organisational structure of the TMDM Agri-Park is explored. A discussion is provided of how activities such as task allocation, coordination and supervision are managed to lead to the successful implementation of the Agri-Park in the DM.

Chapter 13: Implementation Guidelines

In this chapter, the implementation guidelines describe the processes that will be applied in executing the Agri-Park project. The purpose of the implementation guidelines is to provide the relevant stakeholders with a practicable document that will ensure that the project is implemented in an efficient and agreed-on manner, based on the concept spelled-out in the previous chapters. The implementation guidelines cover the areas such as: the implementation process, alignment with government programmes, specific recommendations as well as the roll – out plan.

Summaries of the three (3) main components (namely: The Farmer Production Support Units, Agri-Hub, and the Rural-Urban Market Centre) of the Agri-Park will be illustrated in the below in the form of canvases.

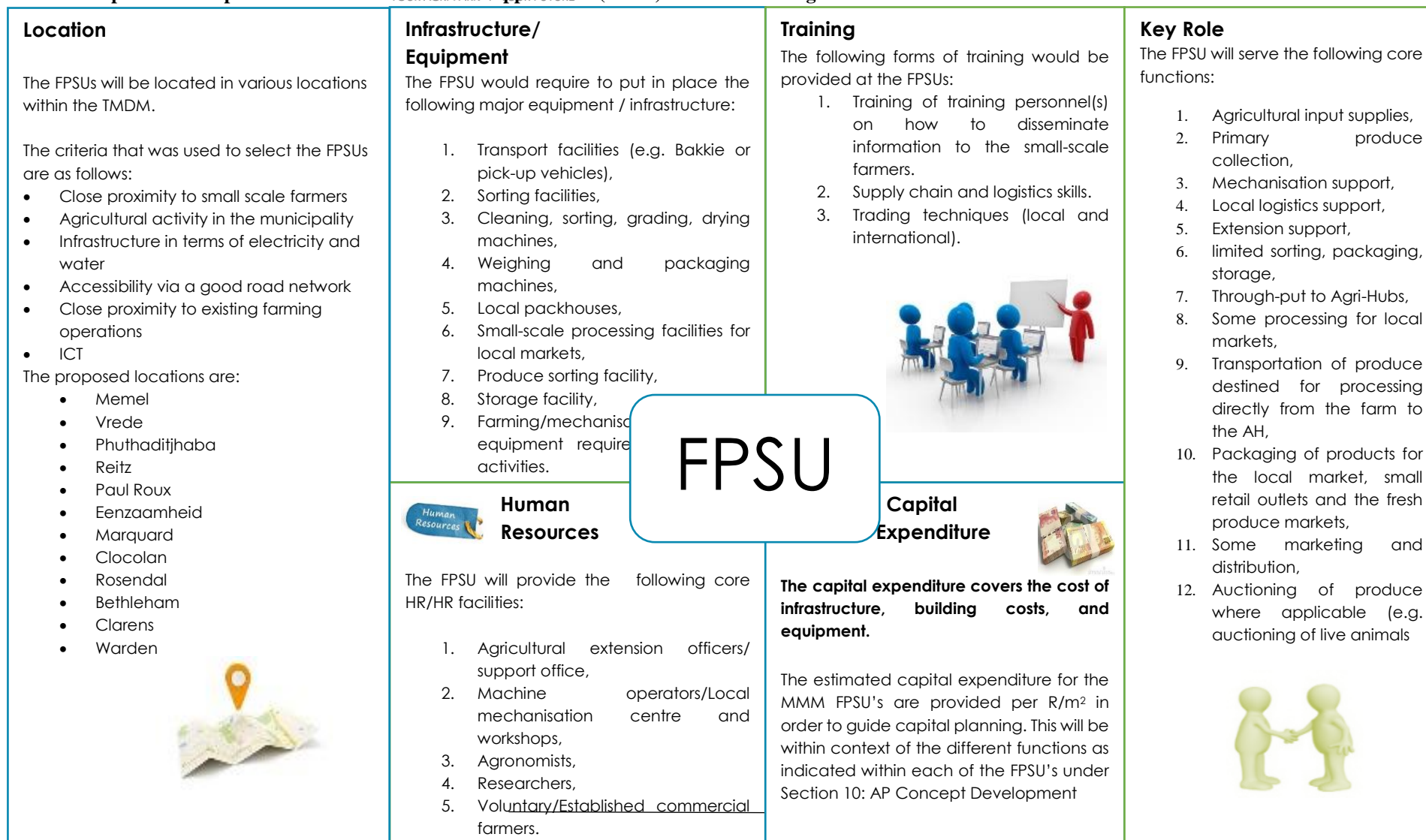


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The Development Concept for the Farmer Production Support Unit (FPSU) in the TMDM Agri-Park.



FPSU

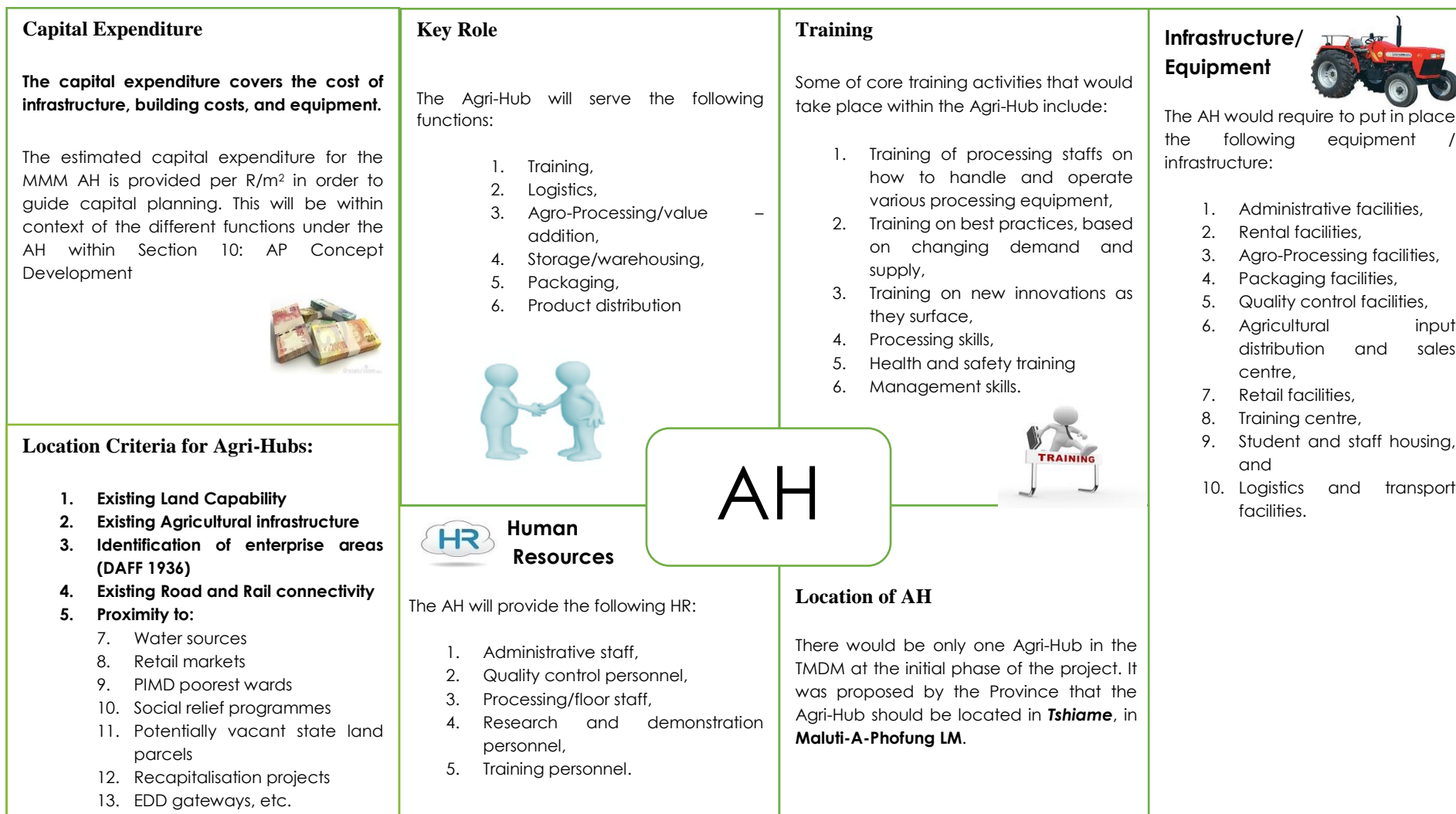


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The Development Concept for the Agri-Hub (AH) in the TMDM Agri-Park.

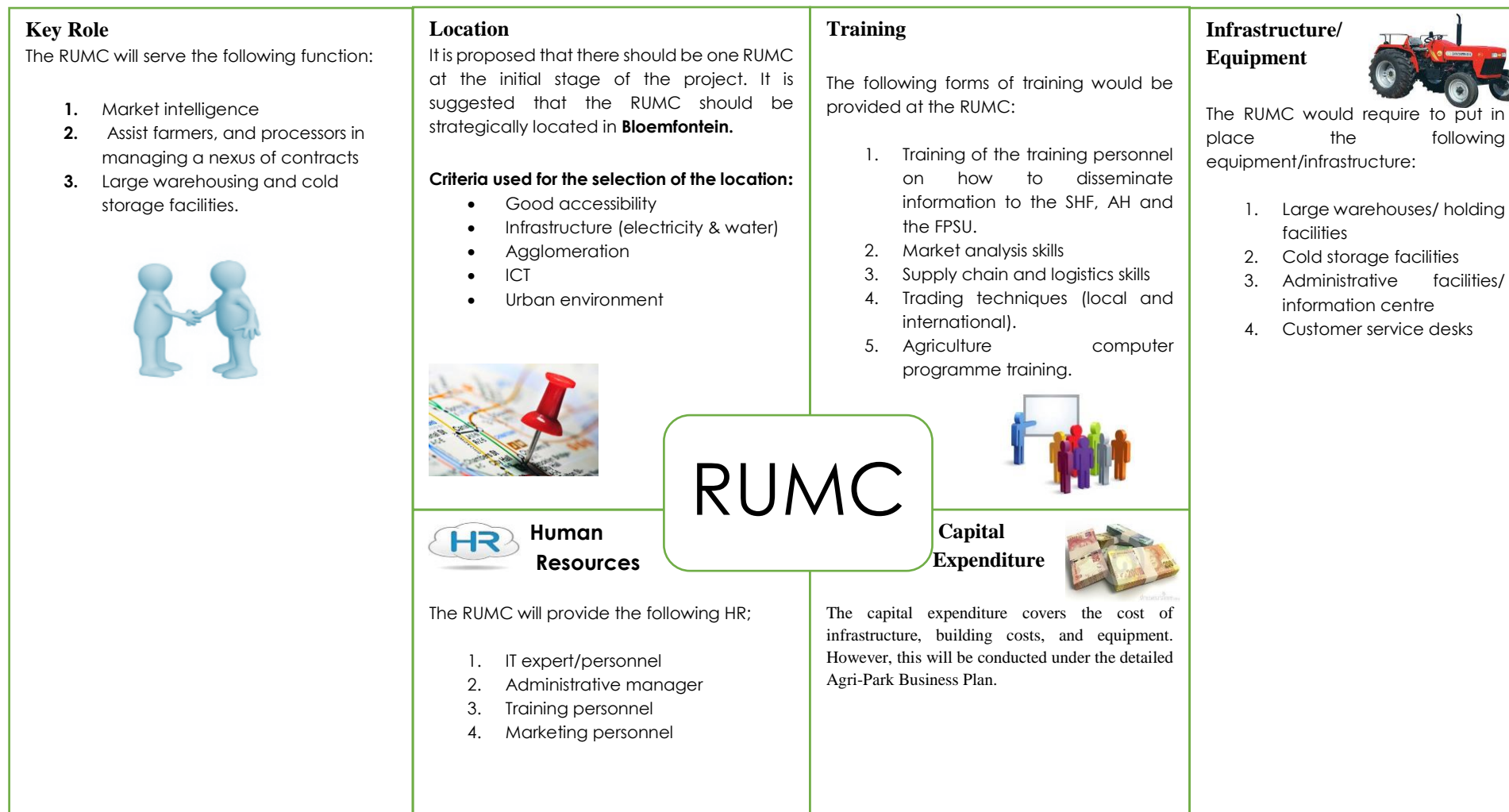


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The Development Concept for the Rural-Urban Marketing Centre (RUMC) in the TMDM Agri-Park



RUMC



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LIST OF ABBREVIATIONS

Abbreviation	Description
ABR	Agricultural Business Resources
AP	Agri-Park
APAP	Agricultural Policy Action Plan
ARC	Agricultural Resource Council
AVMP	Animal and Veld Management Programme
CASP	Comprehensive Agriculture Support Programme
COGTA	Department of Cooperative Governance and Traditional Affairs
CRDP	Comprehensive Rural Development Programme
DAFF	Department of Agriculture, Forestry and Fisheries
DARD	Department of Agriculture and Rural Development
DM	District Municipality
DRDLR	Department of Rural Development and Land Reform
DTI	Department Trade and Industry
FDC	Free State Development Corporation
FNB	First National Bank
FSPSDF	Free State Provincial Spatial Development Framework
FSPGDS	Free State Provincial Growth and Development Strategy
FPSU	Farmer Production Support Unit
FS	Free State Province
FSES	Free State Export Strategy
FSIS	Free State Investment Strategy
GVA	Gross Value Added
ha	hectare
IPAP	Industrial Policy Action Plan
IGDP	Integrated Growth and Development Plan
KPAs	Key Performance Areas
LARD	Land Redistribution for Agricultural Development
LED	Local Economic Development
LM	Local Municipality
LSH	Large-Scale Farmers
LSU	Large Livestock Unit
Mafisa	Micro-Agricultural Financial Institutions of South Africa
MTEF	Medium Term Expenditure Framework

NAFU	National African Farmers Union
NDP	National Development Plan
NGP	New Growth Path
NIPF	National Industrial Policy Framework
PICC	Presidential Infrastructure Coordinating Commission
PLAS	Proactive Land Acquisition Strategy
RETM	Rural Economy Transformation Model
RIDFF	Rural Investment and Development Financing Facility
RUMC	Rural Urban Market Centre
SDF	Spatial Development Framework
SEDA	Small Enterprise Development Agency
SHF	Small-Holder Farmers

1 INTRODUCTION

Urban-Econ Development Economists and team were appointed by the National Department of Rural Development and Land Reform (DRDLR) to undertake the development of a Master Business Plan for Agri-Parks designed specifically for various District Municipalities in various provinces of South Africa. Urban-Econ will serve to assist the Thabo Mofutsanyana District Municipality to develop an Agri-Park Master Business Plan that will guide the development of the initiative. This report represents the Final Master Agri-Parks Business Plan for the Thabo Mofutsanyana District Municipality. The implementation of an Agri-Park Programme in the Thabo Mofutsanyana District Municipality is aimed at the eradication of rural poverty, job creation, and food security; which are critical challenge for government.

The Agri-Park system was drawn from existing models both locally and abroad, which include collective farming, educational and experimental farms, incubation farming projects, eco-villages, agri-clusters, urban-edge vegetable garden, and market gardens. The One District, One Agri-Park programme will promote the objectives for rural and agricultural development set out in the National Development Plan (NDP). The NDP categorises agriculture as a critical element to stimulate job creation and food security. Agriculture is expected to potentially create a million jobs by 2030. The NDP appeals towards an inclusive rural economy in which rural communities should have greater opportunities to participate fully in the economic, political, and social life of the country.

Furthermore, the NDP's vision for 2030 seeks the inclusivity and integration of rural regions of South Africa through successful job creation, land reform, and poverty alleviation; while placing agriculture as the driving force behind this vision.

The population of South Africa in mid-2014 was approximately 54 million, the population continues to grow by approximately 2% per year and is expected to reach approximately 82 million by the year 2035. Thus, the production or importation of food is required to more than double in order to be able to feed the expanding population. Furthermore, the increase in production is dependent on the country's natural resources. The world population is expected to increase by approximately two billion (increasing the world population to nine billion) by the year 2050, from the current seven billion. Thus, global agriculture is required to increase by at least 70% in order to meet the dietary requirements of the global population.

The Agri-Parks programme was developed within the aforementioned context and will also serve to overcome challenges currently faced by emerging and small-scale farmers, such as competing interests for land, high input costs (particularly the rising cost animal feed), anti-competitive behaviour (due to market dominance), degradation of soil, and climate change (for example droughts, floods, and fires); which affect the productivity of the farmers.

The document covers the following:

- Overview of the Agri-Parks Model,
- Locational context regarding the Thabo Mofutsanyana District,
- Description of the main agricultural role-players,
- An agricultural industry analysis, and
- An analysis of the three main commodities specifically prioritised for the District.

The section that will be covered in the document were derived from the analysis of:

- Primary and secondary data gathering, and
- Stakeholder engagement, including
 - ✓ DRDLR (National)
 - ✓ DARD (Provincial)
 - ✓ DARD (Municipal)

1.1 Short Description of the Project

The goal of the Thabo Mofutsanyana Agri-Park's Master Business Plan is to develop a guiding document that aligns with the Agri-Park Model, developed by the Department of Rural Development and Land Reform (DRDLR). Furthermore, the document will guide the identification of the three most feasible agricultural commodity value chains within the District.

The objectives of the Thabo Mofutsanyana Agri-Park Master Business Plan are summarised below:

1. To develop a document that serves as a guideline towards the implementation of the Agri-Park within the District.
2. Review as many existing documentation, maps, and agricultural potential as possible.
3. To engage with District representatives, government officials, and other related role-players.
4. Aligning the Master Business Plan with existing policies, strategies, and other relevant development plans.
5. Determine the socio-economic benefits and potential impact that the Agri-Park will have within the District.
6. To identify the existing agro-processing facilities and farmers within each District municipality and to establish possible linkages.
7. Identify current, or potential agricultural activities within the District.
8. To identify three dominant or most feasible commodities within the District.
9. To identify agro-processing business opportunities for each Agri-Park based on the three commodities.
10. SWOT analysis that includes a legal, environmental, and technical analysis.
11. To conduct a feasibility and viability assessment of the proposed agro-processing facilities.
12. Identify current agro-processing initiatives and possible synergies, linkages and opportunities to buy into existing businesses.
13. Identify potential public-private partnerships.
14. Develop a District specific operational plan for the Agri-Park.

1.2 Purpose of the Master Business Plan

The purpose of the Thabo Mofutsanyana Master Business Plan that will serve to outline the District's competitive commodities. Furthermore, the commodities will be evaluated for the potential to be processed into value-added commodities that will contribute further to job creation, food security, and the eradication of poverty within the District.

1.3 Methodology

The methodology illustrated in Figure 1-1 below, is the outline of the various steps undertaken to develop the Agri-Park Master Business Plan; furthermore, the flow diagram (Figure 1-1), also serves as a guideline for the Master Business Plan itself.

The steps displayed in Figure 1-1 can be described as follows:

Step 1: Orientation - The purpose of the first step was to engage with the client to achieve a consensus on the goals and objectives of the project. The project team held an inaugural meeting with the relevant stakeholders to finalise project objectives, process deliverables, and present a project management programme.

Step 2: Policy Review - The policy review entails conducting programme and policy alignment, along with advising the government of the possible opportunities in terms of the proposed Agri-Park developments.

Step 3: Status Quo – A status quo analysis of agricultural and agro-processing industry was conducted for the Thabo Mofutsanyana District Municipality (TMDM). The status quo analysis will provide the background to the agricultural environment in the district that will be used as a departure point for the project team.

Step 4: Identify existing initiatives – The TMDM has a number of existing successful farmers that have agro-processing operations. There are also existing farmer support programmes and support services. Step 4 entails identifying these operations in order to develop linkages and opportunities through collaboration.

Step 5: Agri-Hub Opportunity Analysis - The purpose of Step 5 was to conduct an opportunity analysis of each Agri-Park in order to determine the agro-processing business opportunities. Based on the opportunity analysis the project team was able to develop a business case for the TMDM Agri-Park.

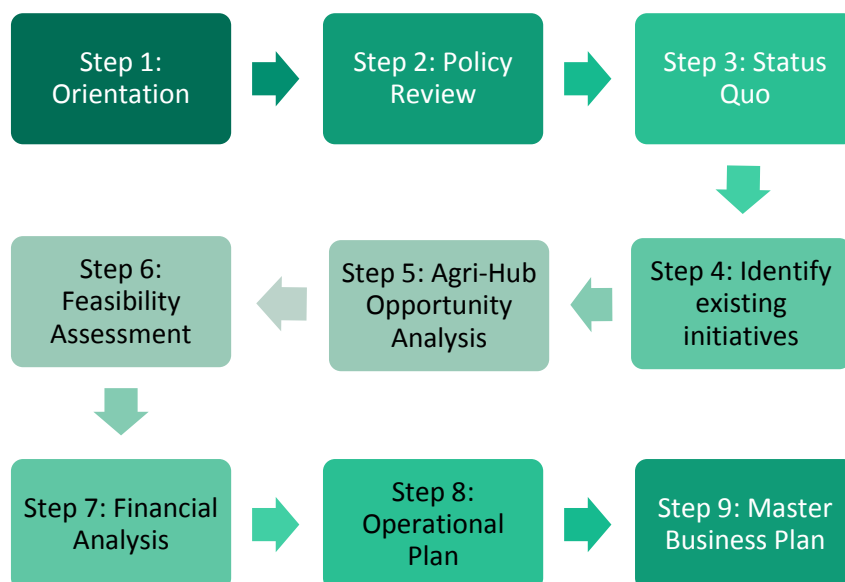
Step 6: Feasibility Assessment – This assessment assisted in the determination the viability of a proposed Agri-Hub and agro-processing business opportunities.

Step 7: Financial Analysis: A financial analysis for the proposed agro-processing business concepts was conducted in this step, which will be prepared over a ten-year period taking into consideration the capital expenditure of the business.

Step 8: Operational Plan - Guidance in terms of the organisational structure of the Agri-Hub is provided through the operational plan. An organisational structure defines how activities such as task allocation, coordination, and supervision are directed towards the achievement of organisational aims. The plan indicates how the existing farmers will be linked with the Agri-park development.

Step 9: Master Business Plan – A Master Business Plan is compiled that focuses on the operational aspects of the business and the inputs from the client, and the district municipalities will be required to compile the plan.

Figure 1-1: Methodology



The following section provides further information on the back ground of the Agri-Park and explores the Agri-Park model.

2 AGRI-PARK MODEL

2.1 An understanding of the Agri-Park concept

It is understood that the DRDLR requires a service provider that will be able to develop a Master Agri-Park Business Plan for each of the 44 District Municipalities identified in South Africa. The DRDLR has been commissioned for the implementation of an Agri-Parks programme which aims at the eradication a number of challenges that South Africa has struggled with for numerous years such as, among others, rural poverty, job creation, food security, etc. Thus, in order to move forward with the remedial methods, the DRDLR requires Master Business Plans for each of the 44 District Agri-Parks.

For many years, one of the government's key areas to address has been poverty alleviation, especially within rural areas where there is a lack of economic activity. Government has intervened with various anti-poverty programmes, but the impact was lower than what was expected. However, the key issue has not been the programmes themselves, but rather the incompatible co-ordination of both the integrated service packages and anti-poverty activities, to the local priorities. The incompatibility of the co-ordination and integrated package has thus, led to the relatively new (in a South African context), Agri-Parks initiative. The concept follows an integrated approach of collective farming efforts, agri-clusters, small-scale farmer incubation programmes, agri-villages, and eco-villages; while also contributing to land conservation and preservation. The initiative is similar to that of a traditional agricultural business park or hub model, in which multiple tenants and owners operate under a common management structure where a range of enterprises can exist.

The model is required to have a strong social mobilisation component specifically for small-scale black farmers, emerging farmers, and agri-business entrepreneurs to actively support the rural development initiative. Furthermore, the model should strengthen partnerships between government, the private sector, and civil society such as Department of Agriculture, Forestry and Fisheries (DAFF) and the Department of Cooperative Governance and Traditional Affairs (COGTA), among many others.

In order for the programme to be executed successfully, the following criteria should be adhered to:

- The Agri-Park should be based on the locational economic and comparative advantages.
- Detailed value chain for the identified dominant comparative products or commodities, should be present.
- Finally, the Agri-Park should be able to lay a solid economic foundation for the development of rural industrialisation.

The following guiding principles should be followed to ensure the successful deployment of the Agri-Parks programme:

1. One Agri-Park is to be established in each District.
2. The Agri-Parks are required to serve as catalysts for rural development.
3. The Agri-Parks must be government-guided to ensure economic sustainability.
4. The Agri-Parks should be controlled by the local farmers, while also providing support for small-scale and emerging farmers.
5. The Agri-Parks should support growing towns and the renewal of rural towns in the way of economic and population growth, as well as encourage rural-urban linkages.
6. The Agri-Parks must strengthen partnerships between the public and private sectors in order to increase access to services.
7. The Agri-Parks must maximise use of existing agro-processing, bulk and logistics infrastructure, including having availability of water, energy and roads
8. The Agri-Parks must maximise the use of prospective high-value agricultural land.

9. The Agri-Parks must maximise access to markets for all farmers with a bias towards small-scale farmers, emerging farmers, and rural communities.
10. The Agri-Parks must maximise the use of existing support services and industries available within the District.

Therefore, the Master Business Plans for the Agri-Parks within each District will be structured around the identification of appropriate products within the District, location, possible public and private partners, social mobilisation, value-chain linkages, funding sources, a governance model, and a budget. These are all viewed by the project team as critical success factors associated with the project. An important aspect is the assessment of each District's comparative advantages, in terms of agriculture, which will serve to ensure the successful and sustainable development of the Agri-Parks with the Districts.

2.1.1 Background to Agri-Parks

The Agri-Parks system is a relatively new concept to South Africa, but the idea draws from existing models both locally and abroad, which includes: educational/experimental farms, collective farming, farmer-incubator projects, agri-clusters, eco-villages, agri-villages, and urban-edge allotments, as well as market gardens. These models exist in both a public and private capacity, serving as transition or buffer zones between urban and agricultural uses. The use of the word "Park" is intended to convey the role that the Mega Agri-Park (nationwide network) will play in open space preservation.

Although the term "Agri-Parks" suggests permanent land conservation and recreational use that is synonymous with the description "public park", it brings to the fore a more traditional model of an agricultural "business park" or "hub", where multiple tenants and owners operate under a common management structure. The Agri-Parks are intended to provide a platform for networking between producers, markets, and processors, while also providing the physical infrastructure required for the transforming industries. The focus of the Agri-Park is primarily on the processing of agricultural products, while there may be a low mix of 'non-agricultural' industries. Access to viable agricultural land is of prime importance, particularly where a range of productive agri-horticultural enterprises may exist. The Agri-Park Programme forms part of Government's undertaking to review all land reform policies as articulated in the 2011 Green Paper on Land Reform. The approach will include the selection and training of smallholder farmers, as well as selecting farms per province for the placement, incubation, and training of unemployed agricultural graduates and other agro-entrepreneurs.

The Agri-Parks in each District will be farmer-controlled with a strong social mobilisation component so that emerging farmers and agri-business entrepreneurs are actively mobilised and organised to support this initiative. For the success of the initiative the DRDLR will be required to develop strategic partnerships with key government departments such as DAFF and COGTA, as well as other spheres of government. Additionally, underutilised state land will be brought into use and is to be used for both production and processing.

In summary: An Agri-Park is an advanced system of agro-production, processing, logistics, marketing and training, and extension services located within a specified District Municipality. As a network, it enables a market-driven combination and incorporation of various agricultural activities and rural conversion services. The following three basic units are contained within an Agri-Parks:

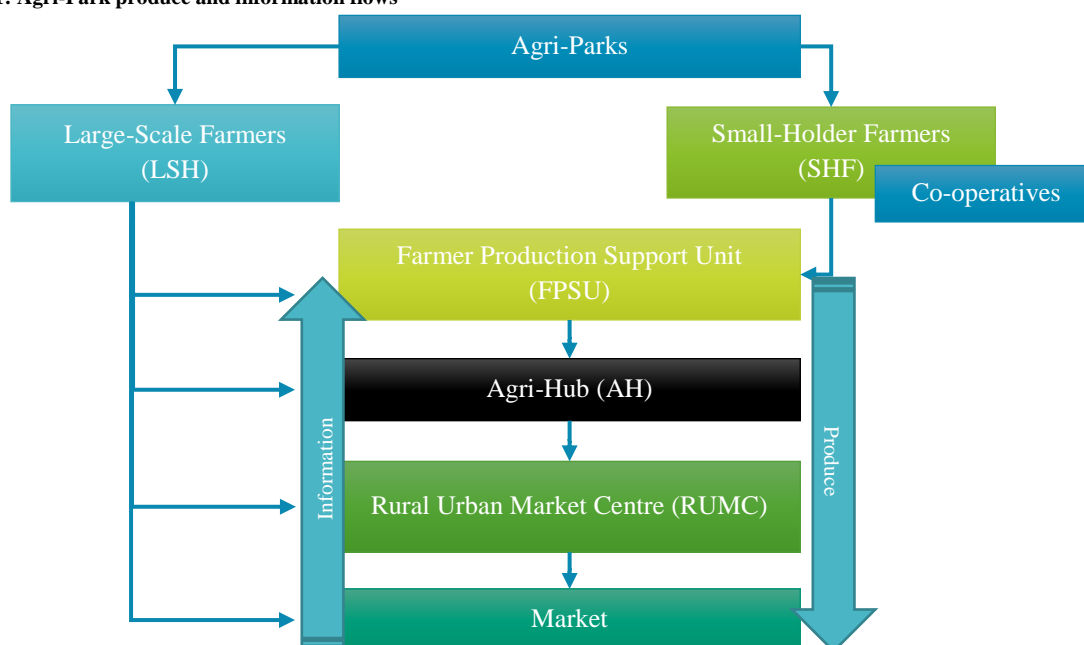
- **The Farmer Production Support Unit (FPSU).** The FPSU is a rural outreach unit connected with the Agri-Hub. Primary collection, some storage, some processing for the local market, and extension services including mechanisation are conducted by the FPSU.
- **Agri-Hub Unit (AH).** The AH is a production, equipment hire, processing, packaging, logistics and training (demonstration) unit.
- **The Rural Urban Market Centre Unit (RUMC).** The RUMC has three main purposes;
 - ❖ Acts as a holding-facility, supplying produce to urban markets based on seasonal trends.

- ❖ Connecting and contracting rural, urban, and international markets through contracts.
- ❖ Provides market intelligence and information feedback, to the AH and FPSU, using latest Information and communication technologies.



Figure 2-1 below, provides a visual representation of the information and produce flows within the Agri-Hub system.

Figure 2-1: Agri-Park produce and information flows



Small-Holder Farmers (SHF) will be encouraged to use the Agri-Park process depicted in Figure 2-1 above. It is within this process that SHF will be supported over the next ten years. If no further value-adding or packaging is required, the SHF will be able to move produce from the Farmer Production Support Units (FPSU) to the Rural Urban Market Centre (RUMC) without going through the Agri-Hub (AH). The Large-Scale Farmers (LSF) will also be encouraged to use the Agri-Parks process. However, due to the existing experience and product volumes of the LSF, they may choose to either enter the Agri-Parks process at the AH, RUMC, or even go directly to the Market.

The agri-parks placement should look at the sphere of influence (depicted in Figure 2-2 below) in order to support the largest amount of space and people. Furthermore, the placement of the Agri-Parks will be based on the central place theory, which is comprised of two concepts, namely:

- **Range** - The maximum distance people will travel to purchase goods and services on average.

- **Threshold** - The minimum required population necessary to bring about the delivery of certain goods or services.

The upper and lower limits for the Agri-park are determined by the aforementioned concepts (range and threshold). The Agri-Park will mainly provide perishable goods, thus, the range will determine the lower limit of the Agri-Park, while the threshold will determine the upper limit of the influence sphere.

Figure 2-2: The Sphere of Influence

One important assumption that accompanies the sphere of influence is that access to markets is equal throughout. The yellow circle in Figure 2-2, represents the Agri-hub. The blue circle represents the lower limit (range), while the red outer circle represents the upper limit (threshold). Figure 2-3 below, illustrates the Agri-Park model. This strategic model is to be duplicated in each District across the country, which will essentially help in creating a Mega Agri-Park. Each Agri-Park will however, be developed based on the Districts comparative advantages and its strength in order to develop each District-level economy.

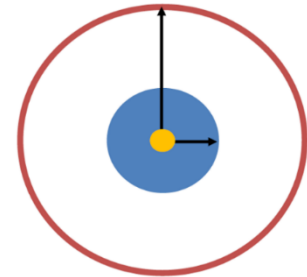
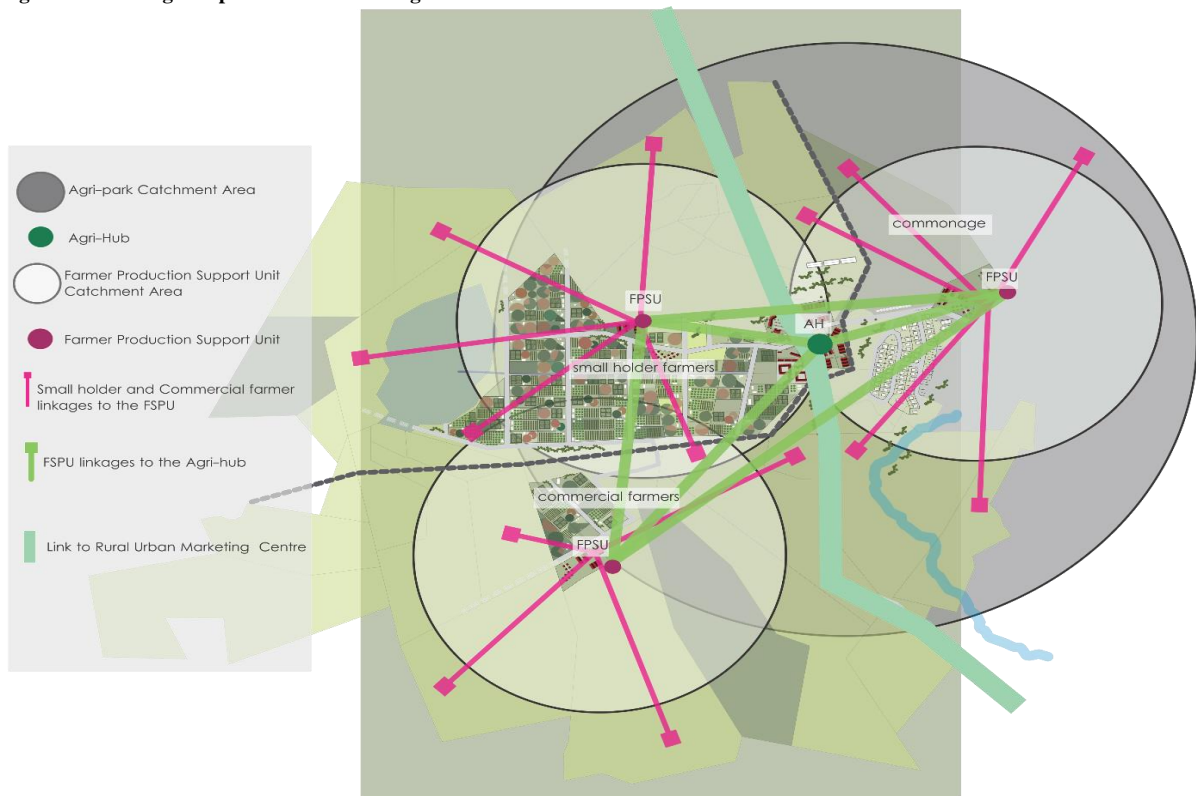


Figure 2-3: Strategic Representation of the Agri-Park model



In Figure 2-3 above, the grey circle portrays the catchment area of the Agri-Park, essentially illustrating the size and contents of the Park that includes farmers, FPSUs, AHs, and RUMCs. The AH, forms the central point of the Agri-Park that is linked to the FPSUs. There will be more than one FPSU per District, which is intended to provide a supporting role between the AH and the farmers. All these components of the Agri-Hub are interlinked, providing a streamlined and integrated approach to agricultural and rural development. Table 2-1 below provides the relevant details of the catchment of each component.

Table 2-1: Norms and Standards for Agri-Parks

Component	Proposed catchment area in areas of low density population	Proposed catchment area in areas of high density population
FPSU	30km	10km
Agri-Hub	120km	60km
RUMC	250km	150km

Adapted from the Department of Rural Development, 2015

The FPSU, mentioned in Table 2-1, is designed to have catchment areas of 30km in low density areas and 10km in high density areas thus, indicating that there will be several per District. The AH is designed to have catchment areas of 120km in low density areas and 60km in high density areas, indicating fewer AHs than FPSUs. The RUMC is designed to have the largest catchment areas of 250km in low density areas and 150km in high density areas.

2.1.2 Strategic objectives of the Agri-Parks Programme

The strategic objectives of the Agri-Parks Programme are as follows:

- Establish Agri-Parks in all of South Africa's District Municipalities that will kick start the Rural Economic Transformation for these rural regions.
- Promote the skills of, and support to, SHF through the provision of capacity building, mentorship, farm infrastructure, extension services, production inputs, and mechanisation inputs.
- Promote the growth of the smallholder sector by creating 300 000 new small-scale producers, as well as 145 000 new jobs in the agro-processing industry by the year 2020, which has been set out in the National Growth Path.
- Create new and strengthen existing partnerships within all three spheres of government, the private sector and civil society to develop critical economic infrastructure such as roads, energy, water, ICT, and transportation/logistics corridors that support the agri-park value-chain.
- Allow smallholder producers to take full control of Agri-Parks by steadily decreasing state support over a period of ten years.
- Enable producer ownership of the majority of Agri-Parks equity (70%), with the state and commercial interests holding minority shares (30%).
- Bring under-utilised land (especially in communal areas and land reform farms) into full production over the next few years, and expand irrigated agriculture.
- Contribute to the achievement of the National Development Plan's "inclusive rural economy" and target of 1 million jobs created in the agriculture sector by creating a higher demand for raw agricultural produce, primary and ancillary inputs, as well as generating increased downstream economic activities in the sector.



The Agri-Parks Programme seeks to achieve rural economic development through a comprehensive approach to development by developing agricultural value-chains that are linked nationally. The programme will also be able to address issues of employment, skills development, and productivity of land.

The Agri-Parks programme is viewed as a programme that will address issues of rural economic development one of government's key areas to address. Government has previously intervened with various anti-poverty programmes, but with a lower impact than what was expected.

The Agri-Parks model, however, is expected to co-ordinate anti-poverty activities, providing an integrated package service that will match the local priorities.



3 POLICY REVIEW

This section of the Master Business Plan provides an overview of the national, provincial, and local policies that will have a direct influence on the development of the Agri-Parks concept in the Thabo Mofutsanyana District Municipality. The first sphere of government considered that was national policy framework.

3.1 National Policies

3.1.1 National Growth Path

Government adopted the New Growth Path (NGP) in 2010 as the driver of the country's job creation strategy. The NGP suggests that in order to achieve growth and transformation of economic imbalances, firm choices and shared determination are required from every structure within the South African society. The goal is to grow employment with five million jobs by 2020; in order to ensure that half of the working-age population in South Africa will be employed and that unemployment would be reduced from 25% to 15%. The NGP is also formulated to reduce inequality and eliminate rural poverty by identifying areas where long term structural and feasible changes can be made.

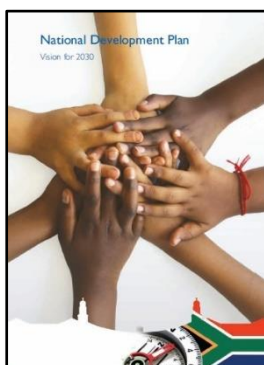
STRATEGIC PRIORITIES / FOCUS AREAS

The strategic focus of the NGP is to support employment creation. Efforts will be prioritised in key sectors such as infrastructure, the agricultural value chain, the mining value chain, green economy manufacturing, tourism, and certain high-level services. To achieve these objectives, the framework seeks to:

- Identify areas that have potential for large scale employment creation.
- Develop a policy package to facilitate employment creation in the areas identified.
- Create a consensus on the new local and global opportunities, and see how these opportunities can be seized in order to achieve socially desirable and sustainable outcomes.
- Strengthen the domestic and regional agricultural markets by supporting smallholder farmers.
- Broaden the markets for South African goods and services through a stronger focus on exports.
- Provide quality basic and secondary education.
- Invest in health including effective measures to address HIV/AIDS.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The agricultural value chain has been prioritised to play an important role in the provision of job opportunities and improve the standard of living of farm workers. The NGP targets opportunities for 300,000 households in agricultural smallholder schemes, plus 145,000 jobs in agro-processing by 2020, while there is potential to upgrade conditions for 660,000 farm-workers. It can be concluded that the NGP supports the development of the Agri-Parks.



3.1.2 National Development Plan – 2030 (2010)

South Africa's first National Planning Commission was set by President Jacob Zuma and inaugurated in May 2010. The objective posed to the National Planning Commission was to take an independent view of South Africa, and from that, derive a Vision and a Plan that is focused on enabling a much better quality of life for all South Africans by 2030. The primary channels through which improvement in quality of life are likely to come about, are through eliminating poverty and reducing inequality - the two single biggest problems in South Africa. These aspects affect every other facet of development and every aspect of life for the citizens of this country. As both a cause and result of these primary problems, the NDP has identified nine specific and predominant challenges:

1. Too few people work.
2. The quality of school education for black people is poor.
3. Infrastructure is poorly located, inadequate, and under-maintained.
4. Spatial divides hobble inclusive development.

5. The economy is unsustainably resource-intensive.
6. The public health system cannot meet demand or sustain quality.
7. Public services are uneven and often of poor quality.
8. Corruption levels are high.
9. South Africa remains a divided society.

STRATEGIC PRIORITIES / FOCUS AREAS

The three broad frameworks identified to ensure the proposed vision set out by the NDP is achieved, are the following:

1. Raising employment through faster economic growth.
2. Improving the quality of education, skills development, and innovation.
3. Building the capability of the state to play a developmental, transformative role.

Given the complexity of national development, the plan sets out six interlinked priorities by which the main challenges will be addressed:

- Uniting all South Africans around a common programme to achieve prosperity and equity.
- Promoting active citizenry to strengthen development, democracy, and accountability.
- Bringing about faster economic growth.
- Higher investment and greater labour absorption, focusing on key capabilities of people and the state.
- Building a capable and development state.
- Encouraging strong leadership throughout society to work together to solve problems.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The National Development Plan views agriculture as critical to employment and food security. It is estimated that Agriculture would potentially create a million jobs by 2030. Agri-Parks will serve as important mechanisms to execute the NDP's proposed rural development strategy due to their potential for supporting small-scale agricultural production and stimulating agro-processing in rural areas.

One core element of this approach is conducting commodity and value-chain analyses and mapping exercises to determine the best areas to establish Agri-Parks based on the growth potential of value-adding commodities. As such, each Agri-Park will focus on specific prioritised commodities that have the highest prospect of succeeding in their region. This is directly in line with the NDP's approach of targeting high value commodities (most of which are labour intensive) to stimulate industrial growth, accompanied by measures that ensure sustainable production on redistributed land and an improved institutional support system.

In this regard, the NDP identifies certain agricultural sub-sectors that have the most potential for development, which are categorised into large labour-intensive industries, smaller labour-intensive industries, and large existing industries with significant value-chain linkages. For instance, small-scale labour intensive agriculture, including macadamia, pecan nut, rooibos tea, olive, fig, cherry, and berry industries, are found to have the greatest expansion potential due to the significant market demand for these products. The NDP projects that approximately 80 000 jobs can be created by further developing these particular areas of small-scale agriculture. By providing the necessary inputs, facilities, institutions, market-linkages, and partnerships, Agri-Parks can enable small-scale producers and rural residents to create new, and expand existing enterprises in these industries, which will have positive growth impacts on the rural economy.

The NDP states that in South Africa a highly centralised, vertically integrated agro-processing sector already exists for staple foods such as maize, wheat, sugar, sunflower oil, tea, flour, peanut butter, cigarettes, beer, fruit juices, and canned goods. Key proposals identified for the agriculture and agro-processing sectors include the following:

- Greater investment in providing innovative market linkages for small-scale farmers in communal and land-reform areas.
- As part of a comprehensive support package for farmers, preferential procurement mechanisms should be put in place to ensure that new agricultural entrants can also access these markets.
- Growth in agricultural production has always been fuelled by technology, and the returns to investment in agricultural research and development are high. Technology development should therefore, be prioritised.
- Policy measures to increase intake of fruits and vegetables, and reduce intake of saturated fats, sugar and salt, as recommended in the South African food dietary guidelines, to accompany strategies to increase vegetable and fruit production.



3.1.3 Industrial Policy Action Plan (IPAP)-2013/14 – 2015/16

The *Industrial Policy Action Plan (IPAP) 2013/14-2015/16* is in the fifth iteration of IPAP and the apex policy document of the Department of Trade and Industry (DTI). It is drawn from a range of visions set out by successive industrial policies such as the NDP, NGP, and National Industrial Policy Framework (NIPF). The IPAP sets out an industrial policy framework with overriding interventions that will prevent industrial decline and support growth, as well as diversifications of South Africa's manufacturing sectors. IPAP will ultimately lead to a restructured economy with more value-adding, labour intensive, and environmentally sustainable industrial activities.

STRATEGIC PRIORITIES / FOCUS AREAS

IPAP focuses on building on, and fulfilling, the plans set out in IPAP 2012/2013 in its transversal and sector-specific interventions. These transversal interventions are in the areas of:

- ◊ Public procurement
- ◊ Competition policy
- ◊ Innovation and technology
- ◊ Skills for the economy
- ◊ Industrial financing
- ◊ Developmental trade policy
- ◊ Regional integration
- ◊ Special economic zones

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

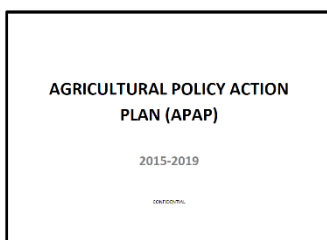
IPAP identifies the agro-processing industry as a sector with potential to spur growth and create jobs, because of its strong backward linkage with the primary agricultural sector. The agriculture and agro-processing value chain represents an important source of labour intensive growth. In addition, this value chain is central to the rural development and smallholder farmer development objectives of the government.

The key-programmes identified for agro-processing within the IPAP are the following:

1. Development of a Food-Processing Strategy and Action Plan with the objective of accelerated growth in the food-processing sector.
2. Development of a small-scale milling industry to enable small-scale maize milling enterprises to produce for local markets at competitive prices.
3. Enhancement of competition in the fruit and vegetable canning industry - The creation of a sustainable platform for the long-term growth and competitiveness of the industry.
4. Development of a Soybean Action Plan promoting market linkages between primary agricultural producers and processors.
5. Development of the organic food sector – The development of a competitive organic sub-sector producing high-quality food products for both local and export markets.
6. Supporting the Public-Private Partnership (PPP) for Food Security – Entails smallholder farmer access to formal retail chains, Government procurement, and small scale processing opportunities.

With infrastructure investment as one of its main components upon which all other proposed actions rest, the Agri-Park Programme is key in advancing the objectives of IPAP. The Agri-Parks Programme will further promote an approach to land reform and rural development consisting of comprehensive spatial planning, appropriate categorisation of land and beneficiaries to ensure sustained agricultural development, associated/targeted skills development, employment creation, significant infrastructural expansion, improved public service delivery, more dedicated investment in agriculture through a targeted approach, and the increased involvement of the private sector in land reform and rural development initiatives.

3.1.4 Agricultural Policy Action Plan (APAP) (2015-2019)



The Agricultural Policy Action Plan (APAP) (2015-2019) aligns itself to other existing national plans such as the NGP, NDP, and the IPAP. These plans were geared towards providing decent employment through inclusive growth, rural development, food security/ protection, as well as enhancement of environmental assets and rural resources; with key job drivers identified as agriculture, infrastructure, mining, manufacturing, tourism, and the green economy. The APAP sets an action plan for a five-year period (2015-2019), and seeks to translate the high-level responses offered in the Integrated

Growth and Development Plan (IGDP) into tangible, concrete steps

STRATEGIC PRIORITIES / FOCUS AREAS

The APAP seeks to provide both a long-term vision, and focused interventions in a 5-year rolling schedule, to be updated annually. APAP is based on Sectoral Key Action Programmes (commodities) and Transversal Key Action Programmes (e.g. research and innovation). It furthermore, presents institutional arrangements and processes for achieving this objective –specially to integrate planning, M&E between DRDLR and DAFF across 3 spheres of government. The APAP has 4 policy levers which are:

1. **Equity and Transformation:**
 - ♦ Ensuring a more producer-friendly (and consumer-friendly) market structure
 - ♦ Accelerating implementation of the Charters and the Small-scale fisheries policy;
 - ♦ Promoting local food economies; and
 - ♦ Investment in agro-logistics
2. **Equitable Growth and Competitiveness:**
 - ♦ Promoting import substitution and export expansion through concerted value chain/commodity strategies;
 - ♦ Reducing dependence on industrial and imported inputs;
 - ♦ Increasing productive use of fallow land; and
 - ♦ Strengthening R&D outcomes.
3. **Ecological Sustainability:**
 - ♦ Climate Smart Agriculture
4. **Governance:**
 - ♦ Support services;
 - ♦ Skills development;
 - ♦ Research and development;
 - ♦ Knowledge and information management (integrated spatial economic planning);
 - ♦ Market access, information and regulation; and
 - ♦ Institutional arrangements

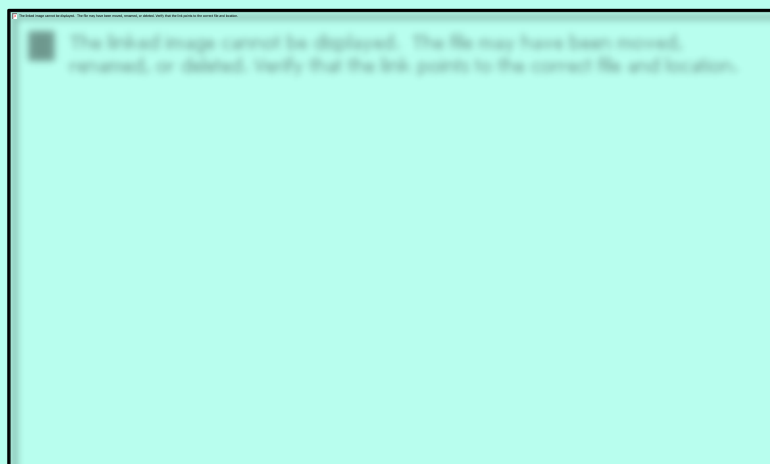
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The evaluating measurements used within the APAP to meet its short- and medium-term in objectives are the following:

1. Contribution to food and security
2. Job creation
3. Value of production
4. Potential contribution to trade balance

The APAP informs the Agri-Parks Master Business Plan through the identification of the following specific sub-sectors for key action programmes:

1. Poultry/Soybeans/Maize Integrated Value Chain
2. Red meat value chain



3. Wheat value chain
4. Fruits and vegetables
5. Wine industry
6. Forestry
7. Small scale fisheries

The developments of Agri-parks are in line with the APAP policy levers and would help in achieving its set out goals.

3.1.5 Department of Agriculture, Forestry and Fisheries Agro-processing Strategy (2012)

The Department of Agriculture, Forestry and Fisheries' (DAFF) Agro-Processing Strategy was developed to create a strategic direction on agro-processing for both national and provincial government. The strategy seeks to provide a response on the agro-processing job creation and related government priority targets set out in existing policy frameworks such as the NGP and IPAP.

STRATEGIC PRIORITIES / FOCUS AREAS

The strategic objective is to articulate how government should intervene to support and develop Small and Medium Enterprises (SMEs), agro-processing in the local and global agricultural sector, as well as forestry and fisheries value chains. The following strategic interventions are set out by this strategy:

1. Facilitate access to incentives and support packages
2. Facilitate access to infrastructure
3. Promote value chain linkages
4. Support technical and managerial training
5. Facilitate access to appropriate technology
6. Facilitate access to business development services

The implementation of this strategy is to be aligned with the implementation of the Smallholder Development Programme, the Zero Hunger Plan, and the Marketing Strategy of the DAFF to realise its intended objectives.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

Developing and supporting the currently underserved agro-processing SME has been identified as key to achieving government's priority targets of promoting job creation, economic growth, and equity.

The findings of the Department of Agriculture, Forestry and Fisheries Agro-processing Strategy forms a vital input in formulating the Agri-parks Master Business Plans due to the scope of agro-processing in the national economy.

3.1.6 Strategic Plan for the Department of Agriculture, Forestry and Fisheries (2013/14 – 2017/18)

The Strategic Plan for the DAFF was guided by other key policies such as NGP, NDP, IPAP and the work of the Presidential Infrastructure Coordinating Commission (PICC); aimed at tackling the challenges of poverty, inequality, and unemployment. The Strategic Plan for the DAFF sets out programmes of action and projects for a period of five years (2013/14 – 2017/18), and is formulated to improve and develop production by means of entrepreneurship promotion in the AFF sectors.

STRATEGIC PRIORITIES / FOCUS AREAS

The Strategic Plan of the DAFF aims to address the social and economic challenges that the AFF sectors are faced with. It further sets new opportunities for service delivery with relation to job creation, food security, rural development, and skills development.

The opportunities or action areas highlighted for key policy development include the following:

- Food security production programmes
- Strategic plans for supporting small producers
- Aquaculture programmes
- Agro-processing strategic frameworks

The strategic goals set out in the document are the following:



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- Increased profitable production of food, fibre, and timber products by all categories of producers.
- Sustained management of natural resources.
- Effective national regulatory services and risk management systems.
- A transformed and united sector.
- Increased contribution of the sector to economic growth and development.
- Effective and efficient governance.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The Strategic Plan of the DAFF supports the development of the Agri-parks development. Agro-processing is highlighted to play a key role in ensuring an equitable food-secure economy. Interventions should focus on developing processed agricultural products, while at the same time targeting increased export-trade.

Investment in agro-processing should be increased as a means of reinvigorating specific strategic value chains such as soya beans, rooibos, beverages, fruit and vegetables, as well as forestry. An equitable food-security economy will improve access to markets, especially for smallholder farmers.

3.1.7 National Policy Framework on the Development of Small and Medium Agro-Processing Enterprise in the Republic of South Africa

The National Policy Framework on the Development of Small and Medium Agro-Processing Enterprises in the Republic of South Africa was initiated by the DAFF.

STRATEGIC PRIORITIES / FOCUS AREAS

The objectives of this document are the following:

- Rural industrialisation through the establishment of agro-processing industries that are closer to production areas.
- Local economic growth through increased trade in rural areas.
- Job creation through the establishment of SME agro-processors to improve livelihoods of both smallholder agro-processors and producers.

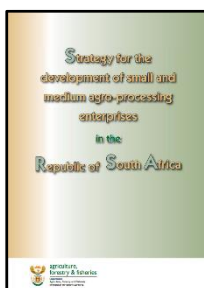
However, the specific challenge that this policy aims to address is the limited active participation of rural-based SME agro-processors in the agro-processing mainstream value chain. The strategic objective is to create a profitable, competitive and thriving small and medium agro-processing industry. To achieve this, the policy seeks to:

- Provide entrepreneurial support to small and medium agro-processors.
- Support enterprise development through facilitating access to markets, finance, incubation, and mentorship.
- Facilitate agro-processing industry research and technology transfers.
- Facilitate infrastructure investment specifically within rural areas.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The major constraints to developing the thriving agro-processing value chain identified in the framework are lack of appropriate technology, inadequate infrastructure, access to finance, and low levels of technical and entrepreneurial skills. The Agri-Parks developments will focus on providing continuous support to small and medium scale agro-processing enterprises. Continuous support will assist in increasing the number of enterprises and address the challenges they face with integrating and actively participating in the mainstream economy.

3.1.8 Strategy for the Development of Small and Medium Agro-Processing Enterprises in the Republic of South Africa (2014 – 2019)



The Strategy for the Development of Small and Medium Agro-processing Enterprises in the Republic of South Africa was developed to support increased participation of small and medium scale agro-processing enterprises in the agro-processing sector. The strategy aims to support the vision of the DAFF, which aligns with the NDP and IPAP, while linking directly to the outcomes of the Medium Term Strategic Framework (MTSF, 2009).

STRATEGIC PRIORITIES / FOCUS AREAS

The strategy seeks to articulate how the small and medium agro-processing enterprises within the agriculture, forestry and fisheries sector in South Africa can be supported and developed at all levels of government (national, provincial, and local).

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The Strategy for the Development of Small and Medium Agro-processing Enterprises in the Republic of South Africa informs the Agri-parks Master Business Plan through identifying the following four intervention pillars needed to for the development of Small and Medium Agro-processing Enterprises:

1. Entrepreneurial support
2. Enterprise development (Access to finance, market access and incubation)
3. Industry research and technology transfer
4. Infrastructure investment

1.1.2 Agriculture, Forestry and Fisheries: Integrated Growth and Development Plan 2012

The Integrated Growth and Development Plan (IGDP) was developed for the Medium Term Expenditure Framework (MTEF) (2011/12 – 2014/15) with the aim of providing a long-term strategy for the growth and development of the agricultural, forestry and fisheries sector in South Africa. The IGDP seeks to address the current realities and challenges that these sectors face, and to develop a common vision that will ensure equitability, productivity, competitiveness, and sustainability.

STRATEGIC PRIORITIES / FOCUS AREAS

The strategic priorities of the IGDP for the agricultural, forestry, and fisheries sector are the following:

- ♦ Attaining equity and transformation
- ♦ Equitable growth and competitiveness
- ♦ Environmental sustainability
- ♦ Good governance

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The IGDP identifies that in terms of agro-processing, there is a need to support South African exporters to position their products better in fast-growing, developing country destinations and Africa. This may require focused export intelligence and marketing support, as well as intergovernmental assistance to ensure that South African products are not unfairly subject to nontariff barriers.

Greater emphasis and investment is required in the understanding and managing of international trade standards and regulations, especially in the areas of food safety and sanitary and phytosanitary measures.

3.2 Linkages to National Government Programmes

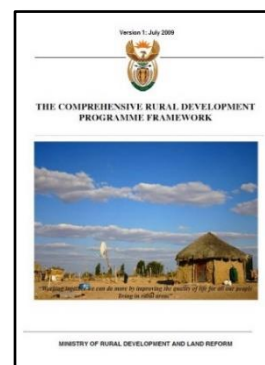
The Agri-Parks concept will be in support of existing rural development programmes implemented by government. A description of the key programmes in this regard is provided.

3.2.1 Department of Rural Development and Land Reform

3.2.1.1 Comprehensive Rural Development Programme

The Comprehensive Rural Development Programme (CRDP) is aimed at being an effective response against poverty and food insecurity through maximising the use and management of natural resources to create vibrant, equitable, and sustainable **rural communities**.

A CRDP must improve the standards of living and welfare, but also rectify past injustices through rights-based interventions and address skewed patterns of distribution and ownership of wealth and assets. The strategic objective of the CRDP is therefore, to facilitate integrated development and social cohesion through participatory approaches in partnership with all sectors of society.



This document therefore, serves as the policy framework document for the Comprehensive Rural Development Programme - or 'CRDP'. The document thus, aims to set out the programme principles.

STRATEGIC PRIORITIES / FOCUS AREAS

The vision of the CRDP is to create vibrant, equitable, and sustainable rural communities to include: contributing to the redistribution of 30% of the country's agricultural land; improving food security of the rural poor; creation of business opportunities, de-congesting and rehabilitation of over-crowded former homeland areas; and expanding opportunities for women, youth, people with disabilities, and older persons who stay in rural areas.

The ultimate vision of creating vibrant, equitable, and sustainable rural communities will be achieved through a three-pronged strategy. The components of this three-pronged strategy are also the key elements that characterise the CRDP and are as follows:

- ◊ Coordinated and integrated broad-based agrarian transformation,
- ◊ Strategically increasing rural development,
- ◊ Improved land reform.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The types of priorities that are typically catered for in the CRDP, categorised according to the three key strategies mentioned above, include – but are not limited to – the following:

A. Economic Development

Agrarian Transformation

- ◊ Livestock farming and related value chain development (exploring all possible species for food & economic activity).
- ◊ Cropping and related value chain development (exploring all possible species, especially indigenous plants for food and economic activity).

Rural Development

- ◊ The establishment of business initiatives, agro-industries, cooperatives, cultural initiatives, and vibrant local markets in rural settings.

B. Social Development

Rural Development

- ◊ The empowerment of rural communities, especially women and the youth, through facilitating and mediating strong organisational and institutional capabilities and abilities to take full charge of their collective destiny.
- ◊ Capacity building initiatives, where rural communities are trained in technical skills, combining them with indigenous knowledge in order to mitigate community vulnerability to, especially, climate change, soil erosion, adverse weather conditions and natural disasters, hunger and food insecurity.

C. Physical and Infrastructure Development

Rural Development

- ◊ Revitalisation and revamping of old, and the creation of new economic, social, and information communication infrastructure and public amenities and facilities in villages and small rural towns.

D. Institutional Development

Land Reform

- Projects will be linked to the acquisition of, and access to, land through the three land reform programmes (redistribution, tenure, and restitution). All projects implemented through the three programmes will be implemented efficiently but in a sustainable manner linked to the strategic objective of the CRDP.

3.2.1.2 Other Programmes

Other programmes implemented by the DRDLR are the following:

1. LAND REFORM PROGRAMME

The Land Reform Programme aims to initiate a sustainable land reform programme in South Africa, based on the following three strategic objectives:

1. Strategically located land acquired
2. Farm development support provided to smallholder farmers
3. Functional system and institutional arrangements



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2. RECAPITALISATION AND DEVELOPMENT PROGRAMME

The Department of Rural Development and Land Reform's Recapitalisation and Development Programme seeks to operationalise the policy on the same name, published 23 July 2014. It focuses on human (capacity development), infrastructure development and operational inputs on properties in distress or that are newly acquired through the land reform redistribution, restitution and other programmes since 1994, as well as other agricultural properties in distress acquired without grant funding. The approach is to ensure that the enterprises are profitable and sustainable across the value chain in line with the Master Business Plan, which stipulates comprehensive development requirements of targeted properties over a 5-year recapitalisation and development cycle.

3. PROVINCIAL SHARED SERVICES CENTRES

Provincial Shared Services Centres (PSSCs) are established to coordinate land reform programmes. The PSSC's focus on the following services:

1. Redistribution in terms of the Pro Active Land Acquisition Strategy (PLAS)
2. Tenure (ESTA, IPILRA)
3. Recapitalisation
4. State Land Administration

3.2.2 Department of Agriculture, Forestry and Fisheries

The following rural development programmes are driven by DAFF:

1. COMPREHENSIVE AGRICULTURE SUPPORT PROGRAMME (CASP)

To ensure the commercial viability of emerging farmers from a household food security level to a commercial level, a farmer-to-farmer mentorship policy has been developed.

The department regards skills development as one of its critical focus areas and this obviously includes providing hands-on training to emergent farmers in various fields of farm management.

2. MICRO-AGRICULTURAL FINANCIAL INSTITUTIONS OF SOUTH AFRICA (Mafisa)

The Micro-Agricultural Financial Institutions of South Africa (Mafisa) encourage partnerships between established agricultural enterprises and emerging farmers and entrepreneurs by providing access to finance for farmers, especially beneficiaries of the land restitution, redistribution, and land tenure reform programmes.

The Land Bank administers the credit scheme on behalf of the department and provincial departments provide assistance to access the scheme. Four development finance institutions are currently participating in the disbursement of Mafisa funds in the provinces.

3. ILIMA-LETSEMA

The grant provides for farmers who lack access to credit to be assisted to access agricultural production inputs. The inputs are necessary to increase agricultural production and hence, to improve household and national food security. Jobs are sustained and new ones created when farm enterprises are made operational, and this requires provision of the production inputs

4. AGRICULTURAL BROAD-BASED BLACK ECONOMIC EMPOWERMENT (AgriBEE)

The AgriBEE Charter seeks to provide direction on the integration of emerging participants into mainstream agriculture by creating linkages, partnerships, and networks for balanced, mutually benefiting results for all concerned. It specifically encourages partnerships between established agricultural enterprises and emerging farmers and entrepreneurs.

It seeks to ensure enhanced competitiveness and sustainable development with improvement/expansion of the existing businesses, rehabilitation of ailing agricultural business concerns, and expanded entry for new businesses in the sector.

3.2.3 Implications to the Agri-Park

In this section, a detailed synthesis of the outlined existing policies and strategic plans at the national level will be done. The purpose of this sub-section is to identify if the proposed Agri-Park programme will be aligned to the strategic plans that already exist in government spheres.

The policies and strategies analysed at the national level consisted of;

1. New Growth Path (NGP) -2010

2. National development Plan-2011
3. Industrial Policy Action Plan (IPAP)-2013/14 – 2015/16
4. Agricultural Policy Action Plan (APAP) (2015-2019)
5. Department of Agriculture, Forestry and Fisheries Agro-processing Strategy (2012)
6. Strategic Plan for the Department of Agriculture, Forestry and Fisheries (2013/14 – 2017/18)
7. National Policy Framework on the Development of Small and Medium Agro-Processing Enterprise in the Republic of South Africa
8. Comprehensive Rural Development Programme

Approximately 11 national policies and strategies (including programmes) were reviewed and analysed in this report. The purpose of the analysis was to identify if the proposed Agri-Parks Programme is aligned to the existing agriculture, infrastructure, and other relevant supportive development plans. The key emphasis noted in the NGP regarding the alignment to the Agri-Park programme's objectives, is the identification of the promising creation of large-scale employment commodities. In the NDP, the key highlight was the reiteration of recognising agriculture as a critical role-player to employment and food security measures. The Agri-Parks will serve as an important mechanism in executing the NDP's plan of creating a million jobs by 2030.

The IPAP's major relevant intervention is its objectives of providing sector-specific intervention, in particular, industrial financing and regional integration. This will play a key role for small-scale farmers that will have to be supported in the implementation of the Agri-Parks. One of the key policies towards implementing the Agri-Park programme is the APAP. The policy action plan emphasises the possible sectorial growth and competitiveness. Key to APAP is the development of commodities, which are labour intensive as well as export markets oriented. In order to get the necessary support from government in different areas, Agri-Parks programme implementation stakeholders will have to be aligned to the national policies.

3.3 Provincial Policies and Strategies

The purpose of this subsection is to outline the provincial legislative framework of the Free State Province. The following policies and strategies are analysed within this subsection:

- Free State Provincial Spatial Development Strategy,
- Free State Provincial Growth Development Strategy,
- Free State Export Strategy, and
- Free State Investment Strategy.

3.3.1 Free State Provincial Spatial Development Strategy

The Free State Provincial Spatial Development Strategy (FS PSDF) is a policy that is used for spatial and strategic planning within the provincial boundaries of the Free State. The policy is compiled in accordance with two national plan, not excluding several other applicable directors.

Free State Provincial Spatial Development Strategy

Vision & Mission

The National Development Plan (NDP) Vision 2030 as well as the National Spatial Development Perspective (NSDP) have the greatest influence on the Free State PSDF. In accordance with these policies, all spheres of government are encouraged to prepare spatial development plans and frameworks in order to reap greater socio-economic prominence. Plans such as the PSDF should be in line with the principles of global sustainability, thus, promoting a developmental state.

Development Objectives

The NDP, individual municipalities IDP's and the local challenges and opportunities facing the province have a large influence on the FS PSDF. These dynamics are what make the FS PSDF a very strategic document. It

assesses development scenarios from a provincial viewpoint, as a basis of integrating and aligning local and national plans, with the aim of development objectives such as the following:

- Economic Infrastructure Development
- Better roads and decent housing
- Developing of Arts, Sports and Culture facilities, especially sports

Strategic Priorities

The Key Performance Areas (KPA) of the Free State Provincial Spatial Development Strategy may be summarized as follows:

- The plan should act as a spatial and strategic supplement to the Provincial Strategic Growth and Development Pillars embodied in the Free State Growth Development Strategy.
- The PSDF should endorse environmental sustainability throughout the province, while integrating land-use activities with defined sustainability objectives.
- The FS PSDF should further be used as a tool for the improvement of the well-being of the residents of the province, as well as the environment of.

Focus Areas

- Ensuring uniformity in spatial planning and land-use management for the Free State in a way that makes the systems effective and comprehensive.
- Encouraging social and economic inclusion in the system of spatial planning and land-use management.
- Promoting development principles, norms, and standards.
- Ensuring that land and other forms of environmental capital are utilized in a sustainable and efficient manner.
- Promoting cooperative government and intergovernmental relations between the three spheres of government.
- Ensure that spatial development planning and land-use management application are carried out equitable, as a means of rectifying the imbalances of the past.

Implications for the Agri-Park Development

The **key benefits** that will be realised through the implementation of the Agri-Park system with regard to the Free State Provincial Spatial Development Strategy include:

- The Agri-Park system will promote sustainable and efficient land-use;
- Promotion and investment in the agro-processing sector of Province;
- Improvement in competitiveness of the local economy by optimally using the local resource base and locational advantages; and
- Stronger integration between the different economic sectors of the Province.

3.3.2 Free State Provincial Growth and Development Strategy

The Free State Provincial Growth and Development Strategy (FS PGDS) is a multi-stakeholder strategy that sets out to create inclusive and sustainable development, which promotes an equitable society. The FS PGDS primarily addresses the first strategic priority of the creation of decent work while also build a growing, inclusive economy.

Free State Provincial Growth and Development Strategy

Vision & Mission

The key focus areas for the Free State is the creation of sustainable jobs and increased job opportunities for all residents of the province. This, along with protection of natural resources, encouragement of foreign investment and the various noted and undiscovered local opportunities in each municipal areas, became the driving force for the FS PGDS. This strategy should form the cornerstone of all municipal IDPs, which must align with the contents and aspirations of this document. Provincial programmes and projects and the Spatial Development Framework must be aligned with the PGDS and other appropriate budgets.

The FSGDS is an important tool in guiding the implementation of plans and visions for the next decade. It is also used to promote good governance, and this is proposed through above standard service delivery and appropriate coordination between National, Provincial and Local government. Based on the cross-functional, interdepartmental approach that is proposed for development planning within the strategy, this coordination is essential.

Development Objectives

The Free State Province identified various primary development objectives that are vital for the success of the FSGDS, in accordance to the unique social and economic development challenges which face the province.

These primary development objectives include the following:

- The stimulation of economic development.
- Enhancement of infrastructure in order to attract the necessary economic growth and social development.
- Using human and social development as a tool for eradicating poverty.
- Promote an environment which is safe and secure for all the residence of the province.
- Endorse effective and efficient governance and administration.

Strategic Priorities

It is also crucial that all stakeholders are familiarised to the FSGDS in order to enable better interpretation of the specified goals, objectives and conceptual framework policies collectively. Unique actions need to be taken depending on levels of development and necessity, in order to improve the living standards of communities within the province. A pivotal aspect of the FSGDS is thus the encouragement and emphasis on the economic development of the province as a whole in order to fuel the other objectives of the strategy.

Implications for the Agri-Park Development

With cognisance of the productive potentials of township enterprises, the FSGDS specifies that the Agri-Park's Master Business Plan is crucial to support and develop agro-processors that will produce and manufacture products within and around the township space.

This will play a key role in transforming townships into sites for productive activities, contributing to improved standards of living, job creation, and social cohesion. Agro-processing and infrastructure is needed to expedite economic growth as well as attract and retain investors.

3.3.3 Free State Investment Strategy

The Free State government intends on focusing all investment in a manner that is both geographically as well as functionally strategic, and the Free State Investment Strategy (FSIS) is to be a driver of this initiative. The intentions of the strategy will facilitate in reaching a more strategic economic approach to development. It is imperative that infrastructure and investments be well aligned spatially across the province, in order to encourage the development of strategic areas which will be of economic advantage.

In order for LED strategies to be successful, it is crucial that they remain aligned with this investment framework. The FSIS will further be of assistance in identifying the type and focus of investment, which must be ventured into, that will have the highest likelihood of generating capital and creating sustainable jobs. The FSIS highlights the need for investments, which will have a beneficial impact on the province at large.

Implications for the Agri-Park Development

The Agri-Park system supports the FSIS, as the Agri-Park system serves as an investment, which will promote sustainable development. The Agri-Park will also play a key role in ensuring an equitable food-secure economy as well as reducing unemployment within the province, thus, allowing for more investments and further growth.

3.3.4 Free State Export Strategy

The Free State Export Strategy is a tool for efficiently directing public investment to areas that have greater export volumes. Areas that are identified as containing the potential to significantly increase export production are also prioritised by the FSES. The Free State export strategy will thus work as a vehicle for sustainable development within the Free State Province.

Implications for the Agri-Park Development

The Agri-Park's FPSUs will produce goods such as apples and dairy which will be utilised by the Agri-Park's Hub. The Agri-Hub will process the goods into products such as cheese and beverages, which will then be sold locally and abroad.

Thus, the Agri-Park system will promote in the growth of the provincial economy by providing a larger amount of agro-processed goods that may be exported to foreign countries.

3.3.5 Free State Agricultural Master Plan

The Agricultural Master Plan of the Free State Province is divided into two phases each with their own specific focus. The first phase gives sound environmental foundation for the socio-economic analyses which is scientifically backed. The second phase of the Agricultural Master Plan of the Free State explores the individual context of the 4 districts and the Mangaung Metro.

Phase 1

The key purpose is thus to describe the natural resource base and the opportunities offered by it for sustainable and profitable use. In order to ensure the scientifically backing, the first phase of the Agricultural Master Plan of the Free State Province contains a wide array of numeric data and data analysis. Furthermore, numerous maps are examined within the document and an analysis is carried out to extract the key information presented on the maps. This phase explores the three main soil zones which may be recognised from a provincial perspective and then goes on to explore the availability and quality of water for agriculture in depth.

Phase 2

The individual analysis of the 5 regions within the free state specifically explores the physical, social, demographic and environmental aspects of each region. In line with the first phase, specific attention is granted to the availability and distribution of water in each district. An overview of the districts agricultural standing and land capital advantage is also provided through this section. The last section explores four Water Management Area which will influence the free state Agri-Parks in detail, this includes the Upper Vaal, Middle Vaal, Lower Vaal and Upper Orange water management areas.

Implications for the Agri-Park Development

Agricultural Master Plan of the Free State Province is the guiding document for the Agri-Park Development in the province. The document grants a scientific standard from which implementation can be carried out. Furthermore, a vast background is obtained from the Agricultural Master Plan as it is researched specifically for the province.

3.3.6 Free State Commodity Business Plans, May 2015

Serval commodity business plans were reviewed as part of this study in order to establish comprehensive background. The Free State commodity business plans which were analysed were all developed by the Agricultural Research Council in collaboration with AMT. Each of documents where reviewed and information was included in commodity specific areas. The information obtained from all the business plans included an

industry overview and current trends. A farmer production plan is also established within the documents to support the implementation plan. The Free State commodity business plans also provides an estimated capital outlay for farmers to utilise when establishing farming activities for each of these commodities. These commodities for the Free State include the following and those applicable were used to inform this Master Business Plan:

- Beef Production;
- Broiler Plan;
- Grain Crops;
- Milk Production Plan;
- Sheep and Goat Production Plan;
- Vegetable Production Plan;
- Wildlife Production Plan
- Business Plan for Veldt Management; and
- Business Plan for Water Management.

Implications for the Agri-Park Development

The Commodity Business Plans are used as a yardstick in the analysis of each of the commodities in order to ensure that a clear understanding is obtained of the potential for each commodity.

3.4 District Policies and Strategies

Some of the many roles of the municipalities is to provide basic services, contribute to community development, as well as promote a safe and healthy living environment. It is also mandatory that District and local government decide on development plans and service delivery within their various jurisdictions. Various pieces of national legislation, such as the Constitution, the Municipal Structure Act and the Municipal Systems Act outline the functions and mandate of local government. To give motivation to these functions and mandates, local government is responsible for the development of various planning and development policies and strategies.

The purpose of this subsection is to outline the local legislative framework for the development of the Economic Development Plan for the Thabo Mofutsanyana District Municipality. The following policies and strategies are analysed within this subsection:

- The Thabo Mofutsanyana District Municipality Integrated Development Plan,
- The Thabo Mofutsanyana District Municipality Spatial Development Framework,
- The Maluti-A-Phofung Local Economic Development, and
- The Thabo Mofutsanyana District Municipality Agricultural Development Strategy.

3.4.1 Thabo Mofutsanyana District Municipality Integrated Development Plan (2010-2011)

The Thabo Mofutsanyana District Municipality Integrated Development Plan (IDP) is a guideline to plan future development in a particular area or District. Furthermore, the IDP is reviewed yearly and generally each IDP has a lifespan of five years.

Integrated Development Plan (IDP)

Vision & Mission

The vision of the District is to create integrated, self-reliant, and sustainable communities throughout the District, while also providing integrating District governance in order to achieve a better life for all the municipality's citizens.

The mission of the IDP aims to provide an integrated and excellent developmental system in the District. Furthermore, the mission is to improve and develop the living conditions of the District's communities by providing efficient and effective bulk services and create a conducive environment for business opportunities and job creation.

Strategic Priorities and Focus Areas

The Key Performance Areas (KPAs) of the Thabo Mofutsanyana IDP may be summarised as follows:

- **Local Economic Development, Job creation and Tourism**
- **Agriculture and Rural Development**
- **Sustainable infrastructures**
- **Good Governance and Community Participation**
- **Financial viability**
- **Social Development, Sports, Arts and Culture**

Agriculture Specific Findings

- **The District has a comparative advantage in agriculture and therefore should be developed**
- **Agro-processing opportunities given agriculture development in the area**

Implications for the Agri-Park Development

The Agri-Park will have an Agri-Hub which will provide processing services and facilities for small-scale and emerging farmers. The Agri-Hub is one of the main three components of the Agri-Park model. The small-scale and emerging farmers, along with agri-clusters, agri-villages, eco-villages and so on will form the FPSU component of the Agri-Park. The Agri-Park will thus, connect the farmers to the Agri-Hub and provides support facilities and inputs to allow for production. Furthermore, the Agri-Park provides a distribution network for the FPSUs, encourages partnerships and collaboration, and promotes rural communities to participate in agricultural activities.

The Agri-Park's third main component is the RUMC, which will serve as a link between the FPSUs and the market. Thus, the Agri-Park will provide a distribution network as well as further support services such as access to export markets and assistance in order to abide to regulations and standards.

3.4.2 Thabo Mofutsanyana District Municipality Spatial Development Framework

The Thabo Mofutsanyana Spatial Development Framework (SDF) addresses integration and alignment between spatial, engineering, environmental, and socio-economic issues confronting the various local municipalities within the District. It will also serve to facilitate the implementation of the IDP and all related government intentions to reduce poverty while also promoting urban and rural development in the District, as contemplated in various policy documents such as the National and Provincial Development Plans and various Master Plans.

Spatial Development Framework (SDF)

Strategic goals

Objectives:

- To provide a set of policies, principles, and directives for spatial development;
- To facilitate the development of an aesthetical urban and rural landscape;
- To provide strategic, indicative, and flexible forward planning instruments to guide decisions on land development;
- To promote sustainable development in terms of natural and built environment conservation;
- To provide a clear and logical framework for private and public sector investment;
- To facilitate the social, economic, and environmental sustainability of the District;
- To provide a framework for dealing with key issues such as natural resource management, land reform, and land use management;

- Development of an SDF to comply with legal requirements and also be aware with the developments within region;
- Alignment of the SDF with the recommendations of the NDP, PGDS and District IDP;
- Ensuring consistency in the level of detail, general contents, development philosophy, as well as horizontal and vertical integration between the local SDF's, and the District SDF.

Focus areas

In line with the Development Principles for spatial planning as contained in the Spatial Planning and Land Use Management Act, the SDF seeks to achieve the following:

Spatial Efficiency:

Ensure the channelling of resources to areas in the District that display both economic potential and development need.

Spatial Justice:

Mitigate existing and future conflicts between urban development, mining, industry, agriculture, and tourism, which are the main economic sectors in the District; achieve spatial justice by way of inclusion of communities that were previously excluded from services and facilities through processes of urban restructuring and consolidation; and provide all communities access to resources to improve their living conditions.

Spatial Sustainability:

Create a more consolidated settlement structure in the District, which will allow for the cost-effective and sustainable provision of engineering and community services and infrastructure while also ensuring the sustainable use of land and other resources in the District.

Functionally linking the main growth centres / areas of greatest economic activity in the District to one another and to the regional economy of the GCR:

Enhance the development potential of existing towns and smaller settlements in rural areas of the District. Good administration which ensures alignment between different sectoral plans and initiatives from various spheres of government, surrounding Districts, metropolitan municipalities, and the local municipalities within the District.

Agricultural specific findings

The Thabo Mofutsanyana District is associated with high commercial agricultural production. The agricultural sector of the District has been prioritised for four main reasons:

- **The sectors labour absorption rate,**
- **Food security,**
- **Foundational role in respect of rural development, and**
- **Links with local economies.**

The following agriculture specific spatial development framework and development guidelines were identified within the SDF:

Consolidate and protect environmentally sensitive areas to ensure long term environmental sustainability: The District should promote the agricultural industry within the municipal area, by encouraging the use of different crops and new techniques. The District should also promote agricultural practices on all land with high agricultural potential to optimise food production.

Optimise agricultural production and processing in and around the two agricultural hubs in the District:

The District should use areas of high agricultural potential to promote the agricultural industry within the municipal area. Increasing land availability for agricultural purposes through partnerships with the current mining houses and through mining rehabilitation and land reform (where relevant).

The aforementioned purpose can be achieved by means of a number of projects in the area, refer to Appendix A for more information.

Implications for the Agri-Park Development

The Agri-Park programme will contribute significantly towards the facilitation and support of sustainable agricultural advancement within the District, as the park will form an agriculture centre which will provide support to farmers (especially small-scale farmers), eco-villages, agri-village, agri-clusters, etc.

Furthermore, the agri-park programme expands the opportunities of production for the District's primary agricultural products and, through the development of the FPSUs and the Agri-Hub, centres of concentration for farming services.

3.4.3 Local Economic Development Strategy

The Agri-Park for Thabo Mofutsanyana will be located within the Maluti-A-Phofung local municipality. The local municipality has developed a Local Economic Development (LED) strategy that focuses on the development of sectoral clusters and resulted in the establishment of the Local Economic Development Agency. The LED strategy's purpose is to identify procedures which aid in economic development and economic growth in the District. Thus, the LED strategy intends on deal with the creation of employment opportunities, mitigating poverty, and income redistribution.

Local Economic Development Strategy

Vision and Mission

The vision of the Maluti-A-Phofung LED Strategy is to promote long-term sustainable growth within the municipality, through job creation, the eradication of poverty, and unemployment; while also meeting the socio-economic needs of the community and diversification of the economic base.

The objectives of the LED Strategy include the following:

- Beneficiation of primary products,
- Improved living standards,
- Higher regional growth,
- Increased labour absorption capacity of the economy,
- Aid the improvement of annual household income,
- Build upon the comparative advantage of the areas,
- Increase municipal capacity building,
- Building partnerships for economic growth and development,
- Promote Broad Based Black Economic Empowerment (BBBEE),
- Increase sustainable employment opportunities,
- Creation of competitive skills base,
- Implementing support services,
- Increase SMME opportunities, and
- Increase economic linkages in the region.

Strategic Focus Areas

The LED identified the following strategic thrusts:

- Tourism Development
- Industrial and Beneficiation Development
- Expansion of the Agricultural Sector
- Waste Recycling/Processing
- Human Resource Development

- SMME Development and Support Centre

Agriculture specific findings

Preliminary programmes within the local municipality have been identified to assist LED-related initiatives in three industry sectors, namely, agriculture, manufacturing, and tourism. One of the potential manufacturing focus areas is Agri-Processing, particularly with regard to the Agri-Food complex (which include inputs, primary production, and processing).

In the Thabo Mofutsanyana District Municipality agriculture and local government is a lot more important than at provincial level; at the Maluti-a-Phofung local municipality level the trend is present to an even greater extent.

In the agriculture and manufacturing sectors, the share of wages is relatively low compared to other sectors. Small communal farming units generally produce specific crops individually and then market the unit's members' produce collectively through one unique brand. Nevertheless, these farmers have to compete with commercial farmers in the region which the produce is being marketed.

Implications for the Agri-Park Development

The Agri-Park model supports the LED's agriculture and agri-processing strategy by:

- Providing FPSUs with the necessary facilities for primary processing.
- The Agri-Hub, as well as the RUMC, will serve to provide further support to FPSUs through the availability of processing opportunities and links to the market.
- Furthermore, the RUMC extends an opportunity for the FPSUs to participate in exports.

3.4.4 Agricultural Development Strategy 2008

The Thabo Mofutsanyane District Municipality developed a comprehensive document that assists in guiding agricultural development across the District while it also presents opportunities to assist in achieving the objectives of various national, provincial, and local growth and development strategy.

Agricultural Development Strategy

Vision and Mission

The Agricultural Development Strategy aligns the various agricultural policies and legislation that exist in the province and in South Africa.

The objectives of the Agricultural Development Strategy include the following:

- Empowering the emerging and small-scale farmers within the District.
- Promoting a move towards a market economy as opposed to agricultural substance economy.
- Ensuring food security.
- Poverty alleviation strategy.
- Progressive modernisation and intensification of the agricultural sector in the District.

Strategic focus areas for development

The Agricultural Development Strategy seeks to achieve the following:

- Align municipal IDP and the Free State Provincial Growth and Development Strategy with the agricultural sector of the District.
- Enable various role-players in the District to share in responsibilities and take part in planning processes at various levels of agriculture.
- Agriculture is one of the sectors identified as a potential driver for future international development.

Agriculture Specific Findings

The major economic foundation of the Thabo Mofutsanyane District Municipality is agriculture. Commercial farming in the District is well-structured and has thriving co-ordinated support service. Professional managers that have high levels of skills and experience facilitate the majority of the Districts commercial farming.

The emerging farming sector, however, has a minimal support services and networks. Emerging and small-scale farmers depend largely on funding and grants for survival. Furthermore, production from the small-scale and emerging farmers, is mainly for local market.

The District has a thriving agricultural sector, which contributes significantly to animal production in the country. The main activity in the north eastern part of the region being cattle farming.

Implications for the Agri-Park Development

The Agri-Park model supports the Agricultural Development Strategy by:

- Providing FPSUs with the necessary support needed to promote growth and development.
- The RUMC will serve as a market for the FPSUs, and will thus, allow the FPSUs to participate in the market.

3.1. Summary

In this section, a detailed synthesis of the outlined existing policies and strategic plans at the national, provincial and local level will be presented. The purpose of this sub-section is to identify whether the proposed Agri-park programme will be aligned to the strategic plans that already exist in government spheres.

The policies and strategies analysed at the national level consisted of;

- ✓ New Growth Path (NGP) -2010
- ✓ National development Plan-2011
- ✓ Industrial Policy Action Plan (IPAP)-2013/14 – 2015/16
- ✓ Agricultural Policy Action Plan (APAP) (2015-2019)
- ✓ Department of Agriculture, Forestry and Fisheries Agro-processing Strategy (2012)
- ✓ Strategic Plan for the Department of Agriculture, Forestry and Fisheries (2013/14 – 2017/18)
- ✓ National Policy Framework on the Development of Small and Medium Agro-Processing Enterprise in the Republic of South Africa
- ✓ Comprehensive Rural Development Programme

National Policies: Approximately 11 national policies, strategies including programmes were reviewed and analysed in this report. The purpose of the analysis was to identify if the proposed Agri-Parks Programme is aligned to the existing agriculture, infrastructure and other relevant supportive development plans. The key emphasis noted in the NGP regarding the alignment to the Agri-park programme objectives is the identification of the potential large scale employment creation commodities. In the NDP, the key highlight is the reiteration of recognising agriculture as critical to employment and food security measures. The Agri-Parks will serve as an important mechanism in executing the NDP's plan of creating million jobs by 2030. The IPAP's major relevant intervention is its objectives of providing sector-specific intervention, in particular, industrial financing and regional integration. This will play a key role for small-scale farmers who will have to be supported in the implementation of the Agri-Parks. One of the key policies towards implementing the Agri-Park programme for TMDM is the APAP. The policy action plan emphasises the sectorial equitable growth and competitiveness. Key to APAP is the development of commodities that are labour intensive as well as export market-oriented. In order to get the necessary support from government in different areas, Agri-Parks programme implementation stakeholders will have to be aligned to the national policies.

The following policies/strategies were reviewed and analysed at the provincial level:

- ✓ Free State Provincial Spatial Development Strategy (FSPSDS),
- ✓ Free State Provincial Growth Development Strategy (FSPGDS),
- ✓ Free State Export Strategy, and

- ✓ Free State Investment Strategy.

Provincial Policies: The purpose of reviewing and analysing provincial agricultural policies/strategies was to assess the existing provincial agricultural policies/strategies. The FSPSDS and the FSPGDS identified economic transformation as one of the province's development themes. This indicates that the province is in full support of agricultural initiatives that will transform rural economies. The provincial strategic plans also emphasise the importance of farmer support and development as well as rural development and exporting opportunities within the province. The Agri-Park programme objectives align to most of the provincial goals.

The local strategic plans/policies reviewed at the local government level (TMDM) consist of the following:

- ✓ The Thabo Mofutsanyana District Municipality Integrated Development Plan,
- ✓ The Thabo Mofutsanyana District Municipality Spatial Development Framework,
- ✓ The Maluti-A-Phofung Local Economic Development, and
- ✓ The Thabo Mofutsanyana District Municipality Agricultural Development Strategy.

Local policies/strategic plans: The district policies focus on the growth of the agricultural sector as an economic sector and an important job creation source. Smallholder farmers are also highlighted with reference to being supported and protected, as well as the importance of reaching markets and the ability to participate in the global agriculture market. Support for the Agri-Park is evident in the district's plans and strategies by reference of the Agri-Park and/or the Agri-Hub. Furthermore, in expressing the objectives and goals for agricultural development in the TMDM, opportunities can be identified for the Agri-Park's contribution to agriculture in the district. The Agri-Park model also demonstrates support of the objectives in the policies and comparisons can be identified between these objectives and the Agri-Park components. In addition, guidelines for the effective development of the Agri-Park can be identified in the policies. Therefore, the Agri-Park supports the agriculture-related policies in the district, while these policies also demonstrate recognition and consideration of the Agri-Park development.

The locational context will be evaluated in the next section of the report.

4 LOCATION CONTEXT

4.1 Description of the District

The Free State Province is located in the middle of South Africa. The province has the highest number of farming units (approximately 7 515) in the Country. Over 90% of the Free State's land is agricultural land, with 60% suitable for pasture and 32% considered arable (Free State Development Corporation, 2015). The province is renowned for its deep gold mines and rich soils, which support large-scale labour-intensive mining and commercial agriculture. Maize, wheat, sorghum, sunflowers, and cattle and sheep farming are predominantly farmed in the western and southern regions of the Free State; while nuts, asparagus, cherries, and potatoes are more commonly cultivated in the better-watered regions of the Free State. Thus, the Free State Province is often considered the “Bread Basket” of South Africa.

The Free State province is divided into four District municipalities and one metropolitan municipality, namely:

- Xhariep District,
- Lejweleputswa District,
- Fezile Dabi District,
- Thabo Mofutsanyana District, and
- Mangaung Metropolitan Municipality.

Each District, aforementioned, is divided further into 19 local municipalities. This report will focus on the Thabo Mofutsanyana District only.



The Thabo Mofutsanyana District Municipality (District Code 19) is located in the north east portion of the Free State. Within its area of jurisdiction, it contains the following six local municipalities:

- Setsoto Local Municipality,
- Dihlabeng Local Municipality,
- Mantsopa Local Municipality,
- Phumelela local Municipality,
- Nketoana Local Municipality, and
- Maluti-A-Phofung Local Municipality.

Thabo Mofutsanyana District Municipality is a Category-C municipality¹ located in the eastern Free State, and borders on KwaZulu-Natal and Lesotho. The main National Roads that pass through the District are the N3 and N5; and the District is also famously known to encompass the Golden Gate National Park, which is located on the slopes of the Drakensberg Mountains. Regardless of all the socio-economic challenges facing this District, such as for example, high rates of poverty, the District has huge potential for tourism development because of its rich cultural heritage and its scenic beauty.

The main cities and towns found within the Thabo Mofutsanyana District are:

- Arlington,
- Bethlehem,
- Clarens,
- Clocolan,

¹ Municipalities within Category-A are metropolitan municipalities, Category-B are local municipalities, and Category-C are District municipalities.



- Excelsior,
- Ficksburg,
- Fouriesburg,
- Harrismith,
- Hobhouse,
- Kestell,
- Ladybrand,
- Lindley,
- Marquard,
- Memel,
- Paul Roux,
- Petrus Steyn,
- Phuthaditjhaba,
- Reitz,
- Rosendal,
- Senekal,
- Thaba Patchoa,
- Tweespruit,
- Vrede,
- Warden.

The main land use activities that occur within the Thabo Mofutsanyana are the following:

- **Agriculture:** On a provincial level, the surface area of the Free State is approximately 129 825 km², approximately 32 000 km² (approximately 25%) of land is used for agriculture while natural veld and grazing covers a further 87 000 km² (approximately 67%) of land within the Province. On a District level, Thabo Mofutsanyana has approximately 3 000 hectares of farmland; thus, the eastern Free State region has a comparative advantage in agriculture. For example, Nketoana produces large amounts of wheat, maize, and potatoes, while Verde and Memel farm a lot of sheep and cattle; Ficksburg and Clocolan produce large amounts of horticulture produce, specifically cherries.
- **Tourism:** The Thabo Mofutsanyana District is also renowned for its many tourism attractions such as the Golden Gate Highlands National Park, Mountain ranges, and Mount Everest Rock climbing, among many other attractions.

The Thabo Mofutsanyana District also has a number of water sources such as:

- **Rivers:** Vaal River (in the north of the District) and Orange River (south of the District).
- **Dams:**
 - ✓ Armenia Dam,
 - ✓ Sterkfontein Dam,
 - ✓ Fika-Patso Dam, and
 - ✓ Saulspoort Dam,

4.2 Location of the Agri-hub

The methodology used for site selection was informed by the following:

- The need to utilize existing state land with agricultural potential in the provinces.
- The need to create equal access to markets to all farmers within the province with a bias to emerging farmers and cluster of communities is required.
- The approach of having one Mega Agri-Hub per District is required.

The selection criteria that was used to determine the location of each District's Agri-Hub was as follows:

- Existing Land Capability.
- Existing Agricultural infrastructure (e.g. silos, abattoirs, millers, ginners, food processors, fresh produce, etc.).
- Proximity to potentially vacant state land parcels.
- Proximity to water sources (dams, rivers, reservoirs).
- Proximity to CASP, PLAS, Restitution claims, and recapitalisation projects.
- Identification of enterprise areas (DAFF 1936) e.g. cattle, sheep, maize.
- Proximity to social relief projects.



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- Proximity to EDD gateways.
- Existing Road and Rail connectivity.
- Proximity to retail markets (SPAR, Pick N Pay food stores).
- Proximity to PIMD poorest wards.
- Proximity to Land Care projects.
- Proximity to rural towns.
- Proximity to AVMP farms.
- Proximity to existing CRDP wards.

Using the selection criteria, the Free State Province identified Tshiame town, a rural town in Thabo Mofutsanyana District (see Figure 4-1 below), as the best location for the establishment of an Agri-Park based on the following criteria:

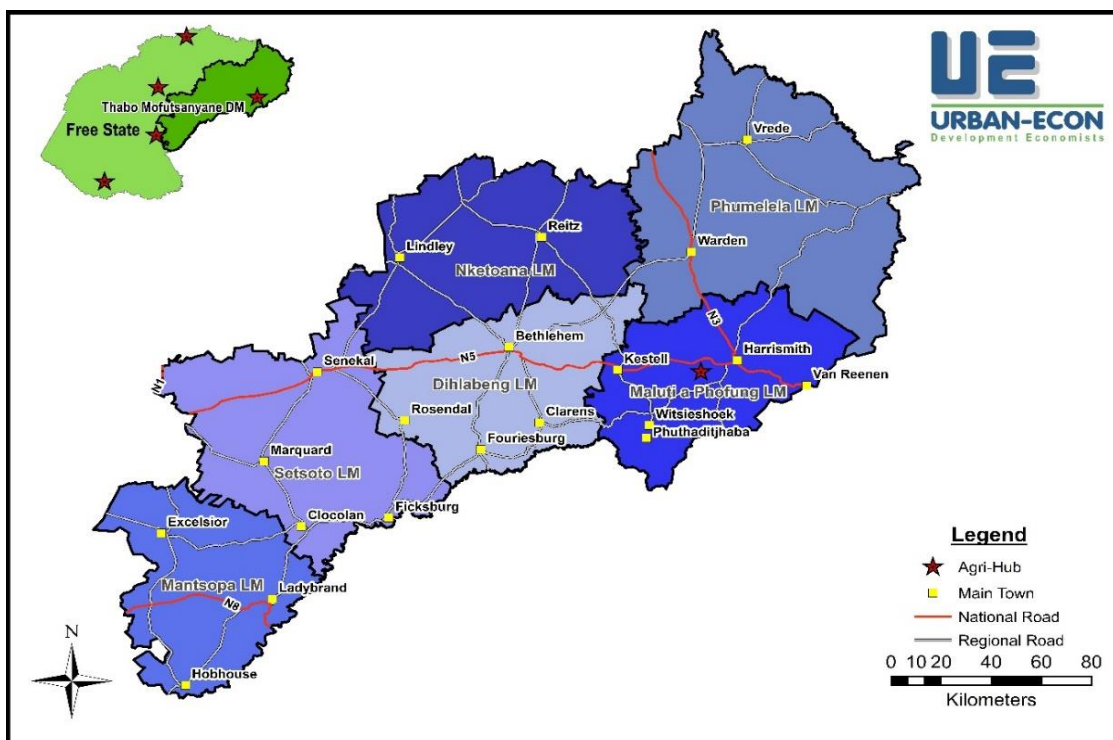
- The Tshiame town is in close proximity to Lesotho.
- Tshiame has been identified as an Economic Development District Gateway (an economic accelerator).
- The town is located on the N3 corridor, which runs between Gauteng and Durban, and the N5 from Bethlehem.
- There are at least five Rural Infrastructure Development projects to the west of the proposed location.
- Harrismith is also considered to be an Economic Development District gateway.
- There are many Land Reform acquisition projects that are located to the west and south of Tshiame.
- There are a few Restitution claims to the north of Tshiame.
- There are a few Comprehensive Agricultural Support Programme (CASP) projects to the west and east of Tshiame; furthermore, there is also a *Spar* grocery store, a feedlot, a grain silo, and a miller within the location.
- The Agricultural potential of the proposed location is considered to be marginal to moderate.
- Close proximity to a Comprehensive Rural Development Programme (CRDP) site to the north west of Harrismith town.
- According to the Provincial Indices of Multiple Deprivation (PIMD), the Tshiame location is surrounded by the poorest wards
- The road network required within the location should be of excellent quality; however, the actual surface conditions of the main roads within the location may vary.
- To the north east of the proposed location, there is a land care project in operation.
- To the west and south of Tshiame, there are many Restitution claims taking place.
- To the far east of the Free State Province and KwaZulu-Natal, many Proactive Land Acquisition Strategy (PLAS) Projects in progress.
- The location has also been identified to encompass good road and railway connectivity.
- The land capability of the location has been identified to be marginal to moderate.



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Figure 4-1: Thabo Mofutsanyana District Municipality



4.3 Maps

The Thabo Mofutsanyana District Municipality is one of the Free State Province's most fertile regions. Figure 4-2 below, illustrates the Thabo Mofutsanyana District Municipality.

Figure 4-2: Map of the Thabo Mofutsanyana District Municipality

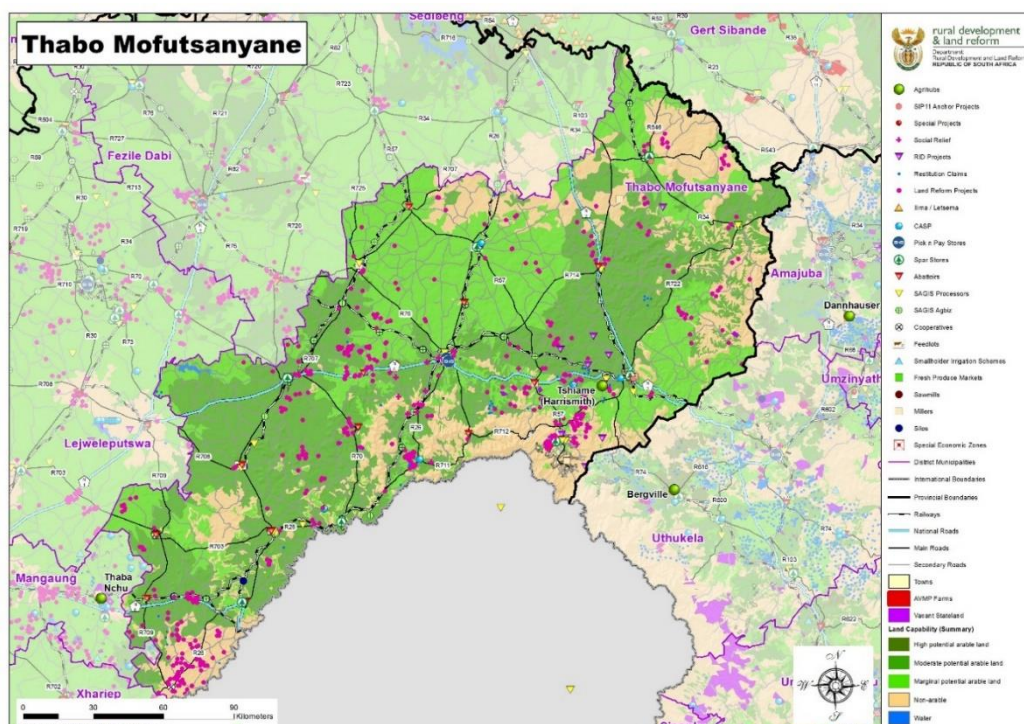
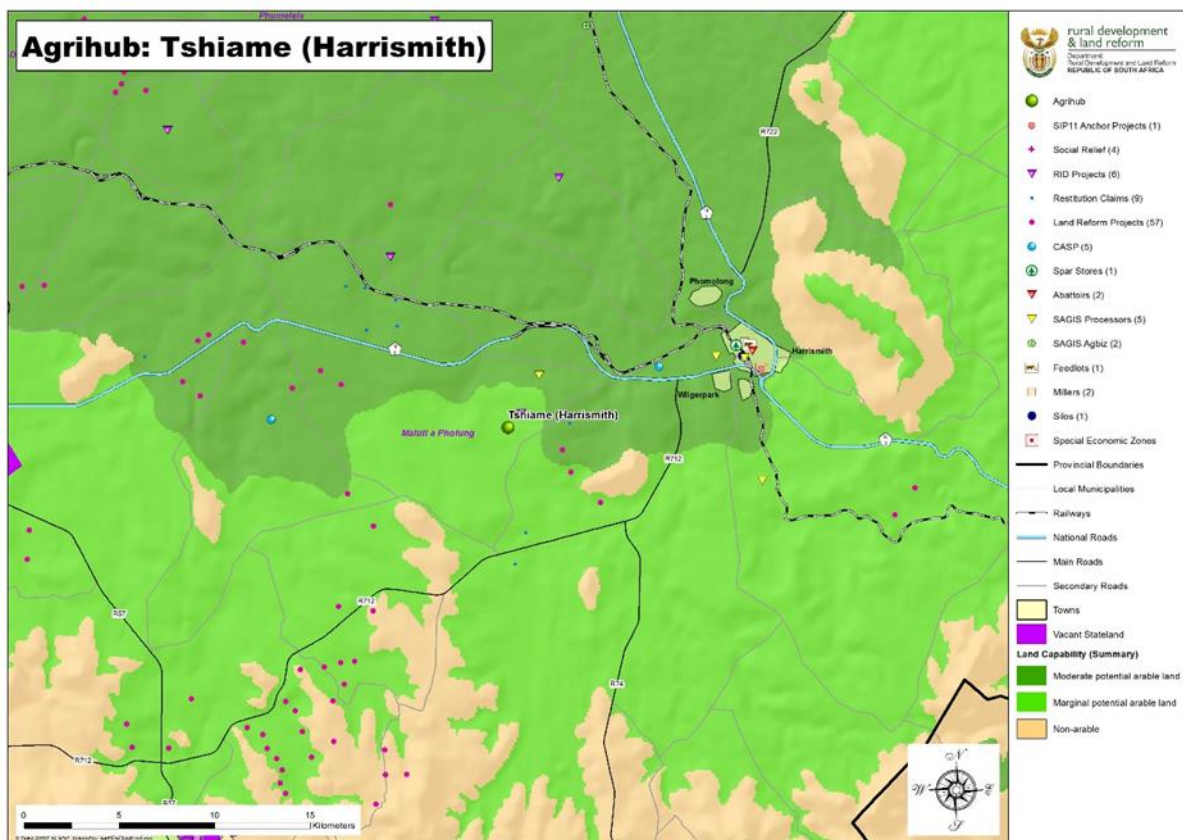


Figure 4-2 above, illustrates the numerous Land Reform Projects, occurring within the Thabo Mofutsanyana District, most of which are clustered around transportation corridors (roads and railways) and areas closer to urban areas.

A large portion of the District's land, illustrated in Figure 4-2 above, is considered to be between highly arable and marginally arable. The District is well connected in terms of transportation routes, as both the N3 and N5 run through the District; there are numerous secondary roads, along with a number of railway lines leading to various locations within and out of the District. The proposed Agri-Park is located in the south-eastern region of the District (the large green circle within the District). The proposed location is in close proximity to the town of Harrismith.

Figure 4-3 below, illustrates the location of the Tshiame town and the proposed Agri-Park. Figure 4-3 illustrates the major National roads, main roads, secondary roads, and railway transport corridors in relation to the Agri-Park. The land surrounding the Agri-Park ranges from moderately arable (darker green) to non-arable (light beige).

Figure 4-3: Map of the Tshiame Town



4.4 Economic Infrastructure of the Thabo Mofutsanyana District

A key component of the New Growth Path is infrastructure. In urbanising environments, the modernisation of infrastructure is seen as crucial to accommodating expanding populations and future economic competitiveness.

4.4.1 Electricity

Energy is one of the most important drivers to environmental sustainability, social welfare, and economic growth. The economic infrastructure of the country is largely dependent on reliable and affordable electricity supplies. In the 2014 world competitiveness index, South Africa was ranked 99th out of 144 countries with regard to the quality of electricity, which is lower than the 2012 ranking of 94th. Eskom is South Africa's key player in the electricity supply industry, and it relies largely on coal fired power stations which produce approximately 90% of its electricity (Eskom, 2015).



The most abundant source of energy in South Africa is coal, and Eskom uses more than 90 million tons of coal per year to generate electricity. The majority of coal in the country is of low quality with a low heat value and a high ash content. Most coal deposits in South Africa, which are suitable for cheap power generation, are located in the south-eastern and eastern regions of Gauteng, and in the northern regions of the Free State (Eskom, 2015).

The electrical demand for the Free State Province, as a whole, is approximately 2 357 megawatts; the demand however, is expected to increase to approximately 2 706 megawatts by the year 2025. Electrical usage ranges from transportation and communication to production. The majority of power supplied to the Free State province is from the Mpumalanga Province's power pool, which is not unexpected since Mpumalanga has the most power stations in the country (Eskom, 2015).

Recently, South Africa's Department of Environmental Affairs (DEA) formed a synergy with the United Nations Environment Programme (UNEP) and with support from United Nations Development Programme (UNDP) in order to develop a "green economy" within South Africa. A "green economy", at an operational level, is an economy whose growth in employment and income is driven by investments which also enhance energy and resource efficiency, prevent the loss of biodiversity and ecosystem services, and reduce carbon emissions and pollution. According to the World Wide Fund for Nature, South Africa has an Ecological Footprint² of approximately 2.8 hectares per person, which is relatively high compared to the global average of 2.2 hectares per person, furthermore, the Ecological Footprint for Africa is only 1.2 hectares per person. Carbon, from fossil fuels such as coal, represents the largest footprint component in Africa, particularly South Africa where carbon accounts for over 50% of South Africa's footprint (United Nations Environment Programme, 2013).

CHALLENGE

The Free State is faced with a number of challenges with regard to the electricity supply and accumulated debts owed to Eskom, however, this challenge will not be discussed.

Thus, the Agri-Park should use renewable energy sources such as solar panels, nuclear energy, hydroelectricity, etc. in collaboration with the current electricity source. This will not only promote a green economy, but will also decrease the demand for electricity in various electricity using sectors such as the residential, transport, and industry sectors among others.

² The Ecological Footprint depends on the quantity of biologically productive land and water required by a given population (Earth Day Network, 2015)

4.4.2 Internet

In the modern day and age, access to the internet is vitally important for the success of numerous businesses and the growth of both micro- and macro-economies.

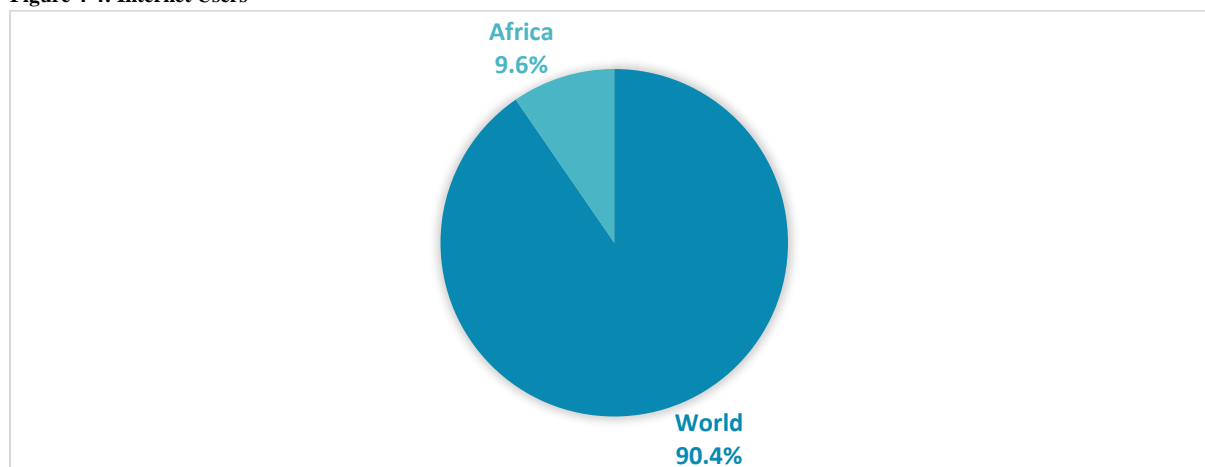
Approximately 57% of the world population do not have regular access to the internet, furthermore, in the least developed countries only one in 10 people have access to the internet.

The internet provides a platform for modern day training and trading, the internet provides a vast array of information with no only promotes and guides business initiatives (for example, but not limited to, commodity trading sites and stock exchanges) it also provides information necessary for skills building (educational online programmes) which improves the knowledge and skills of the labour force.



Figure 4-4 below, illustrates the percentage of internet users from Africa in relation to the world.

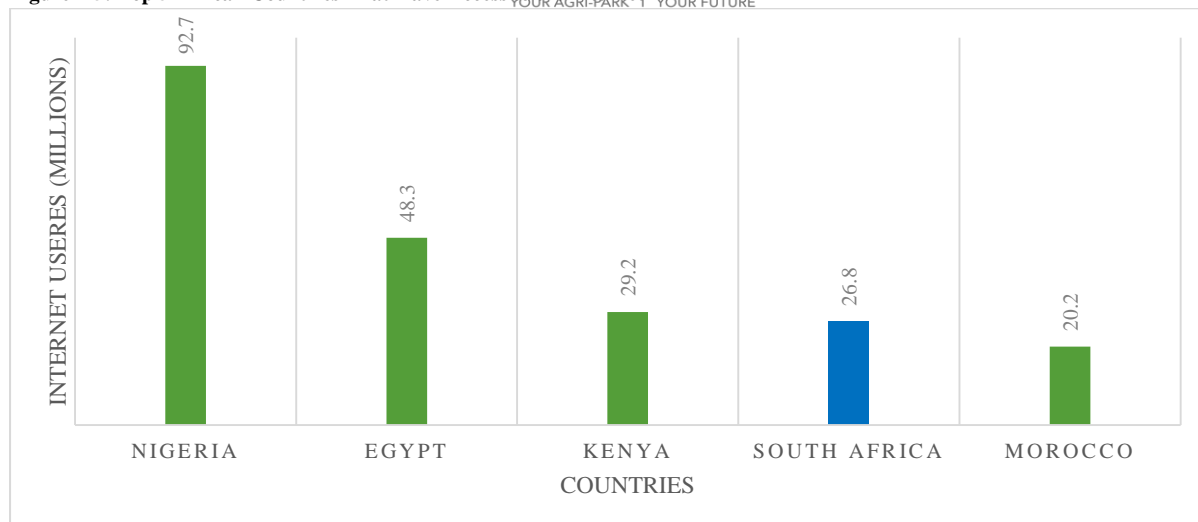
Figure 4-4: Internet Users



Adapted from Internet World Stats, 2015

Figure 4-4 above, illustrates that Africa accounts for 9.6% (approximately 313 million individuals) of the world's population that has access to the internet, which is unexpected as Africa has the second largest population after Asia. Thus, it is indicative that a large share of the African population has little to no access to the internet. The Figure below, illustrates the top five countries within Africa according to the number of internet users.

Figure 4-5: Top 5 African Countries That Have Access to the Internet



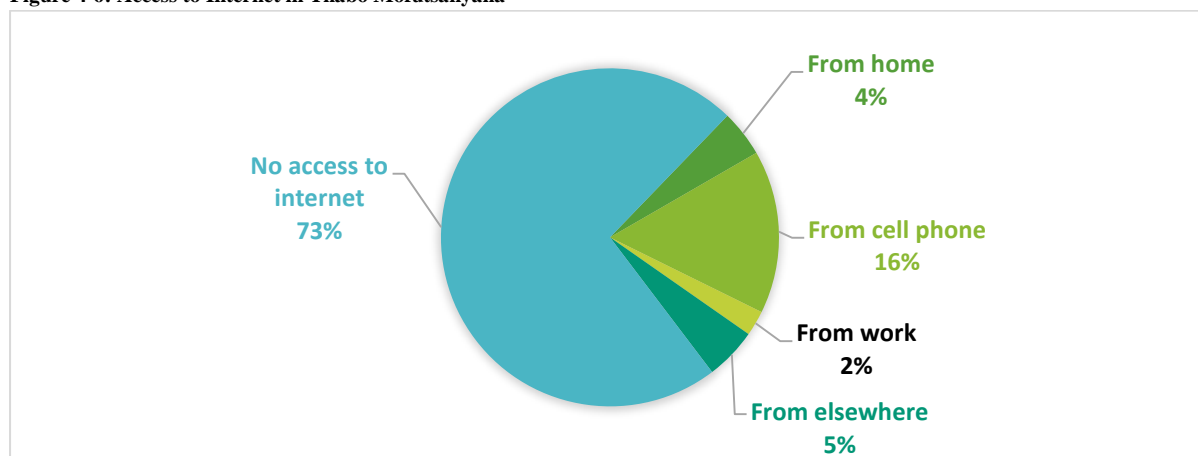
Adapted from Internet World Stats, 2015

As seen above, the African country that has the largest internet using population is Nigeria with approximately 92.7 million individuals. Egypt accounts for the second largest internet using population followed by Kenya with approximately 48.3 million and 29.2 million, respectively.

South Africa is in fourth place with 26.8 million individuals. Kenya has a smaller population than that of South Africa, yet the country has far better access to internet.

Figure 4-6 below, illustrates the population of the Thabo Mofutsanyana District that have access to the internet.

Figure 4-6: Access to Internet in Thabo Mofutsanyana



Adapted from Regional Standardised data, 2015, 2015

at have access to the internet.

Figure 4-6 above, illustrates that approximately 73% of the population have no access to internet, while only 4% of the District's population has internet at home. Most of the population access the internet via cell phones (approximately 16%), work (approximately 2%), and elsewhere for example internet cafes, libraries, schools, etc. (approximately 5%).



It is highly recommended that FPSUs have access to the internet, as this will maximise communication between farmers and the Agri-Hub. One of the benefits of ensuring that the FPSUs have access to the internet, is that the FPSUs will be able to use commodity trading programmes which will indicate the available quantities of commodities which the Agri-Hub can utilise daily.

4.4.3 Telecommunication

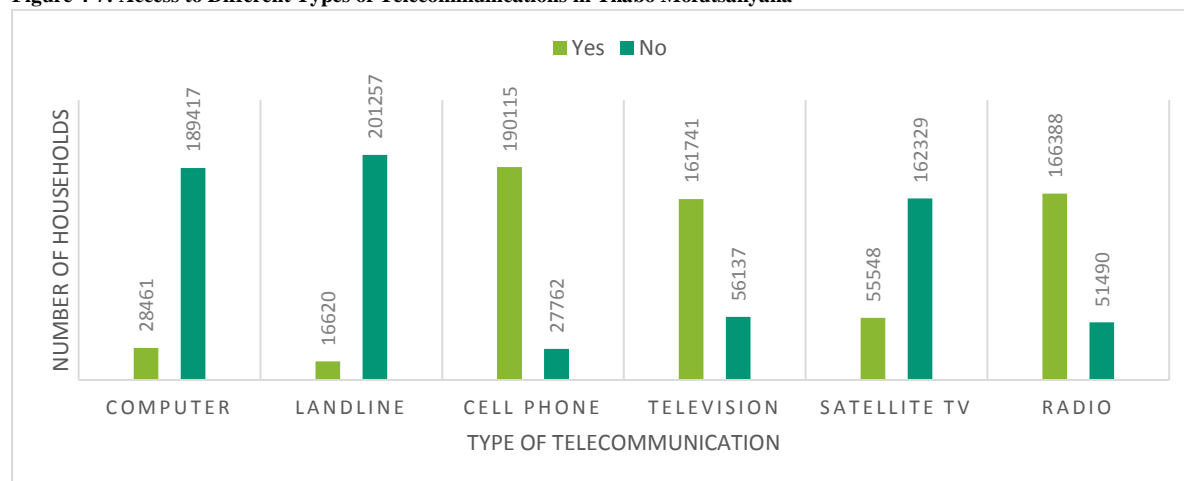
In addition to energy and internet access, telecommunication is important for development and economic growth. For a business to function at its optimal, communication is vital, not only between the client and the service provider, but also between managers, workers, and support units. Telecommunication enables a range of methods to maximise communication.

Telecommunication is important in all sectors of the economy, with innovative developments ranging from cellular phone applications designed specifically for farmers³ to Market Intelligent Agencies, which provide market information and strategies. Furthermore, telecommunications enable businesses and individuals to communicate worldwide, which is important if businesses wish to participate in the global market (imports and exports).



Figure 4-7 below, illustrates the number of households that have access to various types of telecommunication devices.

Figure 4-7: Access to Different Types of Telecommunications in Thabo Mofutsanyana



Adapted from Regional Standardised data, 2015

³ Cellular phone applications such as, for example, MobileFarm are designed to help farmers keep track of market prices and keep information about their crops and livestock on hand.



From Figure 4-7 above, the most common telecommunication devices owned by the Thabo Mofutsanyana Districts households are cellular phones (approximately 87% of households own cellular phones), which is indicative of the world trend of increased connection through cellular phones (cellular subscriptions worldwide exceeded 7 billion in 2015) (Kharpal, 2015).

Radios are in second place with approximately 76% of households in possession of radios, closely followed by televisions, which are the third largest used telecommunication devices within the District as approximately 74% of households own televisions. Computers, landlines, and satellite television are the least used telecommunication devices within the District.

4.4.4 Roads

The Districts road infrastructure is mainly made up of a number of major and secondary roads that flows from the south from Bloemfontein and Johannesburg to the southern destinations of the KwaZulu-Natal Province. These main national roads include the N5 highway (from Bloemfontein, which links to the N1 that runs through the Free State Province), and the N3 (from Johannesburg, which link up to become the N2 to Durban).

The Thabo Mofutsanyana District has an estimated 9 074km of roads distance, consisting of various types of roads. Table 4-1 below, illustrates the various types of roads and the distance each road covers.

Table 4-1: Road Network in Thabo Mofutsanyana

ROAD TYPE	LENGTH (KM)	PERCENTAGE OF TOTAL (%)
National	329	3.6
Arterial	464	5.1
Main	708	7.8
Secondary	4296	47.3
Minor	3277	36.1
Total:	9074	100

Table 4-1 above, mentions that secondary (gravel) roads make up the largest portion (47.3%) of road network within the District, followed by minor roads (36.1%). National roads (3.6%), main roads (7.8%), and arterial roads (5.1%) make up the remaining road network distance.

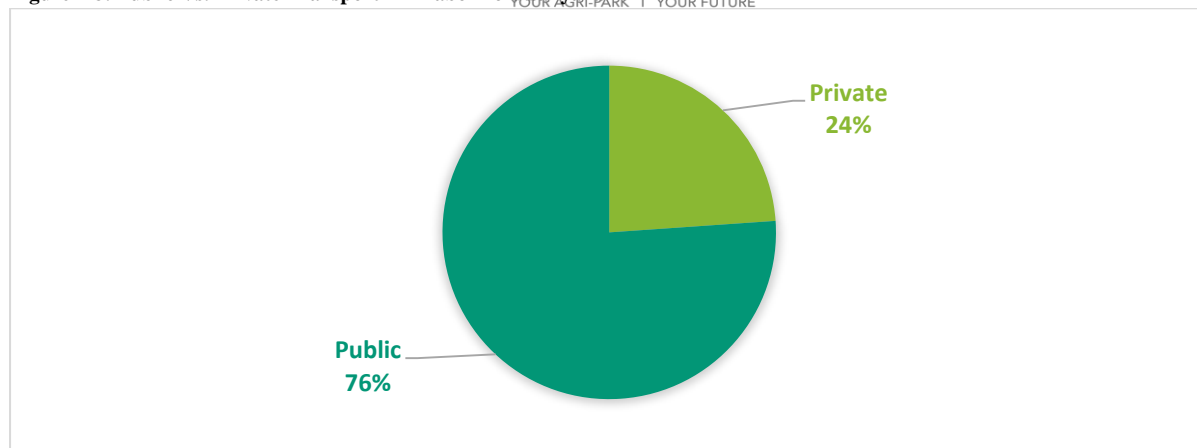
Roads are an important economic infrastructure for market activities (such as, for example, the delivery of goods), the economically active population (the population that is currently employed and looking for employment), and the population that is currently in school or studying.



Transportation within the District is important thus Figure 4-8 below, illustrates the percentage of public transport utilised within the District versus the percentage of private transportation.



Figure 4-8: Public Vs. Private Transport in Thabo Mofutsanyana

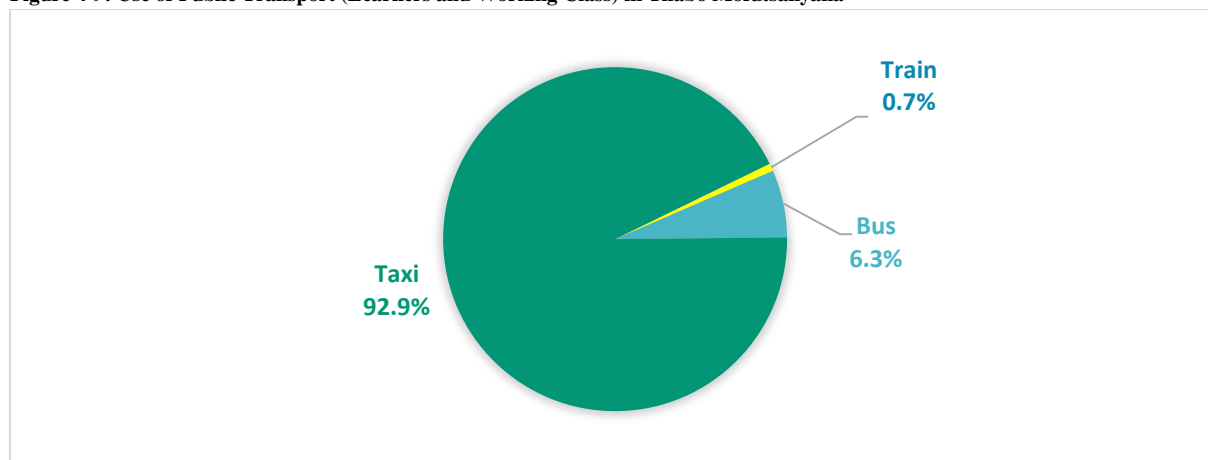


Adapted from Regional Standardised data, 2015, 2015

From Figure 4-8 above, it can be stated that public transport makes up the largest portion of transport within the Thabo Mofutsanyana District. Public transportation account for approximately 76% of transport within the District, while private transportation only accounts for 24% of transport. Thus, the majority of the Districts population travels with public transportation.

Figure 4-9 below, illustrates the various forms of public transportation utilised within the District by the economically active population and the population that is currently in school or studying.

Figure 4-9: Use of Public Transport (Learners and Working Class) in Thabo Mofutsanyana



Adapted from Regional Standardised data, 2015, 2015

Figure 4-9 above, illustrates that the most commonly used form of public transport is taxis, which is used by approximately 93% of the District's economically active population and the population that is currently in school or studying. Buses are the second most used public transport, while the train is the least used.

Figure 4-10 below, illustrates the various forms of private transportation that is used by the economically active population and the population that is currently in school or studying.



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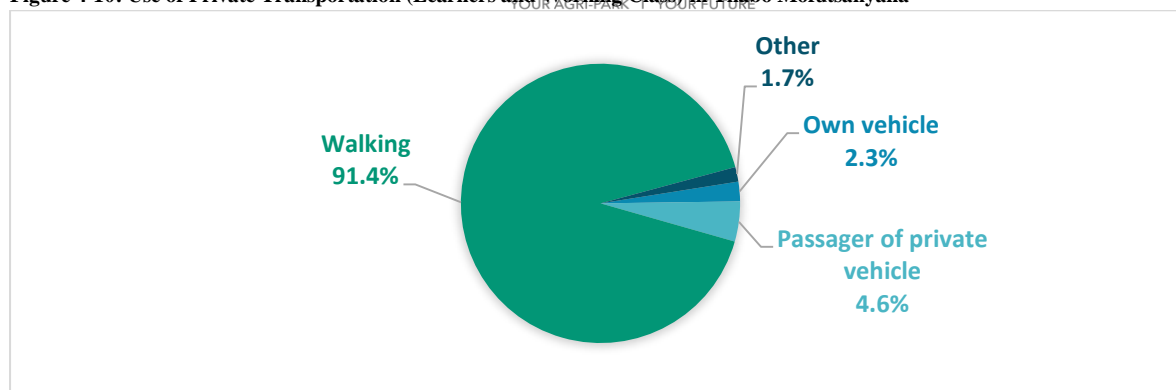

AGRI-PARK
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Figure 4-10: Use of Private Transportation (Learners and Working Class) in Thabo Mofutsanyana



Adapted from Regional Standardised data, 2015, 2015

From Figure 4-10 above, the most common form of private transportation within the District is walking; approximately 91.4% of the economically active population and the population that is currently in school or studying utilise this form of transportation. Only 2.3% of the aforementioned populations use their own vehicles as transportation within the District. Thus, public transport providers, especially taxi drivers, utilise the road infrastructure the most.

The most important roads to maintain within the District are the National and Provincial roads due to the linkages the roads provide between provinces, which is also important for the distribution of goods and services both within the region and between provinces. Furthermore, these roads are essential for the Agri-Hub with regard to the transportation and distribution of goods to various RUMCs.

4.4.5 Rail

An important driver of national competitiveness is efficient freight transport, especially in South Africa where 61% of logistics costs⁴ are derived from transport costs⁵, compared to the global average of 39%. Railways form a small part of the freight transport network in South Africa, as railways only account for 10% of the country's freight bill. South Africa has the 14th longest railway network in the world, which connects to other countries in Africa such as, among others, Zimbabwe, Swaziland, and Botswana. Railways make up approximately 80% of Africa's infrastructure; however, approximately 71% of South Africa's freight is moved by road instead of rail. (Havenga, Simpson, & De Bod, 2014; PwC, 2013). Railway networks within and between Districts and provinces from the Thabo Mofutsanyana District are well established. There is approximately 598km of railway lines running through the District. Thus, railways are an important method of transportation for the Agri-Hub, as it will enable the timely transportation of freight to various locations.

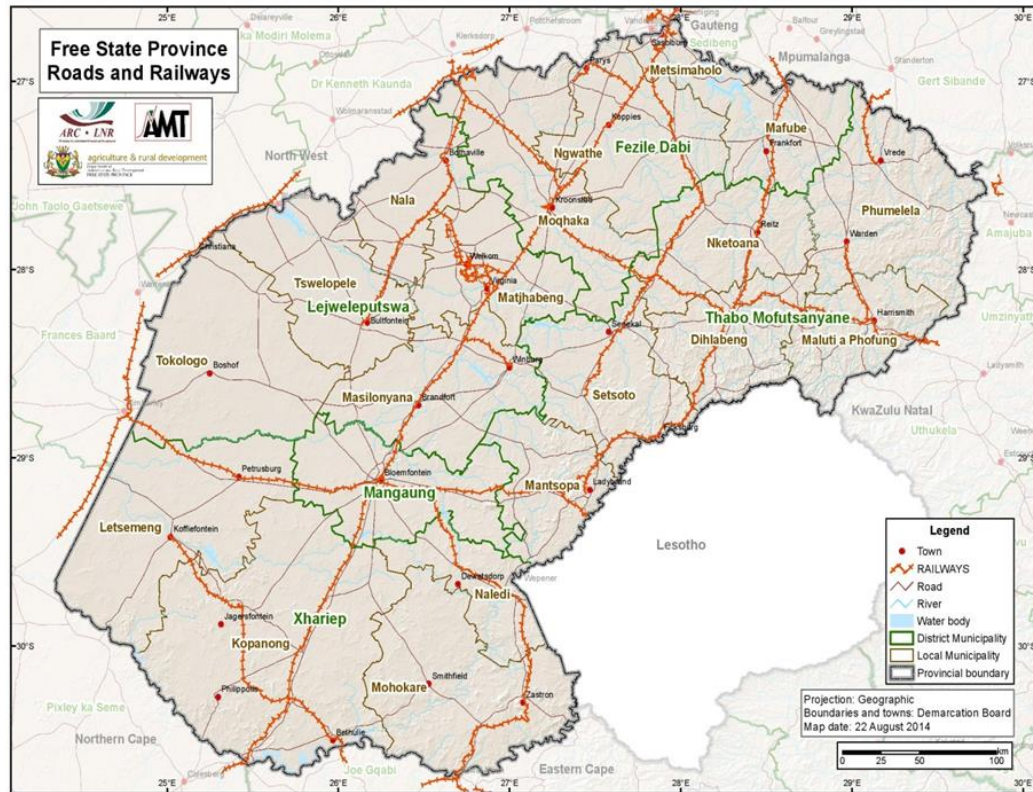


Figure 4-11 below, illustrates the various railways within the Free State Province.

⁴ Logistics costs include the cost of transportation (petrol, toll fees, etc.), carry costs, customer services, etc.

⁵ Fuel costs account for approximately 40% of the total transport cost (Havenga, Simpson, & De Bod, 2014).

Figure 4-11: Railway Lines within the Free State



(Department of Agriculture and Rural Development, 2015).

With regard to the logistics orientation of the District, it is evident that the District is served with an extensive road network, supported by rail illustrated in Figure 4-11 above. Harrismith which will be in close proximity to the Agri-Hub, will provide an important link with the railway lines between the Gauteng and KwaZulu-Natal provinces, as well as interprovincial rail freight from, for example, Bloemfontein to Bethlehem via Ficksburg.

5 MAIN ROLE-PLAYERS PER DISTRICT

This section of the report focuses on the main role players that will contribute to the development of the Thabo Mofutsanyana Agri-Park. The main role-players within the Thabo Mofutsanyana District include private companies, Government stakeholders, extension service bodies, and Non-Profit Organisations. Amongst the stakeholders that are present in the District, there is the Department of Rural Development and Land Reform, the Free State Development Corporation, the Department of Agriculture and Rural Development, etc.

5.1 Governmental (Public) Role-Players

The public sector's role-players (extension services and financial providers) are mentioned in Table 5-1 below.

Table 5-1: Role-Players (Government Sphere)

Role Player	Potential Role
Department of Rural Development and Land Reform (DRDLR)	<ul style="list-style-type: none"> Monitoring and Evaluation Provision of institutional support Provision of funding Project facilitation
Agriculture Research Council (ARC)	<ul style="list-style-type: none"> Principle agricultural research institution Provide information on agro-processing, technology development, etc.
Department of Agriculture, Forestry, and Fisheries (DAFF)	<ul style="list-style-type: none"> Institutional support Information provider
National Empowerment Fund (NEF)	<ul style="list-style-type: none"> Supports black enterprise development. Align with government's New Growth Path. Information provider.
Free State Development Corporation (FDC)	<ul style="list-style-type: none"> Institutional support.
Department of Agriculture and Rural Development (DARD)	<ul style="list-style-type: none"> Agricultural institutional support. Existing initiatives. Help with mechanisation and basic training.
MAFISA (Micro-agricultural Financial Institution of South Africa)	<ul style="list-style-type: none"> Micro and retail agricultural financial scheme. Saving and banking services available at approved financial institutions. Loans are available for small and emerging farmers and other target groups.
Thabo Mofutsanyana District Municipality	<ul style="list-style-type: none"> Facilitation of District's initiatives Liaison with local stakeholders Institutional support and facilitation
The Department of Economic Development	<ul style="list-style-type: none"> Overseeing the work engaged in economic Development. Information provider.



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Role Player	Potential Role
Tribal Authorities	<ul style="list-style-type: none"> Facilitating linkages between tribal and rural communities and potential/created opportunities Identification of best positioned community individuals to benefit from initiative Encouraging rural collaboration and buy-in
South African Apple and Pear Producers Association	<ul style="list-style-type: none"> Emerging farmer support Agricultural research support Facilitation of access to land for small farmers Infrastructural support and coordination
Glen Agricultural Institute	<ul style="list-style-type: none"> Provision of training programmes to emerging farmers, farm workers, etc.
Department of Public Works and Transport	<ul style="list-style-type: none"> Infrastructural support and coordination Site preparation and bulk services implementation support
The Small Enterprise Development Agency (SEDA)	<ul style="list-style-type: none"> Facilitation of agri-business development Small business development Institutional and soft skills support to emerging farmers and entrepreneurs
Department of Labour	<ul style="list-style-type: none"> Employment equity and support Creating linkages between employers and employment opportunities
The Development Bank of Southern Africa (DBSA)	<ul style="list-style-type: none"> Provides funds. Information provider.
Department of Trade and Industry	<ul style="list-style-type: none"> Development facilitation Institutional support

Table 5-1 above, illustrates the various public sector stakeholders within the District ranging from the Department of Rural Development and Land Reform, which provides guidance, funding, and support; to tribal authorities which identify the best positioned community individuals to benefit from various initiative and also encourage rural collaboration and buy-in.

5.2 Private Sector Role-Players

In Table 5-2 below, the various stakeholders (service providers and financial providers) in the private sector are mentioned.

Table 5-2: Role-Players (Private Sphere)

Role Player	Potential Role
Senwes	<ul style="list-style-type: none"> Provision of supporting agricultural equipment and services

Role Player	Potential Role
Free State Agri	<ul style="list-style-type: none"> Private institutional support Facilitating/creating linkages with commercial farmers
University of the Free State	<ul style="list-style-type: none"> Provision of training programmes to emerging farmers, farm workers, etc.
Central University of Technology	<ul style="list-style-type: none"> Provision of training programmes to emerging farmers, farm workers, etc.
Sereba Training	<ul style="list-style-type: none"> Provision of training programmes to emerging farmers, farm workers, etc. Mentoring, project management and facilitation of project implementation
Agriculture Resource Council	<ul style="list-style-type: none"> Agricultural research support Institutional support
National African Farmers' Union (NAFU)	<ul style="list-style-type: none"> Emerging farmer support Facilitation of access to land for small farmers
Land Bank	<ul style="list-style-type: none"> Financial solutions and support for emerging farmers and agri-businesses Business skills training
ABSA Agribusiness	<ul style="list-style-type: none"> Financial solutions and support for emerging farmers and agri-businesses Business skills training
First National Bank	<ul style="list-style-type: none"> Financial solutions and support for emerging farmers and agri-businesses Business skills training
VKB Group	<ul style="list-style-type: none"> Supplying of production inputs Handling, storing and marketing of grain Finance, insurance, mechanisation, agricultural development and seed processing services Value-Adding activities such as mills and animal feeds Provides Farmer programmes (Appendix E illustrates a list of developing farmers within the VKB farmer programme).
Standard Bank Agriculture	<ul style="list-style-type: none"> Financial solutions and support for emerging farmers and agri-businesses Business skills training
ABR	<ul style="list-style-type: none"> Training of farm workers and agri-business staff Development support and facilitation



Role Player	Potential Role
DIY Superstore	<ul style="list-style-type: none"> Provision of agricultural tools, equipment, and infrastructure
Afrivet	<ul style="list-style-type: none"> Agricultural Training Services
Emerging Farmers	<ul style="list-style-type: none"> Provision of agricultural produce Identification of agricultural and training needs and requirements

From Table 5-2 above, it can be seen that there are various role-players in the private sphere ranging from stores such as the DIY Superstore which provides various agricultural equipment, to First National Bank, which provides financial assistance.

5.2.1 Possible Synergies and Opportunities

A synergy is the cooperation between two or more companies, departments, or individuals that results in greater productivity, growth, and development of the parties involved. It is possible to identify potential synergies and opportunities between the Agri-Park and the various role-players mentioned in Table 5-2 above.

Role-Players in the private sphere provide various opportunities for the Agri-Park. Synergies with financial providers such as, for example, First National Bank and ABSA Bank provide the Agri-Park with the opportunity of attaining possible funds for agricultural assets, as well as providing small-scale farmers with banking services such as savings accounts. Synergies with training providers such as, for example, Sereba Training and the University of the Free State may possibly provide the Agri-Park's FPSUs with training at lower costs.

5.3 Associations and Organisations

Associations and organisations play an important role as intermediary partners in business-government relations, education and training in industrial and commercial society, research and development, and economic performance. Furthermore, associations and organisations exist to promote and represent the interests of members and also serve to provide collective services to members and businesses.

The following section will cover the various National, Provincial, and Local associations and organisations.

5.3.1 National Organisations and Associations

Table 5-3 below mentions the various associations and organisations at a national level.

Table 5-3: National Associations and Organisations

Role Player	Potential Role
Agri Sector Unity Forum (ASUF)	<ul style="list-style-type: none"> Support for farmers. Serves as a representative for farmers. Information provider.
African Farmers Association of South Africa (AFASA)	<ul style="list-style-type: none"> Encouragement and support for farmers (particularly black farmers). Information provider.



Role Player	Potential Role
National African Farmers Union of South Africa (NAFU SA)	<ul style="list-style-type: none"> Provides support services to farmers. Provides agricultural skills building amongst farmers particularly black, small-scale, and emerging farmers.
Milk SA	<ul style="list-style-type: none"> Emerging farmer support. Facilitation of access to land for small farmers.
Milk Producers Organisation South Africa	<ul style="list-style-type: none"> Emerging farmer support. Agricultural research support. Facilitation of access to land for small farmers. Infrastructural support and coordination.
Dry Bean Producers Organisation	<ul style="list-style-type: none"> Emerging farmer support. Agricultural research support. Facilitation of access to land for small farmers. Infrastructural support and coordination.
Agri SA	<ul style="list-style-type: none"> Provides support for farmers. Promotes agricultural development. Provide information. Mobile-responsive website.
ARC Information Hub	<ul style="list-style-type: none"> Support and technical advice to growers.
Pannar	<ul style="list-style-type: none"> Supplier of cultivars. Conduct agricultural research. Provides support for farmers. Offers services (for example, profitability plans and risk analysis) to emerging farmers.
Agricultural Business Chamber	<ul style="list-style-type: none"> Information provider. Encourages agri-businesses. Addresses the legislative and policy environment in the agribusiness environment. Facilitates networking opportunities.
National African Federated Chamber of Commerce and Industry (NAFCOC)	<ul style="list-style-type: none"> Provides business support. Provides assistance to black communities.
AgriSETA (Agricultural Sector Education and Training Authority)	<ul style="list-style-type: none"> Provides training and skills development. Provides information.

From Table 5-3 above, it can be seen that there are numerous organisations and associations at a national level, the majority of the organisations and associations provide information and support to farmers.

5.3.2 Provincial Organisations and Associations

Table 5-4 below mentions the various Provincial associations and organisations.

Table 5-4: Provincial Associations and Organisations

Role Player	Potential Role
Free State Investment Promotion Agency	<ul style="list-style-type: none"> Provides assistance on agro-processing as a business opportunity. Information provider. Funding of agricultural projects. Entrepreneurship programme.
The Free State Department of Economic Affairs and Tourism	<ul style="list-style-type: none"> Information provider. Entrepreneurial support.
Department of Agriculture in the Free State	<ul style="list-style-type: none"> Support to farmers. Learner and Mentorship programmes. Allocation of resources towards farmers support programmes.
Vrystaat Landbou	<ul style="list-style-type: none"> Provides information on provincial agriculture. Provides strategic direction and support for farmers.

From Table 5-4 above, it can be seen that there are a number of associations and organisations in the Free State Province. The majority of the associations and organisations provide support and information to farmers. The Department of Agriculture in the Free State provides learner and mentorship programmes to individuals for skills building. The Free State Investment Promotion Agency provides funding of agricultural projects as well as entrepreneurship programmes which promote economic development.

5.3.3 Local Organisations and Associations

Table 5-5 below, mentions the various associations and organisations in the Thabo Mofutsanyana District.

Table 5-5: Local Associations and Organisations

Role Player	Potential Role
Farmers Forum Local Development	<ul style="list-style-type: none"> Assist farmers with information. Assist farmers with access to markets. Facilitation of farmer related services. Promote agriculture as a Local Economic Development Strategy. Promotion of agri-businesses using the IDP.
Local Labour Forum	<ul style="list-style-type: none"> Management of labour. Sub committees to assist employers and employees: <ul style="list-style-type: none"> Training and Employment Equity Committee, Occupational Health Committee, and Bereavement Committee.
Leifo Cooperative Ltd.	<ul style="list-style-type: none"> Information provider. Training and skills development (particularly for the youth).



From Table 5-5 above, it can be seen that, apart from farmers' unions and farmer's associations mentioned in Table 5-3 above, the District has three associations and organisations, namely: Farmers Forum Local Development, Local Labour Forum, and Leifo Cooperative Ltd. Both, the Farmers Forum Local Development and Leifo Cooperative Ltd., provide information to farmers, while the Local Labour Forum provides assistance in labour management.

The purpose of this section was to identify the role-players for the Agri-Park in the TMDM along with their potential roles. According to the role-players that have been identified, it is evident that the Agri-Park has adequate potential support. There are a number of government agencies that are particularly tasked with assisting agricultural initiatives and activities by providing support through institutional guidance, advisory services and financial assistance among other services. The Private sector also has institutions that are available to assist the Agri-Park stakeholders with funds and other financial services. Associations and organisations at national, provincial, and local level also demonstrate the support that the farmers and other Agri-Park stakeholders have available. The following section scales down to a focus on the TMDM's socio-economic profile, which will provide a view of the district's status quo.

6 ECONOMIC AND SOCIO-ECONOMIC ANALYSIS

The following chapter will serve to analyse the Thabo Mofutsanyana District Municipality according to a range of socio-economic indicators such as, demographics, employment, unemployment, poverty, skills, and income, among others.

6.1 Demographic analysis

The demographics of a region is determined by the size and structure of the population. Demographics thus, have an impact on the consumption of goods and services, resource allocation, and human capital development, which influences factors such as, among others, employment, education, income distribution, and the physical well-being of a population. Subsequently, these development outcomes influence population processes such as, but not necessarily limited to, fertility, migration, settlement, mortality, and morbidity rates.

Figure 6-2: Working Age Population

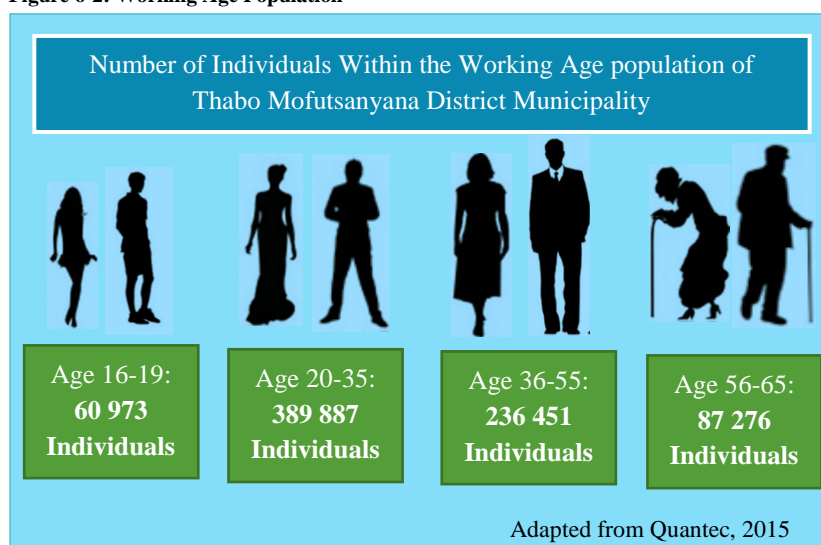


Figure 6-1: Gender

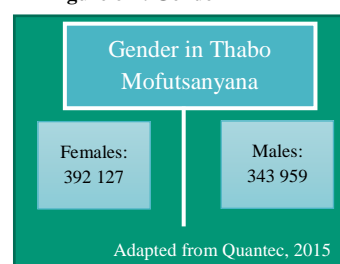


Figure 6-3: Change in Population

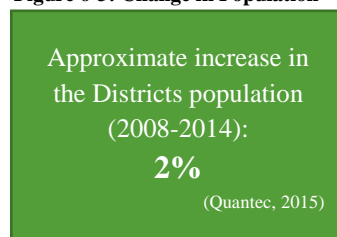
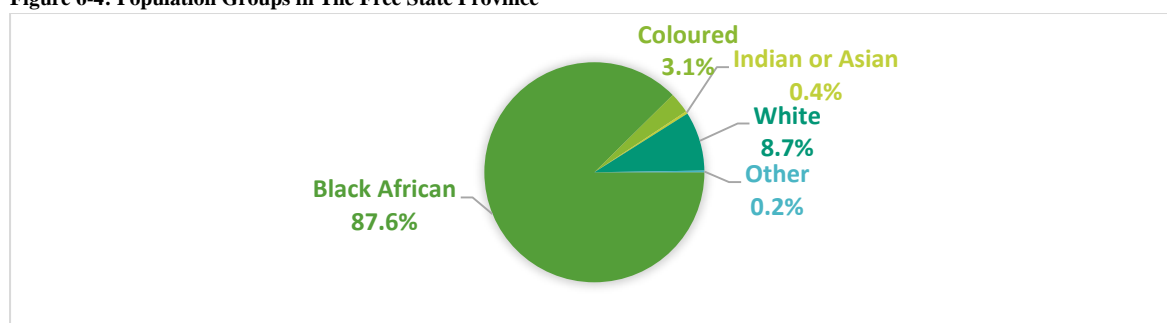


Figure 6-2 above, illustrates the number of individuals within the Thabo Mofutsanyana District that fall within the working age (of 16 to 65 years of age) population. The total working age population in the District in 2014, was approximately 774 587 individuals compared to the Free State Province, which has approximately 1 756 988 individuals. There are approximately 14% more females (seen in Figure 6-1 above) in the District than males. The average change in the population (from Figure 6-3 above) from 2008 (732 094 individuals) to 2014 (745 577 individuals), was approximately 2%, which is lower than the provincial growth rate of approximately 3%.

Figure 6-4: Population Groups in The Free State Province

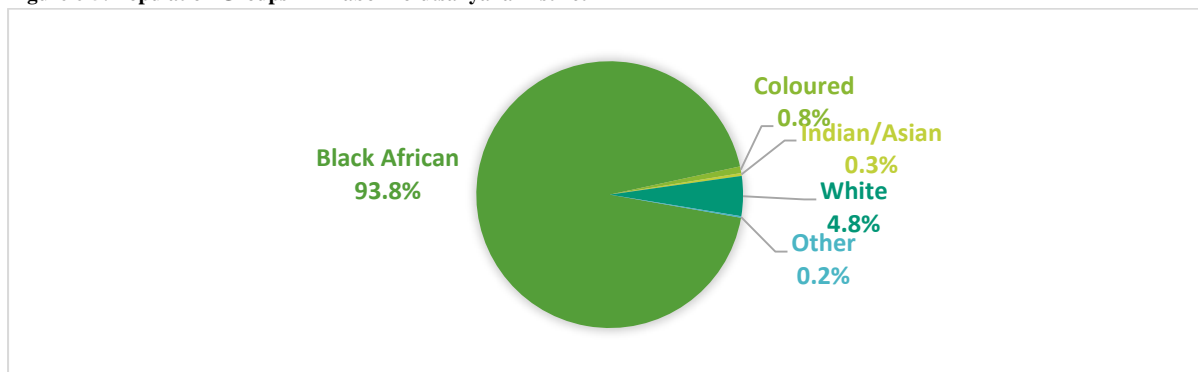


Adapted from Regional Standardised data, 2015



Figure 6-4 above, illustrates the various population groups within the Free State Province. The largest population race group in the province is the Black African population group, which account for 88% of the population. The second largest population group in the Province is the White population group, which accounts for approximately 8.7%.

Figure 6-5: Population Groups in Thabo Mofutsanyana District



Adapted from Regional Standardised data, 2015

Figure 6-5 above, illustrates the racial distribution of the Thabo Mofutsanyana District. The largest population group within the District, similar to the province, is the Black African population group, accounting for approximately 94% of the District's population. The second largest population group in the District is the White population group, which accounts for approximately 4.8% of the District's population.

Thus, there is a large number of working aged individuals within the Thabo Mofutsanyana District which will be able to work at the Agri-Hub. Furthermore, there is a significantly larger Black African population and female population that can benefit from the implementation of the Agri-Park within the District.

6.2 Economic Profile

Gross Geographical Product (GGP) or Gross Domestic Product by Region (GDP-R) is essentially a sub-national representation of Gross Domestic Product (GDP) used to measure the size of the region's economy. GDP-R is an aggregate of Gross Value Added (GVA) of all the producing units found within the region. GVA can be defined as the measure of the goods and services produced within a region. **Table 6-1** that follows, illustrates the real (adjusted for inflation) GDP-R for 2010 per Free State District.

Table 6-1: Real Gross Domestic Product per Region for 2010

Total GDP-R ⁶ per District Municipality:	Real Gross Domestic Product by Region (GDP-R) for 2010	
	GDP-R ² (Rands)	Percentage (%) of Free State total
Mangaung Metro	29 893 753	32.53
Fezile Dabi	29 930 206	32.57
Lejweleputswa	16 801 347	18.28
Thabo Mofutsanyana	12 305 304	13.39
Xhariep DM	2 969 617	3.23

Adapted from Integrated Development Plan, 2014

⁶ Real Gross Value Added by region for 2010 (latest statistics) adjusted for inflation (constant 2005 prices (R1 000)).



Table 6-1 above, illustrates that Thabo Mofutsanyana is the second smallest contributor to the Free State's GDP-R, as the District only contributes R12.3 million (approximately 13.39%) to the total GDP-R for the province. The largest contributor is Fezile Dabi with R29.9 million (approximately 32.57%), followed closely by Mangaung Metropolitan with R29.8 million (approximately 32.53%).

The Xhariep District is the smallest contributor, with only R2.9 million (approximately 3.23%). **Table 6-2** below, illustrates the GVA per District municipality. With respect to GVA, Mangaung Metropolitan is the largest contributor with R27 million (approximately 33.09%) to the overall GVA for the Free State. Thabo Mofutsanyana however, remains the second smallest contributor with R10 million (approximately 13.39%), to the overall GVA for the Free State.

Table 6-2: Real Gross Value Added by Region for 2010

Total GVA ² per District Municipality:	Real Gross Value Added by Region (GVA-R) for 2010	
	GVA-R ² (Rands)	Percentage (%) of Free State total:
Mangaung Metro	27 078 410	33.09
Fezile Dabi	26 022 394	31.80
Lejweleputswa	15 302 622	18.70
Thabo Mofutsanyana	10 810 333	13.21
Xhariep MD	2 629 265	3.21

Adapted from Integrated Development Plan, 2014

There are many sectors that make up the overall GVA of a region. Each sector contributes a varying amount to the overall GVA depending on the most established sectors in the region. The sectors are as follows:

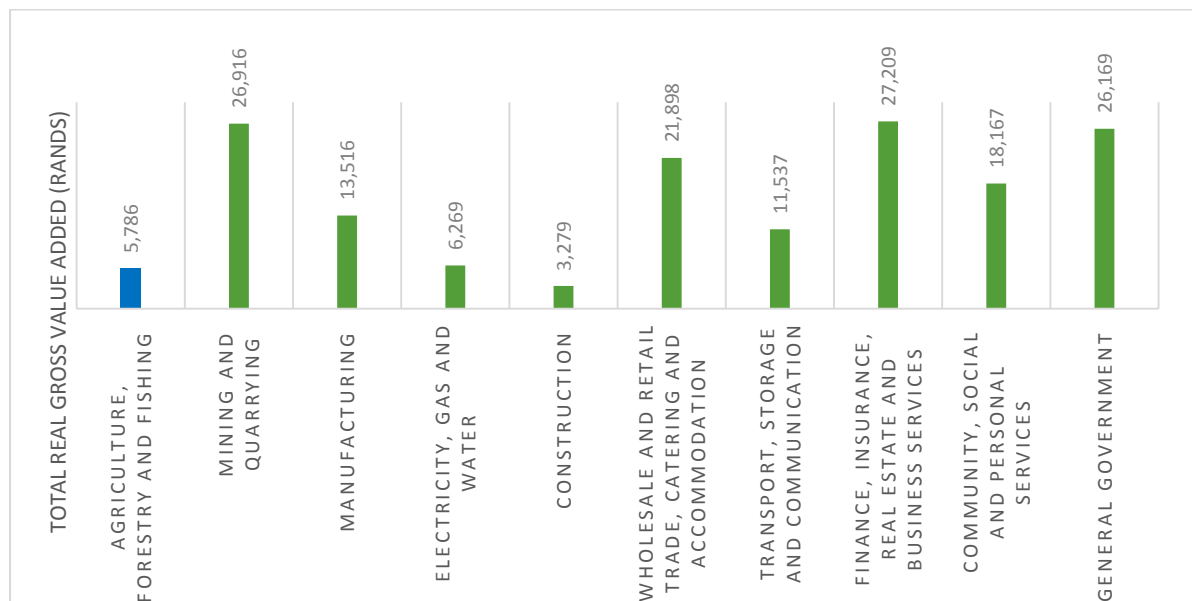
- Agriculture, forestry, and fishing,
- Mining and quarrying,
- Manufacturing,
- Electricity, gas, and water,
- Construction,
- Wholesale and retail trade, catering and accommodation,
- Transport, storage and communication,
- Finance, insurance, real estate and business services,
- Community, social and personal services, and
- General government.

Figure 6-6 below, illustrates the total real GVA for the Free State Province.

As indicated in Figure 6-6, the most prominent sectors in the province are mining and quarrying accounting for approximately 17% of GVA); and finance, insurance, real estate, and business services (accounting for approximately 17% of GVA as well). The Agricultural sector only contributes 4% to the total GVA for the Free State Province.



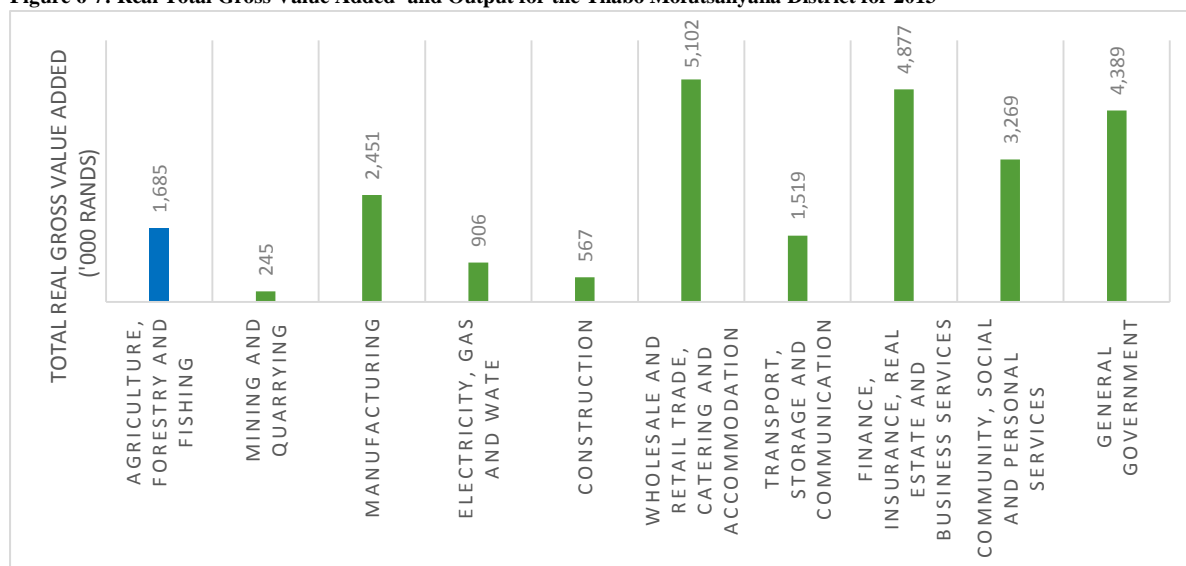
Figure 6-6: Total Real Gross Value Added⁷ and Output for the Free State for 2013



Adapted from Regional Standardised data, 2015

On a District level, the Thabo Mofutsanyana District can also be broken down into the relevant sectors mentioned above. Figure 6-7 below, illustrates the most prominent contributors to the GVA of the Thabo Mofutsanyana District. Tourism is one of the biggest economic activities that occur in the District; it is justified by the wholesale and retail trade, catering, and accommodation sector (accounting for approximately 20% of the total GVA in the District), being the most prominent sector in the District. Mining and quarrying only accounts for approximately 1% in the District; however, agriculture accounts for 7% of the total GVA in the District.

Figure 6-7: Real Total Gross Value Added³ and Output for the Thabo Mofutsanyana District for 2013



Adapted from Regional Standardised data, 2015

⁷ Adjusted for inflation using 2006 prices as a base year.





It can be stated that the Thabo Mofutsanyana District has significant potential and capacity for growth. Thus, the Agri-Park system will lend a helping hand in promoting economic growth, among other benefits such as food security and job creation.

6.3 Social Service Infrastructure Profile

Social service delivery within the Thabo Mofutsanyana District is examined in this section of the report. Services such as, water, electricity, and sanitation will be evaluated.

6.3.1 Access to Water

Approximately 72% of the human body is made up of water. Thus, water is the essence of human survival and is one of the most the most important natural resources on earth. However, in poor urban centres and rural communities throughout Sub-Saharan Africa, hundreds of millions of people suffer from a lack of access to safe, clean water.

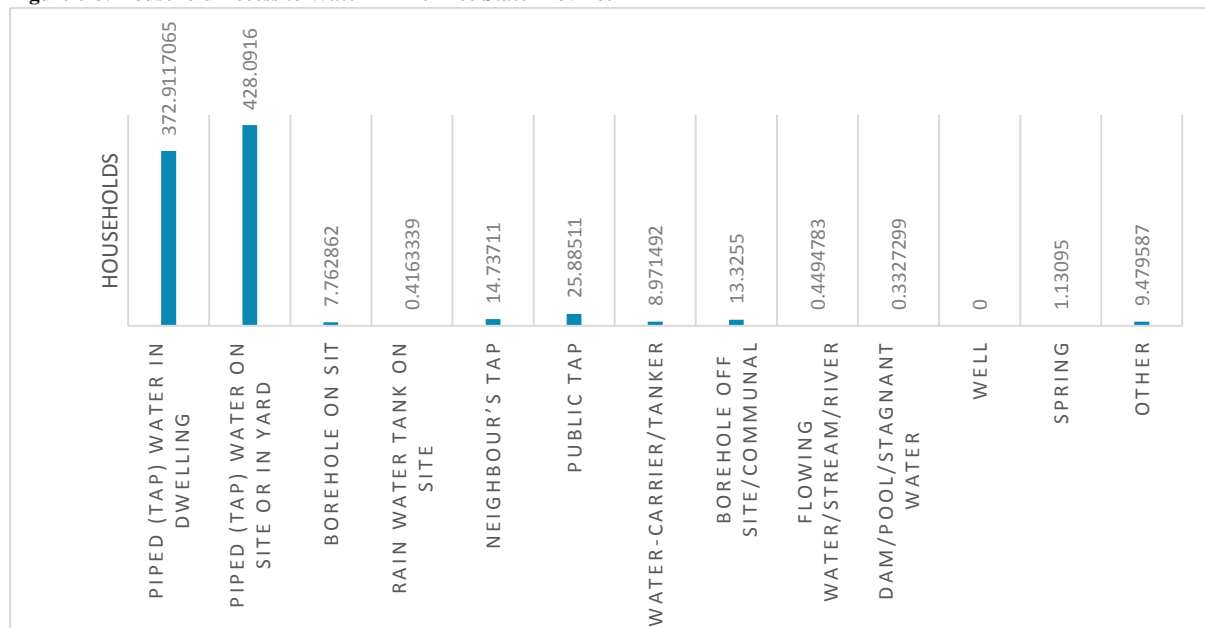
Access to clean water improves health and education (children do not have to fetch water from dams or rivers), but also reduces poverty (from improved health and education) and hunger (water leads to food security) (The Water Project, 2015).



Approximately 93% of South Africa's population has access to improved sources of drinking water (Purvis, 2015).

Figure 6-8 below, illustrates the various sources of water that households in the Free State Province utilise.

Figure 6-8: Household Access to Water in The Free State Province



Adapted from Regional Standardised data, 2015



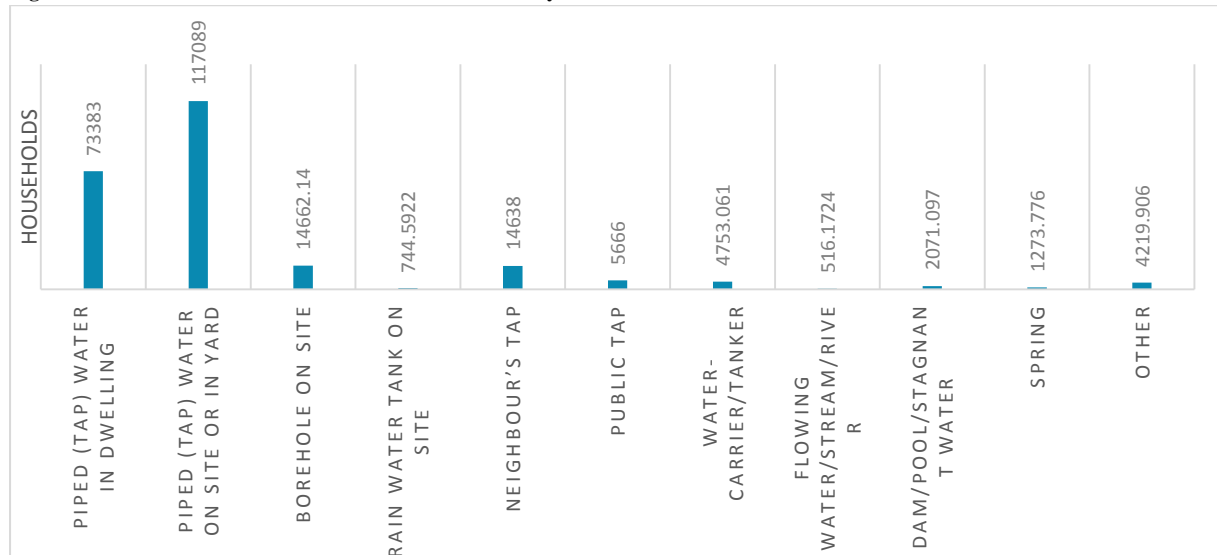
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From Figure 6-8, it can be noted that approximately 42% of households have access to clean water through piped water within their residences, while approximately 48% of households have access to water from piped taps within their yards.

Figure 6-9 below, illustrates the various sources of water that households in the Thabo Mofutsanyana District utilise

Figure 6-9: Household Access to Water in Thabo Mofutsanyana



Adapted from Regional Standardised data, 2015

From Figure 6-9 above, it can be noted that approximately 57% of households in Thabo Mofutsanyana have access to water through taps within their yards, while only 36% of households in the District have access to water via piped lines within their residences

6.3.2 Energy Sources

In order to promote shared prosperity and end extreme poverty, it is vital that all individuals have access to sustainable, affordable, and reliable energy. Approximately 3 billion individuals in the world live without access to electricity; thus, nearly half of the world population lives without electricity or they only have access to electricity of two to three hours per day.

Approximately 2.9 billion of the 3 billion individuals rely on biomass and wood for heating and cooking which leads to an increase in air pollution (both indoor and outdoor) and which ultimately results in 4.3 million deaths per year globally (The World Bank, 2015).



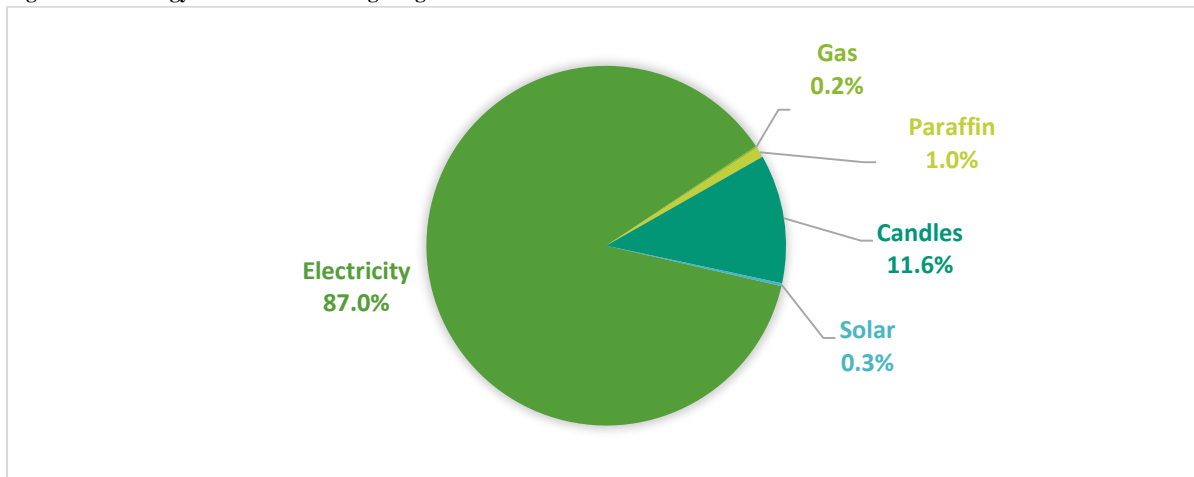
Energy is important for poverty alleviation as energy enables the underprivileged to stay healthy (able to cook the food⁸ they consume, and also stay warm during colder months) and promote education (energy used as a light

⁸ Cooking food provides the benefit of destroying possible contaminants on the food, for example bacteria, which ultimately lowers the possibility of illness.



source to do homework, read, etc.). As the access to energy increases, economic growth will also increase due to the increase in a healthy /and skilled work force. Figure 6-10 below, illustrates the various sources of energy used for lighting by the population of the Thabo Mofutsanyana District.

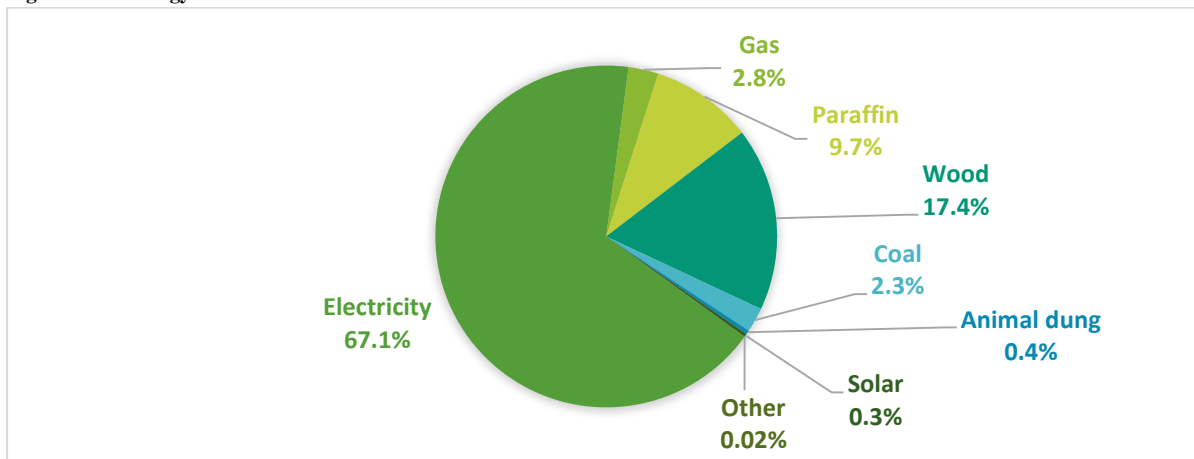
Figure 6-10: Energy Source Used for Lighting



Adapted from Regional Standardised data, 2015

From Figure 6-10 above, it can be stated that approximately 87% of the population in the District utilise electricity for lighting, while 11.6% use candles. Approximately 1% of the District's population uses paraffin as a source of light, 0.3% of the population use solar energy, and only 0.2% use gas for light. Thus, the District has relatively good access to electricity as a source of lighting.

Figure 6-11: Energy Sources Used for Heat



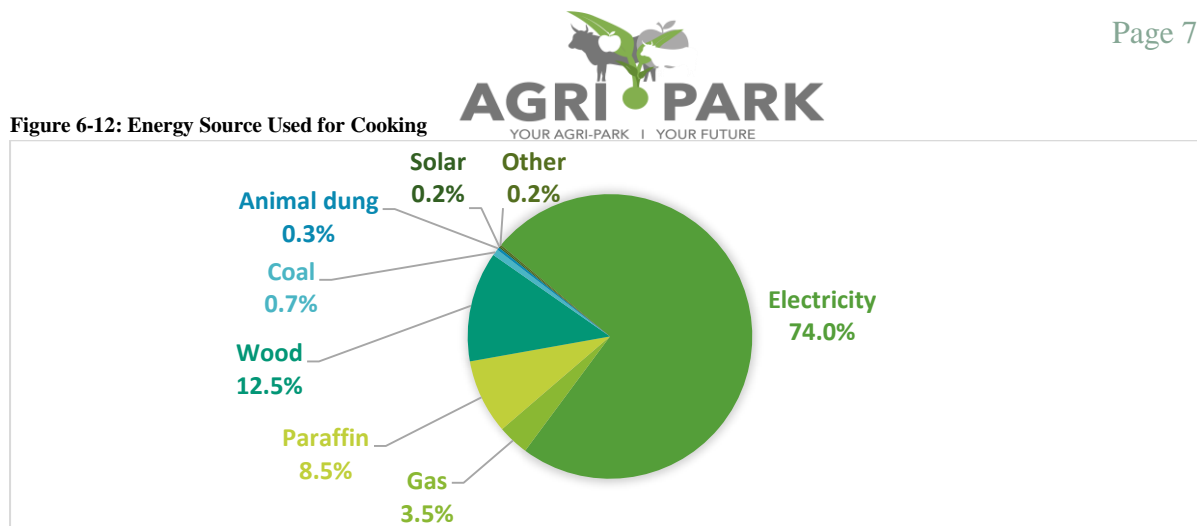
Adapted from Regional Standardised data, 2015

Figure 6-11, above illustrates the various energy sources used for heat in the District. Approximately 67.1% of the District's population uses electricity as a source of heat and 17.4% use wood. Other sources of energy used for heat are: gas (2.8%), paraffin (9.7%), coal (2.3%), animal dung (0.4%), and solar (0.3%). Approximately 0.02% of the population use other sources of energy (from the ones mentioned above) for heat, for example candles, wind generated electricity, etc.



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Figure 6-12: Energy Source Used for Cooking



Adapted from Regional Standardised data, 2015

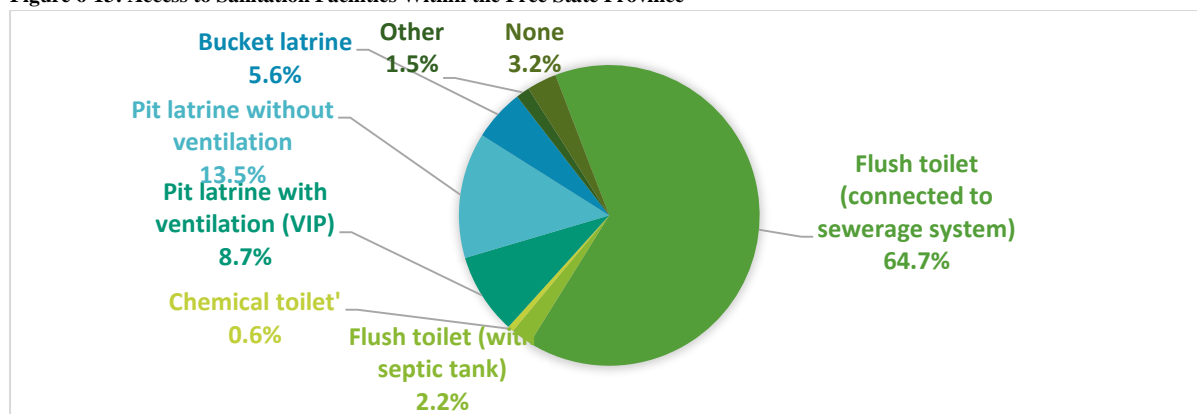
Figure 6-12 above, illustrates the different energy sources used by the population for cooking within the District. Electricity is used by approximately 74% of the District's population as a source of energy for cooking, while approximately 12.5% of the District's population uses wood. Thus, in terms of the energy infrastructure, it can be stated that the most commonly used source of energy in the Thabo Mofutsanyana District is electricity, followed by wood and paraffin. Thus, if the Agri-Hub utilises alternative energy sources, households may not have to decrease their consumption of electricity.

6.3.3 Sanitation Facilities: Toilets

More than 15% of the world's population has no access to toilets, while approximately 1000 children died daily from diseases associated with poor sanitation (World Toilet Organisation, 2015). Water pollution and deteriorating public health (which contributes to childhood stunting and malnutrition) are some of the issues caused from the lack of toilets worldwide. Approximately 66% of South Africans have access to improved sanitation facilities (Purvis, 2015).

Figure 6-13 below, illustrates the access to sanitation facilities within the Free State Province.

Figure 6-13: Access to Sanitation Facilities Within the Free State Province



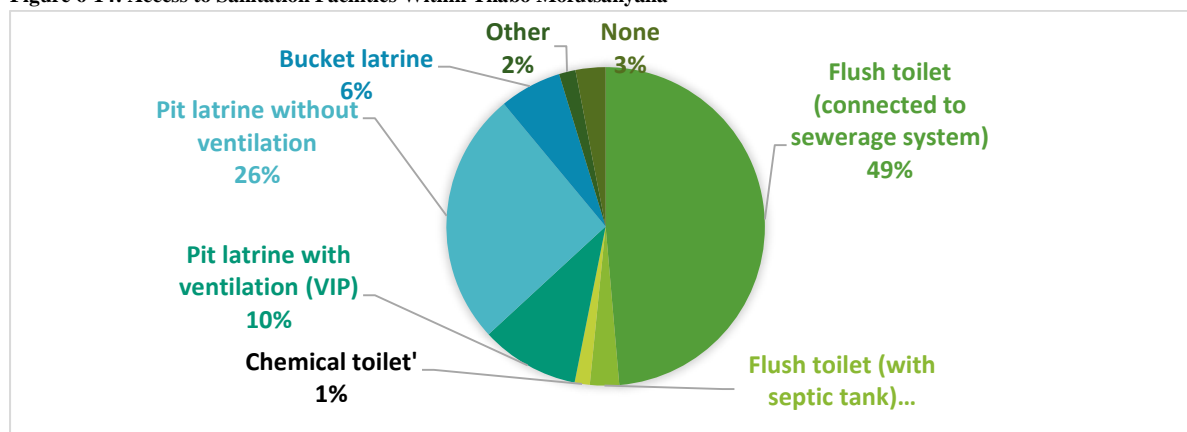
Adapted from Regional Standardised data, 2015

From Figure 6-13 above, it can be noted that approximately 64.7% of the Province has access to flushing toilets, while only 3.2% of the Province has no access to sanitation facilities.



Figure 6-14 below, illustrates the access to sanitation facilities within the Thabo Mofutsanyana District.

Figure 6-14: Access to Sanitation Facilities Within Thabo Mofutsanyana



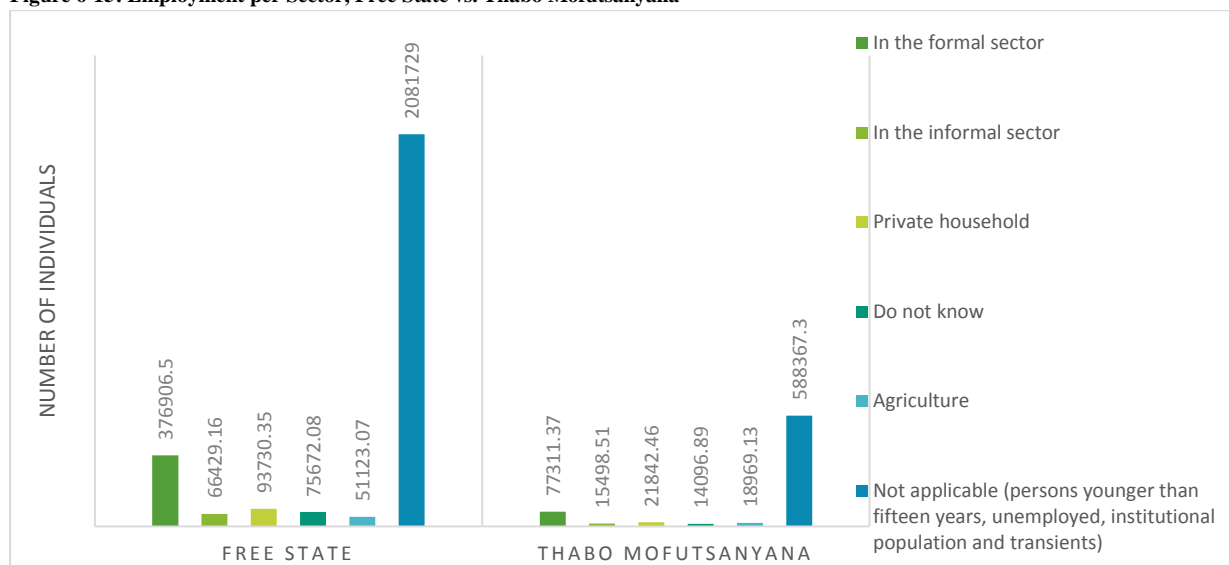
Adapted from Regional Standardised data, 2015

From Figure 6-14 above, it can be noted that approximately 52% (less than the provincial percentage, illustrated in Figure 6-13 above), of the District has access to flushing toilets (connected either to septic tanks or the sewerage system), while only 3% of the District's population have no access to sanitation facilities.

6.4 Employment Per Sector

Inclusive growth is at the heart of many of South Africa's development strategies. Inclusive growth is defined as an economy with high-employment that is able to deliver social, economic, and territorial cohesion (Huitfeldt, 2015). Figure 6-15 below, illustrates the employment per sector within the Free State and Thabo Mofutsanyana.

Figure 6-15: Employment per Sector, Free State vs. Thabo Mofutsanyana



Adapted from Regional Standardised data, 2015

From Figure 6-15 above, it can be stated that a large portion of individuals, in both the Province and District, are either younger than 15 years of age, unemployed, institutionalised, or transient. The formal sector is the largest employment sector in both the Province and the District. The Agricultural sector accounts for approximately 1.9%



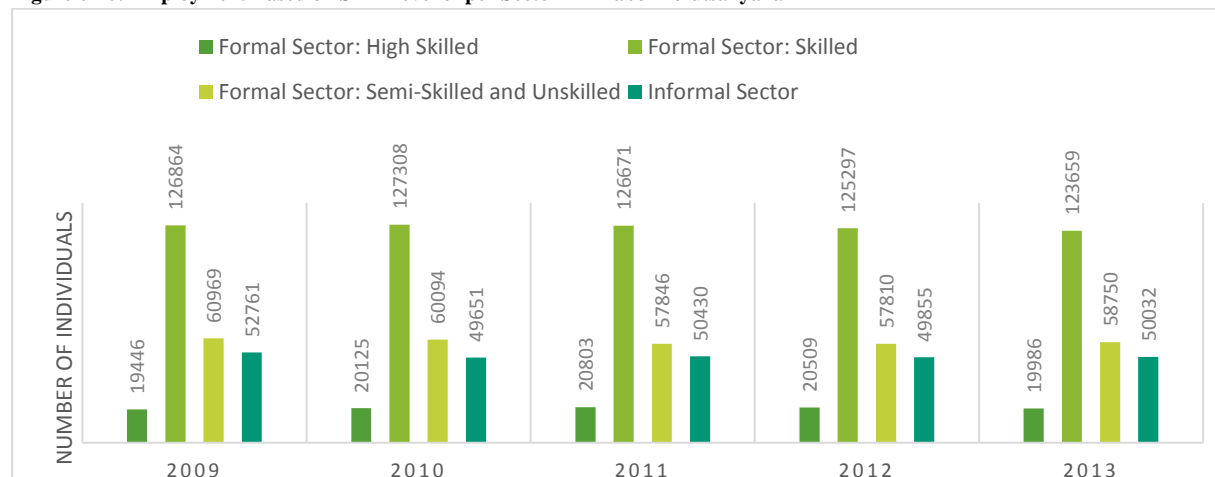
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of employment within the Free State Province, while it accounts for approximately 2.6% of employment within the Thabo Mofutsanyana District.

The employment per sector, based on the level of skills required, is illustrated in Figure 6-16 below.

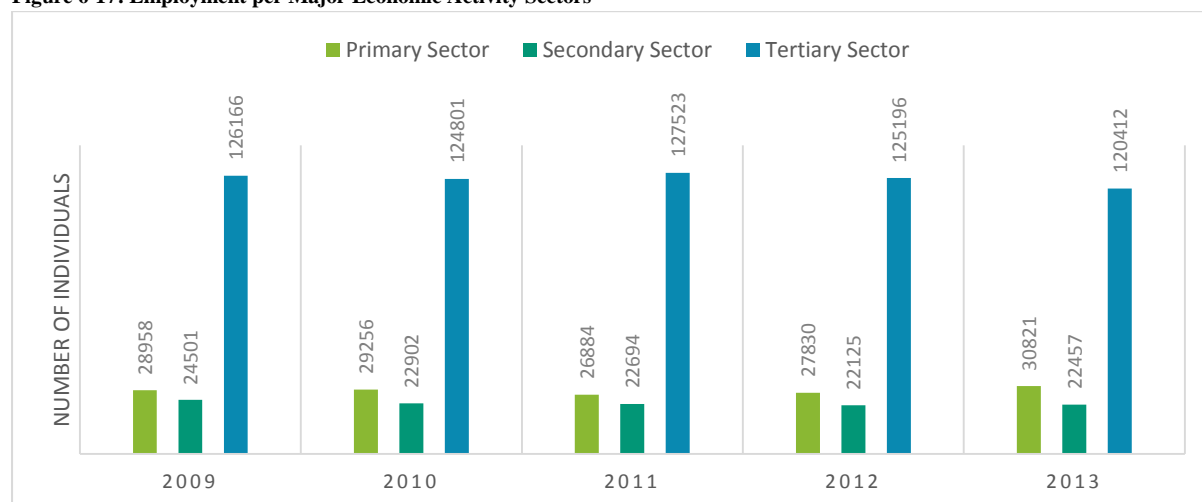
Figure 6-16: Employment Based on Skill Level of per Sector in Thabo Mofutsanyana



Adapted from Regional Standardised data, 2015

From Figure 6-16 above, it can be seen that skilled employment in the formal sector has, over the years, been the largest form of employment within the District, while high skilled employment remains the lowest. There has been a decline in employment in the informal sector by approximately 5.2% over the five-year period (from 2009 to 2013). High skilled employment in the formal sector has increased by approximately 2.8% over the five-year period (from 2009 to 2013). Figure 6-17 below, illustrates the number of individuals employed in the three major economic activity sectors (primary, secondary, and tertiary sectors)⁹ within the Thabo Mofutsanyana District.

Figure 6-17: Employment per Major Economic Activity Sectors



Adapted from Regional Standardised data, 2015

From Figure 6-17 above, it can be noted that the majority of individuals employed within the District are within the tertiary sector; however, employment in the tertiary sector declined over the five-year period (from 2009 to 2013).

⁹ Please refer to Appendix C for more information on employment within the various economic activity sectors.

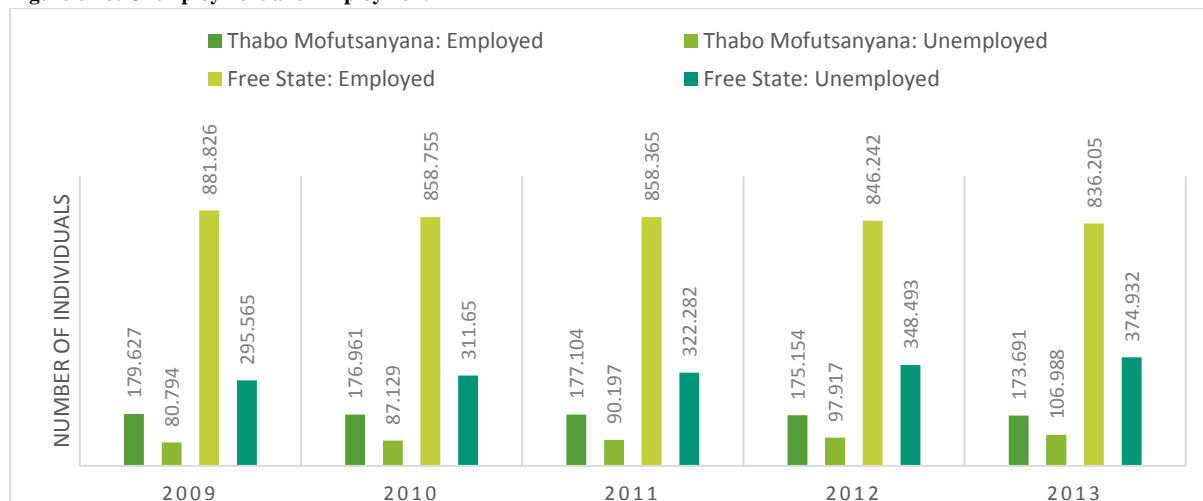


2013) by approximately 4.6%, while employment in the primary sector increased over the same period by approximately 6.4%. The Agri-Park system will increase employment throughout the various sectors.

6.5 Unemployment

One of the main challenges faced by South Africa is the high rate of unemployment. The unemployment rate in South Africa is approximately 24.3%, however, the Free State Province has an unemployment rate of 57.2%, which is significantly higher than the national rate (Stats SA, 2015). Figure 6-18 below, illustrates the number of individuals that are employed and unemployed in the Free State and Thabo Mofutsanyana District.

Figure 6-18: Unemployment and Employment



Adapted from Regional Standardised data, 2015

From Figure 6-18 above, it can be seen that employment in the Free State has decreased by approximately 5.2% over the five-year period (from 2009 to 2013), while employment in Thabo Mofutsanyana decreased by approximately 3.3% during the same period. Thus, the Agri-Park will benefit the District by decreasing unemployment through job creation.

6.6 Skills: Education Level Attained

Education is one of the many driving forces behind economic growth as, education not only enables many individuals to step over the line of poverty (by providing the opportunity of them to earn higher incomes), but it also sets the foundation for technological innovation and adaptation.

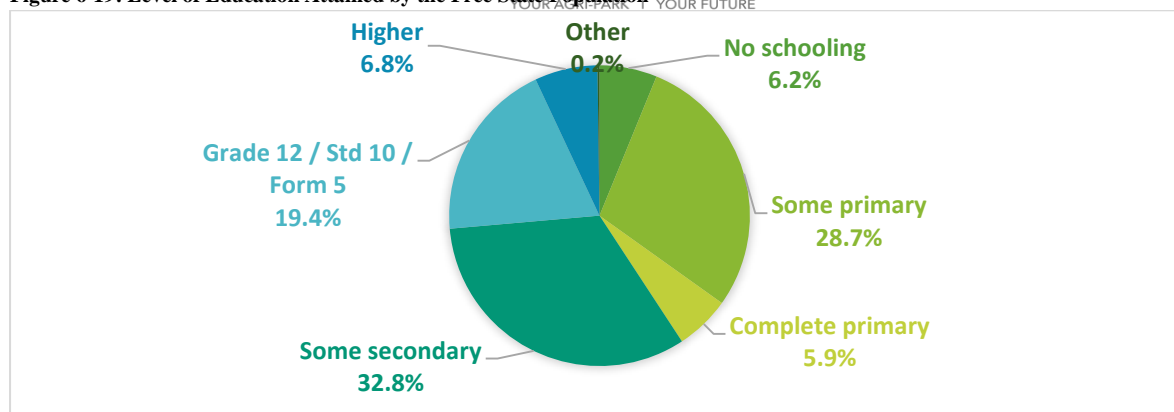
Figure 6-19 below, illustrates the level of education attained by the population of the Free State Province. Approximately 19.4% of the population has completed Grade 12 (matric), while 6.2% of the population has no form of schooling. The majority of the population, approximately 32.8%, in the Free State has some secondary school level of education. Approximately 6.8% of the Free State population has a higher level (diploma, degree, honours, master, etc.) of education.



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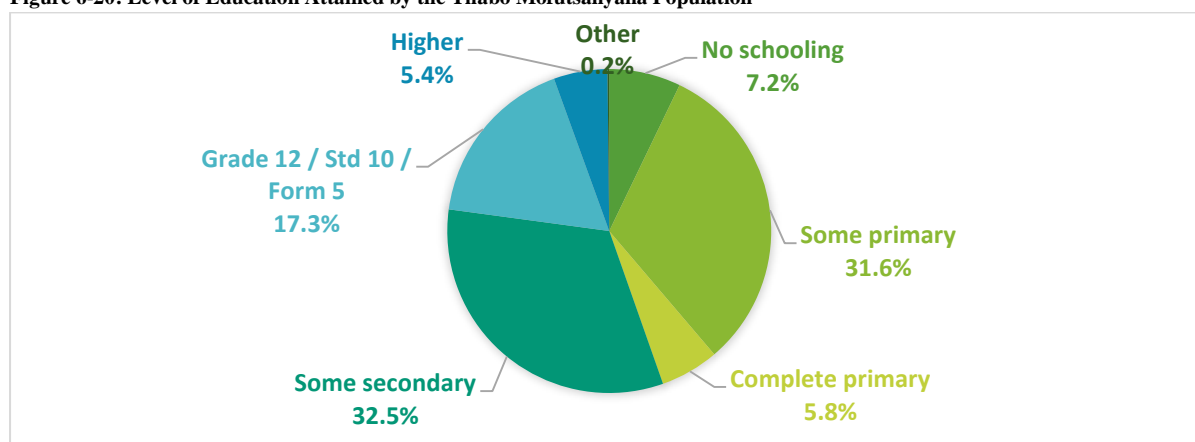
Figure 6-19: Level of Education Attained by the Free State Population



Adapted from Regional Standardised data, 2015

Figure 6-20 below, illustrates the level of education attained by the population of Thabo Mofutsanyana.

Figure 6-20: Level of Education Attained by the Thabo Mofutsanyana Population



Adapted from Regional Standardised data, 2015

From Figure 6-20 above, it can be stated that the majority of the District's population, approximately 32.5%, has some secondary school level of education, similar to that of the Province, illustrated in Figure 6-19 above. Approximately 7.2% of the District's population have no form of schooling.

The Agri-Park will benefit a number of individuals within the District as training and skills development will be provided to the employees (from farmers to marketing personnel) of the Agri-Park.

6.7 Income and Poverty

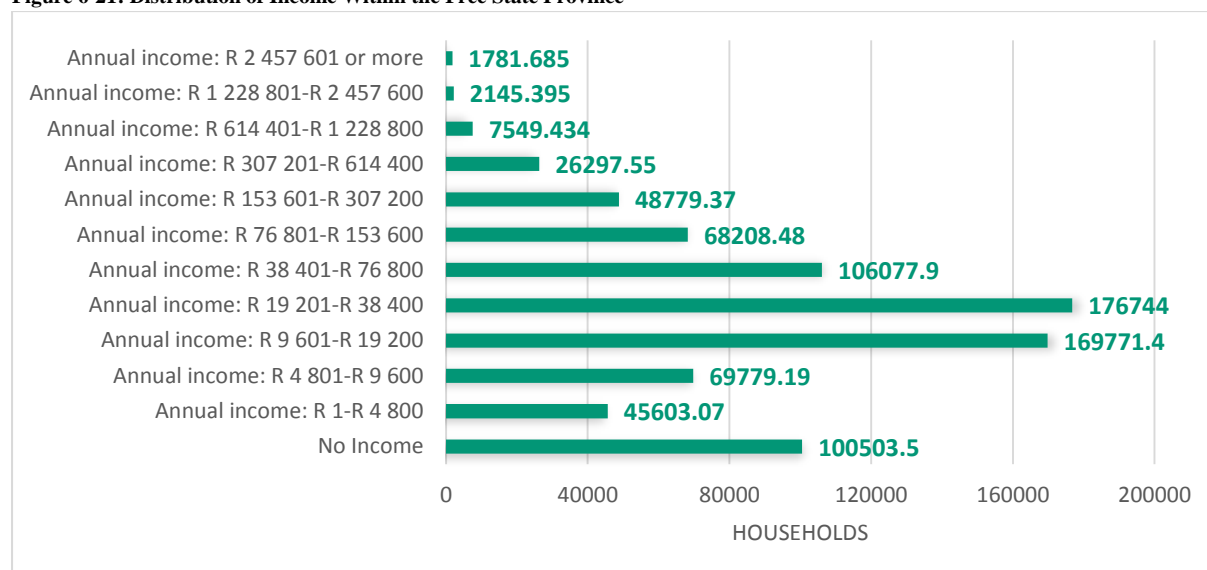
Poverty is one of the many challenges faced by numerous South Africans, and it is one of the main focuses of many governmental policies and strategies. Poverty and household income levels serve as a measure of relative deprivation within an area, as well as serving as indicators of economic success. Monetary measures of poverty and income distribution are often the most widely quoted measures when assessing the level of poverty.

Figure 6-21 below, illustrates the distribution of annual income within the Free State Province. Approximately 21% of households have an annual income of between R19 201 and R38 400; while 12% of the Free State's



households earn no income. Approximately 20% of the province's households earn between R9 601 and R19 200 per year; while only approximately 0.2% of households in the province earn R2 457 601 or more per year.

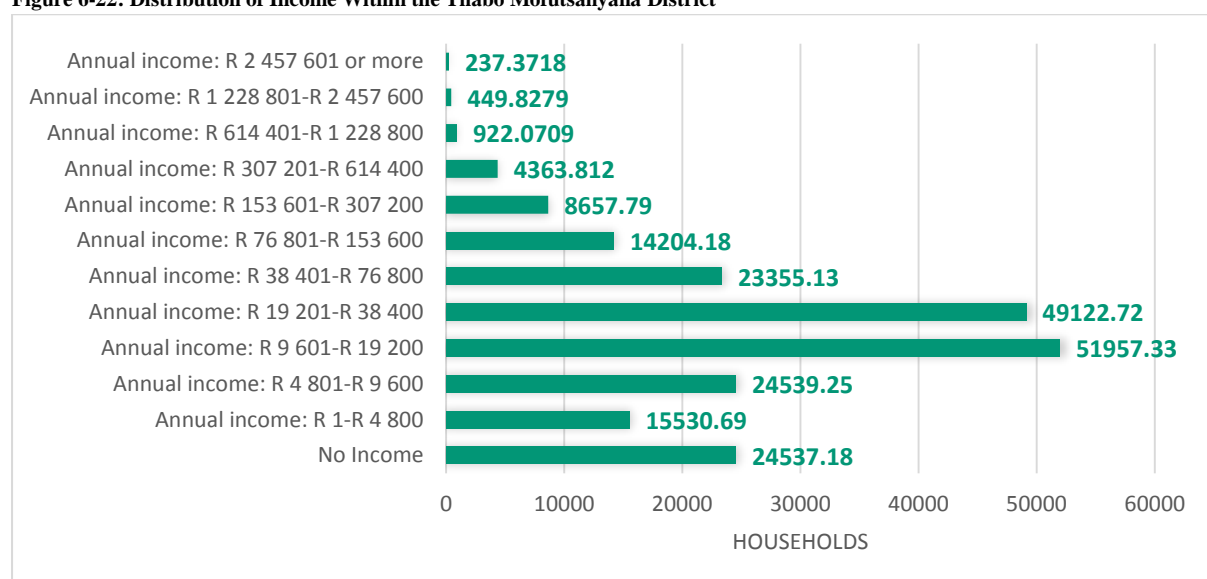
Figure 6-21: Distribution of Income Within the Free State Province



Adapted from Regional Standardised data, 2015

Figure 6-22 below, illustrates the distribution of annual income within the Thabo Mofutsanyana District.

Figure 6-22: Distribution of Income Within the Thabo Mofutsanyana District



Adapted from Regional Standardised data, 2015

From Figure 6-22 above, it can be seen that the majority, approximately 24%, of households within the Thabo Mofutsanyana District earn between R9 601 and R19 200 per year; while approximately 11% of households earn no income, which is lower than the rate of households that earn no income on a provincial level, illustrated in Figure 6-21 above.



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There are two ways in which poverty lines can be established:

- In absolute terms and independent of the distribution of wellbeing.
- In relative terms, which are related to the distribution of wellbeing.

Efforts have been made in South Africa in order to estimate some indices of absolute poverty lines, namely: upper-bound poverty line, lower-bound poverty line, and food poverty line.

Table 6-3 below, illustrates the various types of poverty lines and their equivalent rand value.

Table 6-3: Poverty Lines

Type of Poverty Line	Equivalent Rand Value
Food poverty line	R305 per person per month
Lower-Bound poverty line	R416 per person per month
Upper-Bound poverty line	R577 per person per month
International poverty line (lower-bound)	\$1.25 (R18.10) per person per day
International poverty line (upper-bound)	\$2.50 (R36.20) per person per day

Adapted from Human Sciences Research Council, 2014

From Table 6-3 above, it can be seen that the food poverty line is equivalent to approximately R305 per month per capita. The lower-bound poverty line is equivalent to approximately R416 per month per capita, while the upper-bound poverty line is equivalent to approximately R577 per capita per month. In international terms of poverty, the lower-bound poverty line is equivalent to R18.10 per person per day, while the upper-bound poverty line is equivalent to R36.20 per person per day.

Thus, anyone who falls below R577 per month is considered to be in poverty, therefore approximately 70% of the Thabo Mofutsanyana District experience poverty, which is higher than the provincial rate of poverty which is approximately 63%. The Agri-Park will thus, provide a stepping stone for numerous individuals that currently experience poverty.

6.8 Synthesis

With an analysis of the different indicators used to study the socio-economic status of the TMDM, the following points can be highlighted.

- The TMDM has a small working age population particularly when compared to the Free State Province.
- A majority of the population represents the black race, which is significant for the application of BBBEE and land reform policies.
- With reference to the district GVA, it can be seen that the TMDM is a relatively small contributor.
- Social service infrastructure in the TMDM is fairly adequate, however, there is space for improvements.
- Employment is concentrated mainly in the agricultural sector. Although the district demonstrated lower unemployment rates in comparison to the Province, other indicators reveal that the majority of those that are employed are in low skill and low wage jobs.
- An alarming portion of the TMDM population receives an income that is lower than the poverty line.

Therefore, the TMDM's socio-economic status can be described as one that is highly dependent on the primary industry with little economic growth and expansion and still has some improving to make in their level of living and increase chances to access opportunities. However, with the Agri-Parks development and the correct interventions, issues pertaining to diversifying and expanding the economy, increasing the skills of the population



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and ultimately increased income, the district has the potential to improve the current socio-economic conditions through the development of the Agri-Park.

An analysis of the agricultural industry of the TMDM will be conducted in the next section of the report.

7 AGRICULTURAL INDUSTRY ANALYSIS

Agriculture is a major economic sector in South Africa, not because of the Gross Domestic Product contribution, but rather the support to social benefits such as rural upliftment and employment. However, the conditions and environmental contribution for agriculture vary within South Africa, certain regions may have a comparative advantage for particular crops over others (Baleta & Pegram, 2014).

The agricultural sector in the Free State, comprises of animal production, dairy farming, game farming, fruit production, agro-processing, aquaculture, horticulture, and crop production. The Free State accounts for approximately 14.5% of South Africa's commercial farming. Moreover, the Free State also accounts for:

- 90% of South Africa's cherry production,
- 15% of South Africa's gross agriculture income,
- 26% of South Africa's field crops (hay, cotton, etc.),
- 33% of South Africa's potato production,
- 53% of South Africa's sorghum production, and
- 45% of South Africa's sunflower production.

(Free State Development Corporation, 2015)

One of the most fertile, and consequently one of the most productive agricultural areas in the Free State, is the Thabo Mofutsanyana District. However, the agricultural sector does experience serious financial strain with high production costs. Natural disasters, such as drought (which is a current problem), along with other forms of disasters contribute to the poor state of the sector within the District. Another detrimental factor is the poor state of some of the Districts roads and transportation by train is not considered safe.

7.1 Main Agricultural Activities

The agricultural sector within the District is still dominated by white farmers, but the government and commercial farmers are putting in an effort to build capacity with previously disadvantaged people (specifically, small-scale and emerging black farmers). Typically, the funds required to buy land for emerging farmers are often not enough to also purchase the necessary equipment and tools. Furthermore, the slow pace of land reform hampers the inclusion of small-scale and emerging black farmers within the sector. Despite the availability of support within the sector, many small-scale and emerging farmers experience a problem in accessing information and support.

Recent commonage (pasturing animals) and small-scale farming developments have proven to be unsuccessful due to lack of commitment, management, and other skills. Therefore, many farmers (particularly the small-scale and emerging farmers), need on the ground training and constant monitoring in order to become successful agricultural players. Agri-Processing within the Thabo Mofutsanyana District is virtually non-existent, especially on a large-scale basis; the region nevertheless, has significant potential with relation to future markets.



Very few emerging farmers exist within the Thabo Mofutsanyana District. Furthermore, they find it difficult to improve their positions. Thus, Support programmes such as the Agri-Parks programme, will be to the mutual benefit of commercial, small-scale, and emerging farmers.

The main agricultural activities that occur in the Thabo Mofutsanyana District are:

- **Crop farming:**
 - ❖ Maize, wheat, vegetables, soy beans, dry beans, sunflowers, ground nuts.
- **Livestock farming:**
 - ❖ Cattle (for beef and dairy) and sheep (meat and wool).
- **Horticulture:**
 - ❖ Cherries, peaches, and apples.

7.2 Current and Proposed Project in the Region

The concept of Local Economic Development (LED) strategies in recent years has gained worldwide acceptance as a locality-based response to dealing with challenges created by devolution, globalisation, and opportunities and crises on a local level. LED is a process in which the local government and community-based groups enter into partnerships with non-government sectors, or with each other, in an attempt to create new jobs, stimulate economic activity, and manage existing resources (Nel & Rogerson, 2005; World Bank, 2015).

The Thabo Mofutsanyana District has implemented a number of LED strategies. The most recent projects that have been completed in the Thabo Mofutsanyana District are mentioned in Table 7-1 below.

Table 7-1: Completed Projects in Thabo Mofutsanyana District

#	Project	Estimated Budget	Start Date
1	Six high mast lights in Lusaka	R1 million	July 2014
2	Maintenance of rural roads in Maluti-A-Phofung	R1 million	July 2014
3	Solar home system and solar street lights installations in the farming areas of Maluti-A-Phofung	R1.3 million	July 2014
4	Phase 2 of Reitz Road Paving	R1.8 million	July 2014
5	Road Rehabilitation	R2 million	July 2014
6	Re-gravelling rural areas of QwaQwa	R2 million	July 2014
7	The Lusaka road Rehabilitation	R2 million	July 2014
8	Implement 150 Solar Lights in Memel (50) and QwaQwa (100)	R4 million	July 2014
9	Construction of a sewer outfall facility in Memel	R6.5 million	July 2014
10	Rehabilitation of athletic tracks in Charles Mopeli	R14 million	July 2014
11	Design and Revamping of Intabazwe Sports facility	R24 million	July 2014
12	Design and Revamping of Petrus Steyn Sports facility	R24 million	July 2014

Adapted from Thabo Mofutsanyana District, 2014 Department of Rural Development and Land Reform, 2015.

Many of the development projects illustrated in Table 7-1 above, were for the development of the road infrastructure within the District. Lighting infrastructure projects were also implemented within the District, which include the implementation of 150 solar lights in Memel (50 solar lights) and QwaQwa (100 solar lights). A number of projects relating to socio-economic development were also implemented in the District, such as, among



others, a sewer outfall facility that was established in Memel, and the design and revamping of the Petrus Steyn sports facility.

In an ever changing world, development is important both socially and economically. Thus proposed development projects in the District are anticipated.

Table 7-2 below, illustrates the current and proposed infrastructure and socio-economic projects within the Thabo Mofutsanyana District.

Table 7-2: Proposed and Current Infrastructure and Socio-Economic Projects

#	Project	Estimated Budget	Start Date
1	Implementation of Asset Management System for Rural Roads	R2.2 million	2016
2	Paving of Ladybrand Road	R7 million	July 2014
3	Lindley Road paving	R7 million	July 2014
4	Installation of 65 000 solar geysers	-	2016
5	Informal Traders Upliftment Programme	-	2015
6	School Jojo tanks	-	2015
7	Community gardens	-	-

Adapted from Thabo Mofutsanyana District, 2014; Department of Rural Development and Land Reform, 2015.

From Table 7-2 above, currently four projects (two road infrastructure projects and two socio-economic projects) are proceeding within the District. There are two planned infrastructure projects namely, the implementation of an Asset Management System for rural roads within the District and the installation of 65 000 solar geysers within the District, both of which are set to begin in 2016.

A number of agricultural project have also been proposed and implemented for the District. From Appendix A, it can be stated that there are approximately 138 agricultural projects within the District. Approximately 28 of the 138 agricultural projects are within Harrismith, and only one within Tshiame.

With regard to the land used, approximately 14 projects will utilise state land, approximately 81 projects will utilise communal land, approximately 41 projects will utilise privately owned land, and the last two projects will be implemented using land owned by a public school and clinic. Approximately 104 projects will be utilised by small-holder farmers, while the other 34 projects will be utilised by commercial farmers. The most prominent type of production that the projects focus on are vegetables (69 projects), crops (25 projects), and beef (20 projects) however, the size (in terms of hectares) of the vegetable focused projects is relatively small compared to the size of other projects such as beef and dairy.

7.3 Environmental Conditions and Resource Analysis

One of the most important sectors of the South African economy is agriculture. In addition to providing the country with most of its crops, livestock, and seafood, which it raises and catches, the sector also contributes approximately R62.8 billion a year to the country's Gross Domestic Product (GDP). Environmental conditions are the main source of uncertainty, which affects the yield of crops especially in the context of climate change (Department of Agriculture, Forestry and Fisheries, 2014; Cong & Brady, 2012).

The Free State Province is in the middle of South Africa; the Province is also South Africa's third largest province in terms of area; the province accounts for approximately 10.6% (12. 9458 million hectares) of the country's total area. Approximately 3.2 million hectares of the Free State is cultivated land. The endowment of natural resources



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such as rainfall, topography, soil quality, etc., determine the potential use and output supply in the province. The analysis was based on geographical information (GIS) and maps displaying areas of agricultural land, potential, grazing capacity, and rainfall.

The sustainability of agricultural activities differs and is largely determined by the region's natural resources as discussed below.

7.3.1 Temperature

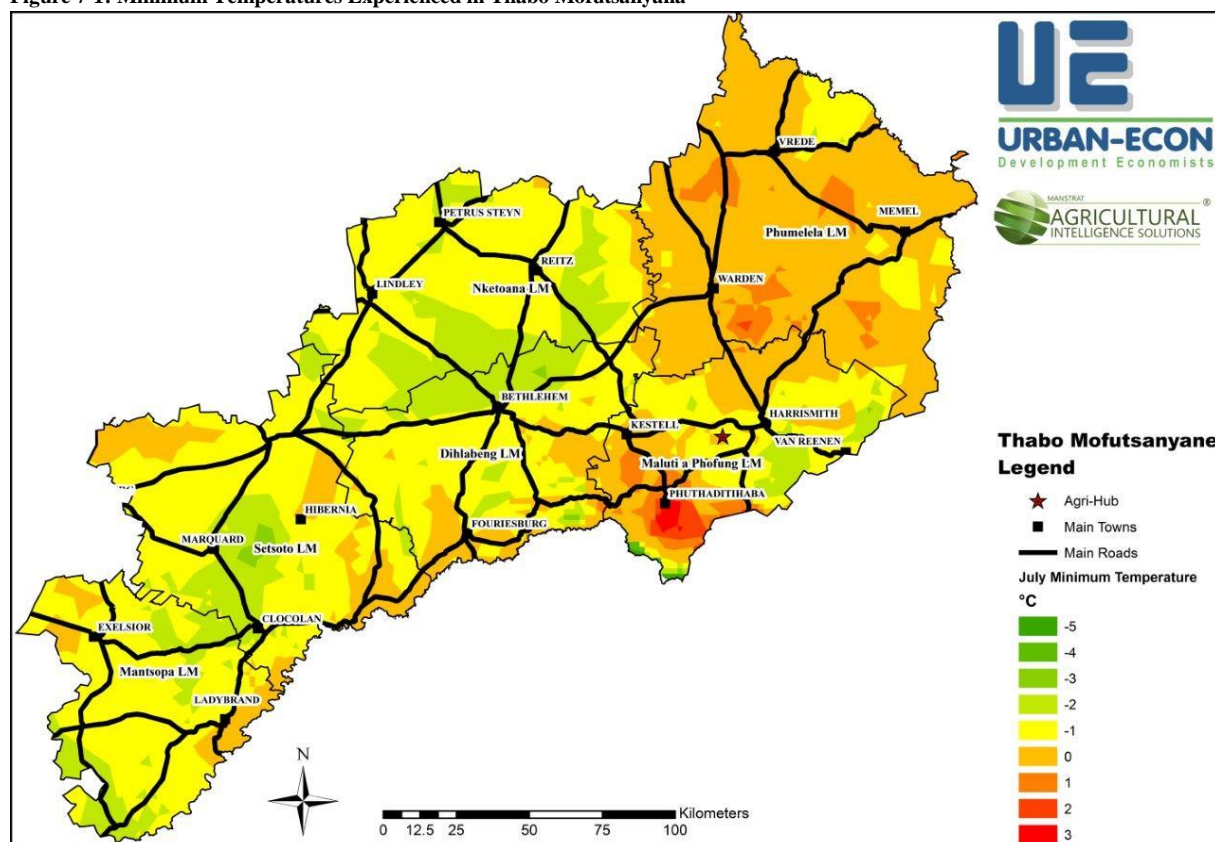


Temperature has an effect on numerous agricultural activities from the change in the colour of a tree's leaves to the acidity level that can be found in apple cider vinegar. Temperature also plays an important role in controlling physiological processes in insects, plants, and crops.

The temperature typically, affects the length of a growth season, for example, lower temperatures tend to increase the length of time that maize requires to grow due to the need to intercept radiation (Exenberger & Ponderfer, 2011; Cong & Brady, 2012). The eastern region (Thabo Mofutsanyana falls within this region) of the Free State is ideal for temperate fruit crops such as peaches, cherries, apples, etc., while the western and central regions of the province are ideal for early flowering or warmth requiring permanent crops such as almonds, walnuts, pomegranates, etc.

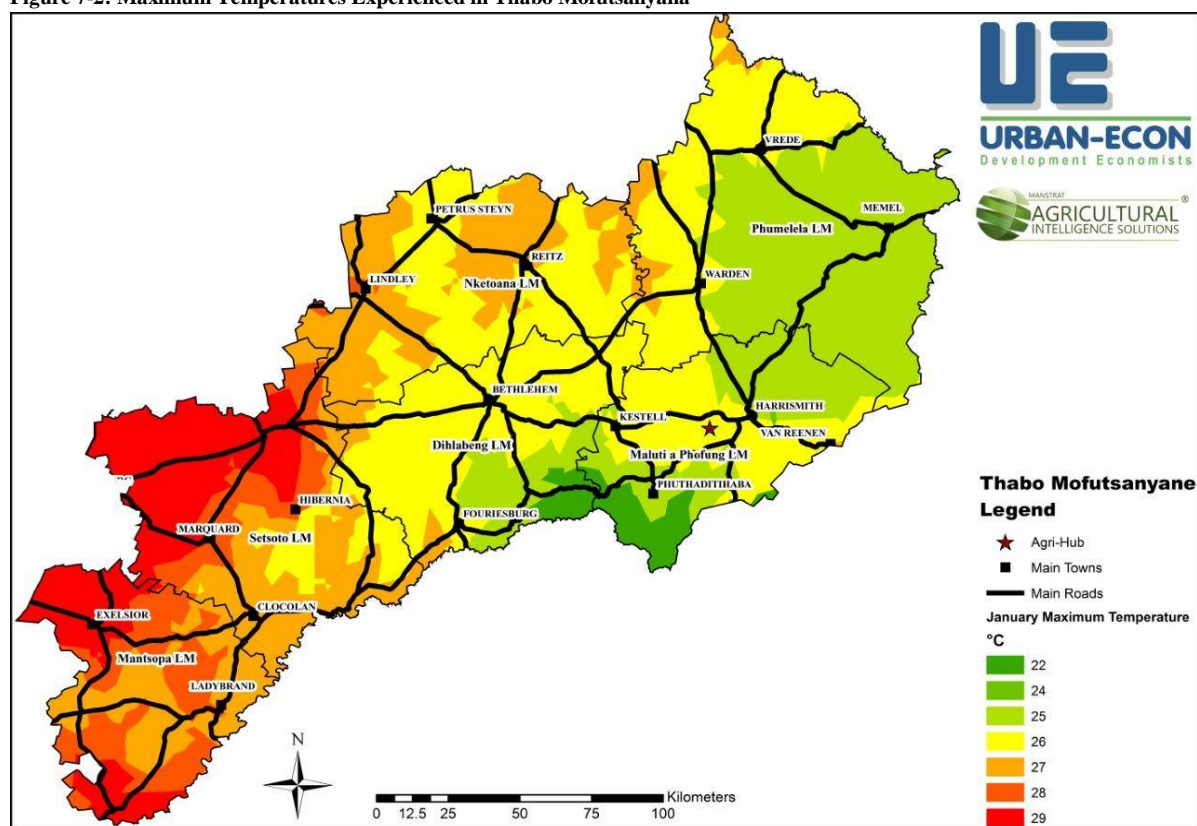
Figure 7-1 below, illustrates the minimum temperatures that can be experienced during July (middle of winter) in the Thabo Mofutsanyana District.

Figure 7-1: Minimum Temperatures Experienced in Thabo Mofutsanyana



There are two regions of the District that experience a minimum temperature of 3 °C, namely: the main town of Phuthaditjhaba and the northern region of the Phumelela Local Municipality. The Agri-Hub is located in a region that experiences a minimum of -1 °C to 0 °C during the middle of winter. The areas surrounding the Agri-Hub experience a minimum of -2 °C to 3 °C .

Figure 7-2: Maximum Temperatures Experienced in Thabo Mofutsanyana



From Figure 7-2 above, the Thabo Mofutsanyana District experiences a range of maximum temperatures from a hot 29 °C in the south west of the District to a cool 22 °C in the south of the District, while central areas of the District experience temperatures between 26 °C and 27 °C during the middle of summer. The Agri-Hub is located in an area that experiences a maximum of 26 °C during the middle of summer, the areas surrounding the Agri-Hub experience a maximum of between 24 °C and 26 °C.

7.3.2 Rainfall

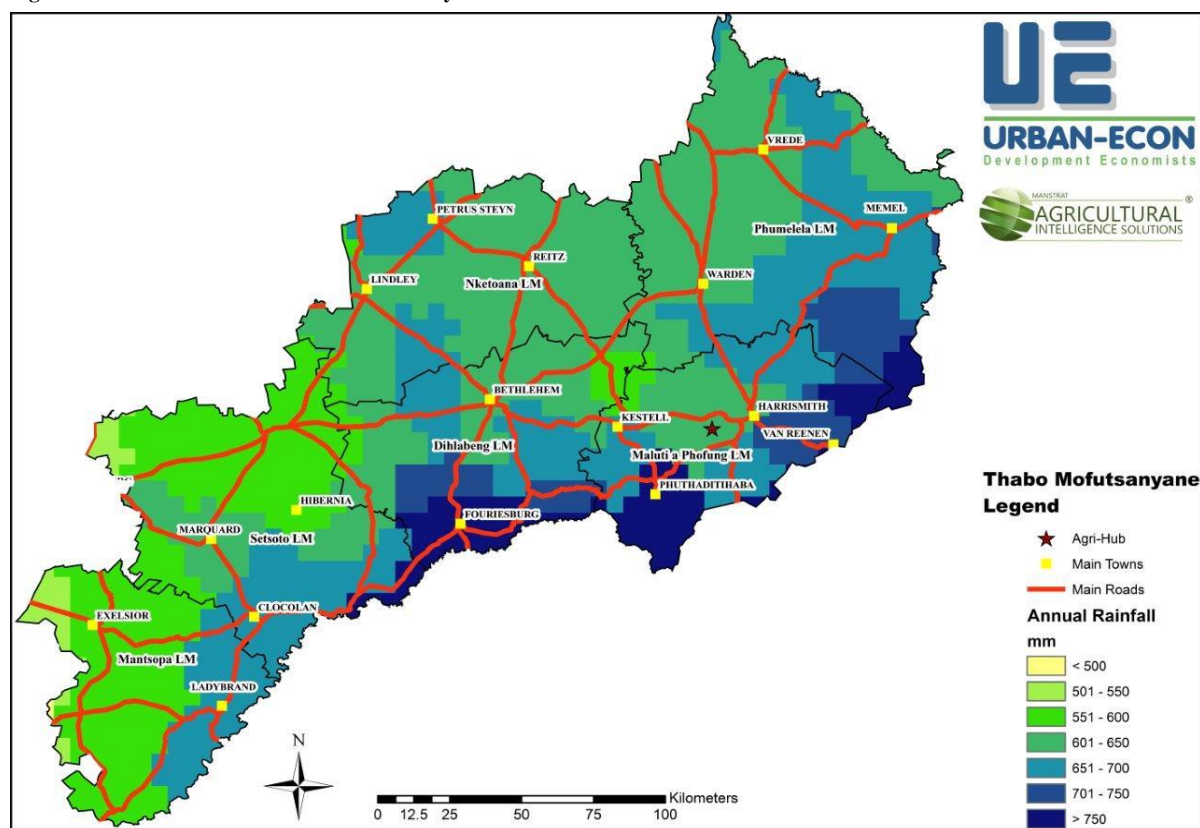
Ecosystem processes, especially vegetation dynamics, in semi-arid regions rely heavily on rainfall. Vegetation



composition in the Free State Province is influenced by the amount of rainfall, which includes seasonally extended wet periods, and droughts. Food security and the sustainability of agriculture is threatened by changing weather patterns such as prolonged droughts, erratic rainfall, and less predictable seasons. In a water scarce country like South Africa, rainfall is vitally important for agriculture especially for small-scale and emerging farmers that cannot afford irrigation systems or the cost of rising water bills.

Rainfall, based on past long-term records, has decreased significantly from the eastern regions to the western regions of the Free State Province. The annual rainfall average for 10 years is less than 350mm in the south-western region to more than 900mm on the eastern escarpment rim, while most central regions of the province experience between 450mm to 650mm of rain. The rainfall, over the 10 years decreased by only 50mm on average (Department of Rural Development and Land Reform, 2015). Figure 7-3 below, illustrates the annual rainfall experienced in Thabo Mofutsanyana.

Figure 7-3: Annual Rainfall in Thabo Mofutsanyana

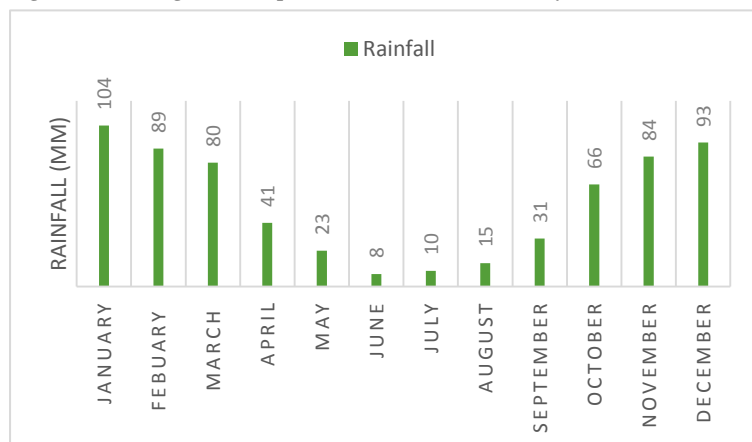


From Figure 7-3 above, the annual rainfall experienced in the Thabo Mofutsanyana District ranges from 501mm in the western region to more than 750mm in the eastern regions of the District. The Agri-Hub is located in an area that has an annual rainfall of between 601mm to 650mm, the areas surrounding the hub experiences between 601mm to more than 750mm per year. The average rainfall in the region suggests that there is sufficient rain for



most agricultural practices and is, on average, not a significantly constraining factor. Figure 7-4 below, illustrates the average rainfall experienced in Thabo Mofutsanyana per month.

Figure 7-4: Average Rainfall per Month in Thabo Mofutsanyana



From Figure 7-4, the District experiences significant rainfall during the summer months of December, January, and February. January is the month that experiences the largest amount of rainfall, approximately 104mm of rainfall, within the District, followed closely by December, which experiences approximately 93mm of rainfall during the month.

The months that experience the least rainfall are June, July, and August, which experience approximately 8mm, 10mm, and 15mm, respectively.

However, the country's 2014-2015 harvest of summer crops such as sunflowers, soya beans, maize (both white and yellow varieties), sorghum, groundnuts, and dry beans, have been severely affected by drought (Donnelly, 2015).

7.3.3 Evaporation

Annual evaporation varies from a fairly high rate of more than 2 200mm in the south-west to a low of less than 1 400mm in the eastern regions of the Province. Evaporation together with rainfall, indicate aridity within the province. The entire province except the north-eastern rim, in international terms, can be classified as semi-arid while the south-western corner is classified as arid.

7.3.4 Climate

The continent that is most likely to be the most vulnerable to climate change is Africa. Among the many risks that the continent faces, the most important are: the reduction of food security, increased water stress, reduction of agricultural productivity (especially subsistence agriculture), and increasing risk to human health (due to food insecurity, diseases, etc.). The Agricultural sector is predominantly vulnerable, as it is highly dependent on climatic variables (Turpie & Visser, 2014).

South Africa has experienced an increase of approximately 1.5 times the global average of 0.65 °C in the average annual temperature throughout the past five decades. Furthermore, extreme rainfall events (which includes hail storms, drought, etc.) have also increased in frequency due to climate change. The change in climate has already shown its impact on agriculture through the decrease in crops due to drought, and changes in crop growth seasons (Thornton *et al.*, 2014; Ziervogel *et al.*, 2014).

Figure 7-5: Effect of Black Frost



The first and last day of frost generally differs from year to year, and is one of the many climatic risks faced by farmers. Frost is formed when temperatures drop to below freezing, which results in water vapour changing into the ice crystals. the frost formed from below-freezing temperatures is commonly known as “black frost”, a name derived from the colour of the damaged crops foliage and stems (see Figure 7-5).

Damage form frost occurs when the crop’s cell sap freezes, causing the sap to expand and the walls of the cell to rupture thus, destroying the crops. Table 7-3 below, mentions the various types of crops that are affected by frost, the severity of the damage, and the temperature of frost the crops can tolerate.

Table 7-3: Crops and Frost Tolerance

Type of Crop	Crops		Temperature of Frost Tolerated
Frost-Tender Crops	<ul style="list-style-type: none"> • Beans, • Cucumber, • Okra, • Peppers, • Eggplants, • Squash, • Watermelon, • Pumpkins, 	<ul style="list-style-type: none"> • Sweet corn, • Muskmelon, • Spinach (NZ), • Tomatoes, and • Amaranth. 	Below 0°C
Half-Hardy Crops	<ul style="list-style-type: none"> • Celery, • Beets, • Carrots, • Artichokes, • Arugula, • Endive, • Lamb’s lettuce (Mache), 	<ul style="list-style-type: none"> • Radicchio, • Cauliflower, • Chinese cabbage, • Parsnips, • Escarole, • Swiss chard, • Bok choy, and • Peas. 	0°C to -3°C
Frost-Hardy Crops	<ul style="list-style-type: none"> • Kale, • Kohlrabi, • Mustard, • Brussels sprouts, • Radishes, • Turnips, • Leeks, • Chives 	<ul style="list-style-type: none"> • Cabbage, • Sorrel, • Spinach, • Onions, • Broccoli, • Broad beans • Parsley, and • Collards 	-3°C to -5°C
Frost Resistant Crops	<ul style="list-style-type: none"> • Asparagus, • Garlic, • Wheat, • Barley, • Oats, • Rye, 	<ul style="list-style-type: none"> • Apple tree, • Fig tree, • Kiwi tree, • Pomegranate tree, and • Almond tree, 	Below -5°C

Adapted from Albert, 2015; Botanical Interests, 2015; Murray, 2011.



From Table 7-3 above, it is noted that crops such as cucumber, okra, peppers, and eggplants, among others, cannot survive the effects of frost that are below the freezing point of 0 °C, these crops are called frost-tender crops. certain crops known as half-hardy crops (such as celery, beets, and carrots, among others), are able to tolerate mild frost ranging from 0 °C to -3 °C.

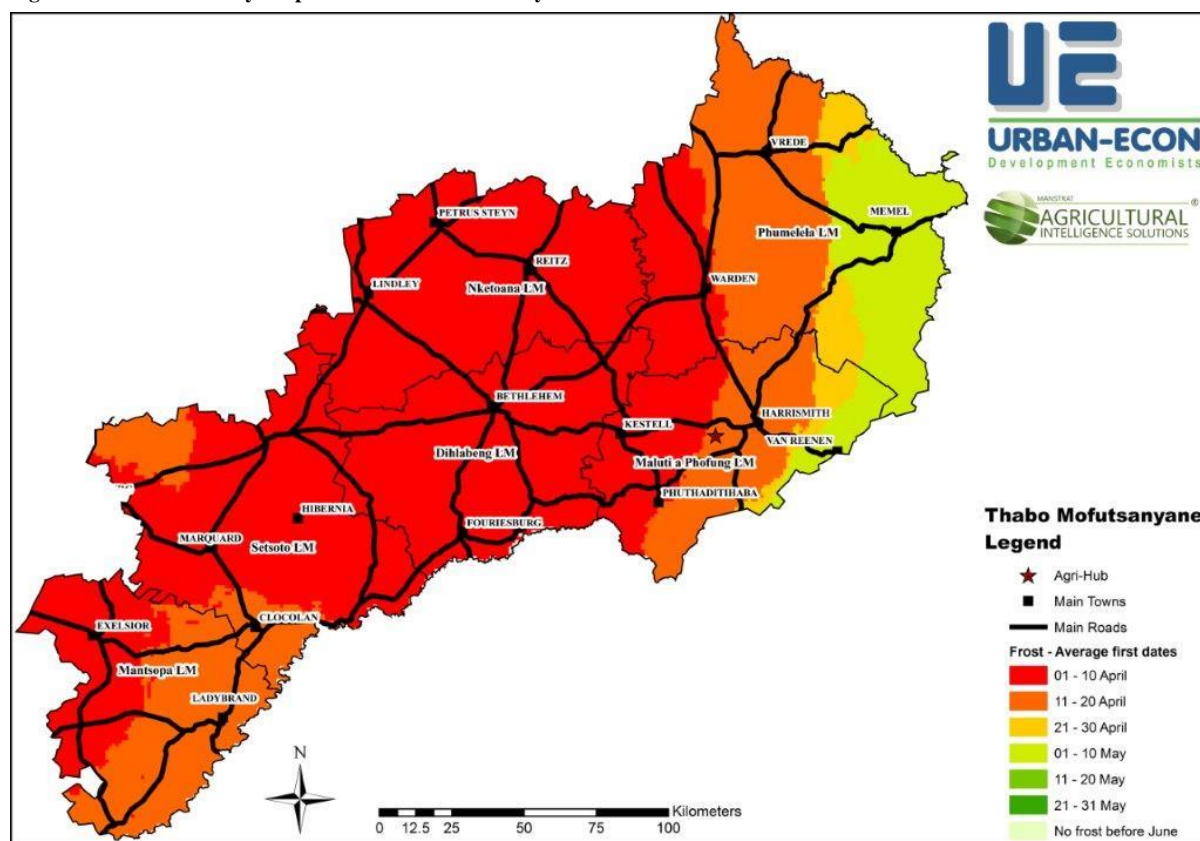
Frost-Hardy crops such as onions, broccoli, and broad beans, can survive moderate frost ranging from -3 °C to -5 °C.

While frost resistant crops such as oats, garlic, and asparagus can survive the heaviest of frosts, of below -5 °C, even enduring extreme frost of -16 °C experienced in the eastern Free State (Albert, 2015; Botanical Interests, 2015; Murray, 2011).



Figure 7-6 below, illustrates the areas of Thabo Mofutsanyana that are affected by frost (first day of frost).

Figure 7-6: First Frost Days Expected in Thabo Mofutsanyana



From Figure 7-6 above, the Thabo Mofutsanyana District has no frost-free regions; however, the first frost day does vary throughout the District. Roughly 70% of the District, predominantly in the centre of the District,



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experiences the first day of frost between the 1st and 10th of April, while 20%, experience the first frost day between the 11th and 20th of April.

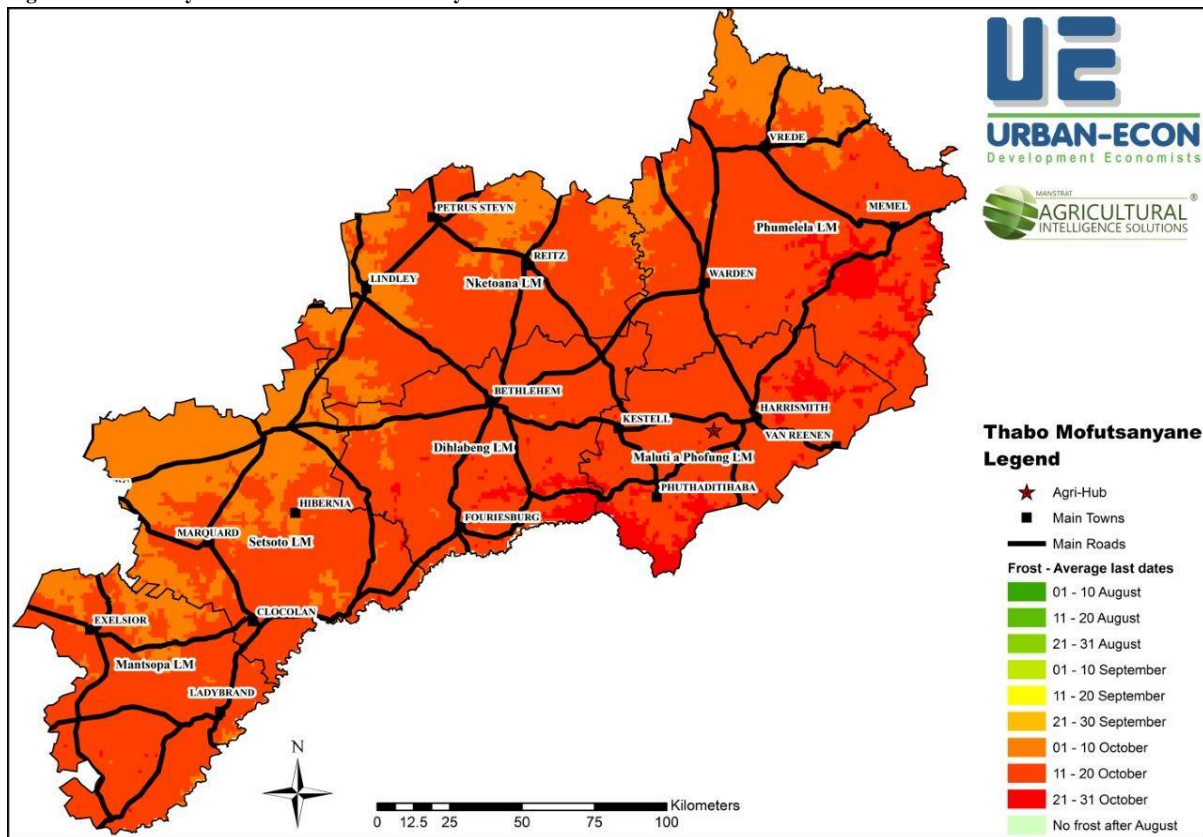
Roughly 2% of the eastern regions of the District experience the first day of frost between the 21st and 30 of April, while 8% of the eastern region of the District only experience the first day of frost on the 1st and 10th day of May. The Agri-Hub is located in an area that experienced the first frost day between the 11th and 20th of April.

Figure 7-7 below, illustrates the areas of Thabo Mofutsanyana that are affected by frost (last day of frost). From Figure 6 9 below, it can be noted that approximately 80% of the District experiences the last day of frost between the 11th and 20th of October.

Approximately 5% of the District, predominantly in the south-eastern regions of the District, experience the last frost day between the 21st and 31st of October. Roughly 15% of the District experiences the last day of frost between the 1st and 10th of October. The Agri-Hub is located in an area that experiences the last frost day between the 11th and 20th of October.

With the knowledge of when the first and last day of frost may occur, farmers may be able to implement protective measures to mitigate the potential crop damage and lost.

Figure 7-7: Last Day of Frost in Thabo Mofutsanyana



7.3.5 Soils

Three main soil zones may be recognised from a provincial perspective. In the west these are areas covered by mostly a deep blanket of sandy soils, these soils have unique properties that render them particularly valuable for rain fed arable use. These areas are valuable for the following reasons:



- Good rain water uptake,
- Good storage due to the deep, sandy or loamy profile,
- Allows for deep root penetration (if not compacted),
- Low or no natural acidity in the upper sub-soils, and
- The presence of drainage-hindering layers at depth.

However, the soils are susceptible to compaction and wind erosion. In the southern and central regions there are solid geological aspects such as, for example, mudstone, sandstone, shale, and dolerite; which largely determines



the properties of the region's soil and commonly gives rise to clay pan soils, shallow soils, and dark clays. These soils generally have less favourable water retaining and absorbing characteristics due to limited rooting depth and the higher clay content of the soil. The soil has a low suitability for irrigation; however, it is well suited for rangeland (grazing fields), and the cultivation of strongly rooted crops such as, for example, sunflowers and sorghums (provided the soil is sufficiently deep). On slopes, the soil tends to be susceptible to water erosion.

Sandy materials from certain geological formations give rise to mostly moderately deep, loamy soils which can be found in regions towards the escarpment edge. The loamy soils are arable where sufficiently deep. Bethlehem for example, is underlain by a Molteno sandstone which is particularly productive and mostly beneficial to field crops. The soil however, is mostly detrimental to permanent crops as the soil may give rise to excessive seasonal wetness.

In regions where stream incision took place during recent geological times, the most dominant soils are clay pan and other wet soils. The rim of the eastern escarpment of the Free State is referred to as the low mountains area of the province, the Vredefort area as parallel hills, the foothills to the escarpment as irregular undulating lowlands with hills, and strongly undulating irregular land. There are level plains in the north-western regions of the province, hills towards the Xhariep River, and slightly irregular plains in the south-western and lowlands.

7.3.6 Water resources

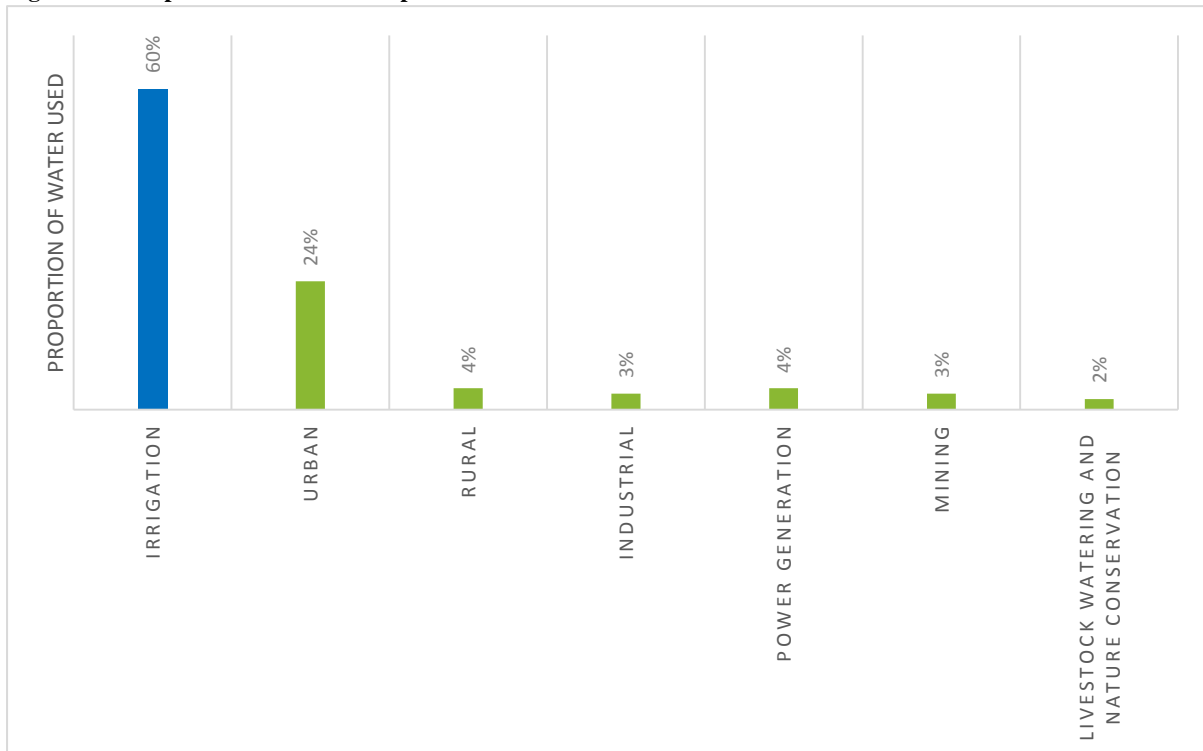
A self-sufficient economy depends on energy, food, and water security. Although the sustainability of energy, water, and food are often perceived as separate challenges, they are in fact highly interdependent problems (Oberholster & Botha, 2014). The demand for water increases as South Africa focuses on social development and economic growth. Water is a key resource in many national planning initiatives particularly agricultural development initiatives (such as the Agri-Parks). Thus, the consistent supply of sufficient quantities and quality of water are critical for economic growth and job creation (Department of Water Affairs, 2013).



The Free State Province is considered to be one of the most water-rich provinces in South Africa, as the province not only houses numerous dams but it also lies in-between the Orange River in the south and the Vaal River in the north.

Figure 7-8 below, illustrates the portion of water used per the main economic sectors of South Africa.

Figure 7-8: Proportion of Water Used per Main Economic Sector



Adapted from Baleta & Pegram, 2014

From Figure 7-8 above, it can be stated that irrigation utilises the most of South Africa's water-utilising approximately 60% of the country's water. Urban sectors (housing, schools, municipalities, etc.) utilise the second largest proportion of water, utilising approximately 24% of the country's water.



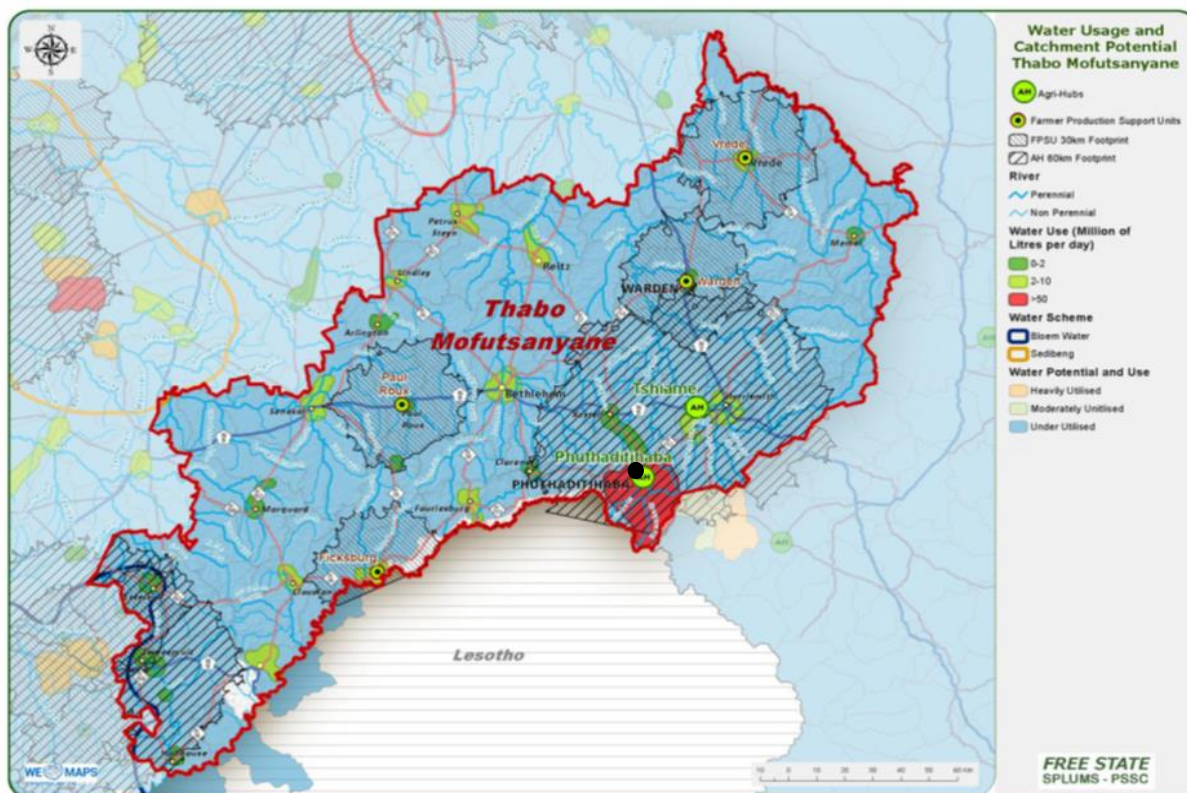
Rural sectors (small-scale farmers, housing, small shops, etc.) and power generation sectors (Eskom) each utilise 4% of the Country's water.

Unexpectedly, livestock watering and nature conservation only utilises 2% of the Country's water.

Figure 7-9 below, illustrates the distribution of water usage and

the catchment potential of the Thabo Mofutsanyana District.

Figure 7-9: The Water Usage and Catchment Potential



(Department of Rural Development and Land Reform, 2015)

The District is considered to be relatively water rich, as can be seen from the distribution of non-perennial and perennial rivers within the District in Figure 7-9 above. Furthermore, Figure 7-9 above, illustrates that there are vast areas of the District (areas that are blue) that underutilise water.

7.3.7 Land Capability

Production systems, specifically dry-land agricultural production, are subjected to the capability and suitability of the natural environment. The Department of Agriculture, Forestry, and Fisheries (2011), defines land capability as “the extent to which land can meet the needs of one or more uses under defined conditions of management, without permanent damage”.

A specific area of land may have a low growth potential for a specific crop; however, the same area of land may be highly suitable for another crop, depending on the capability of the land.

The land use capability maps illustrated in this section, represent the potential agricultural uses of a unit of land within the Thabo Mofutsanyana District. The two main land capabilities examined in this section are the arable land capability and the grazing land capability.

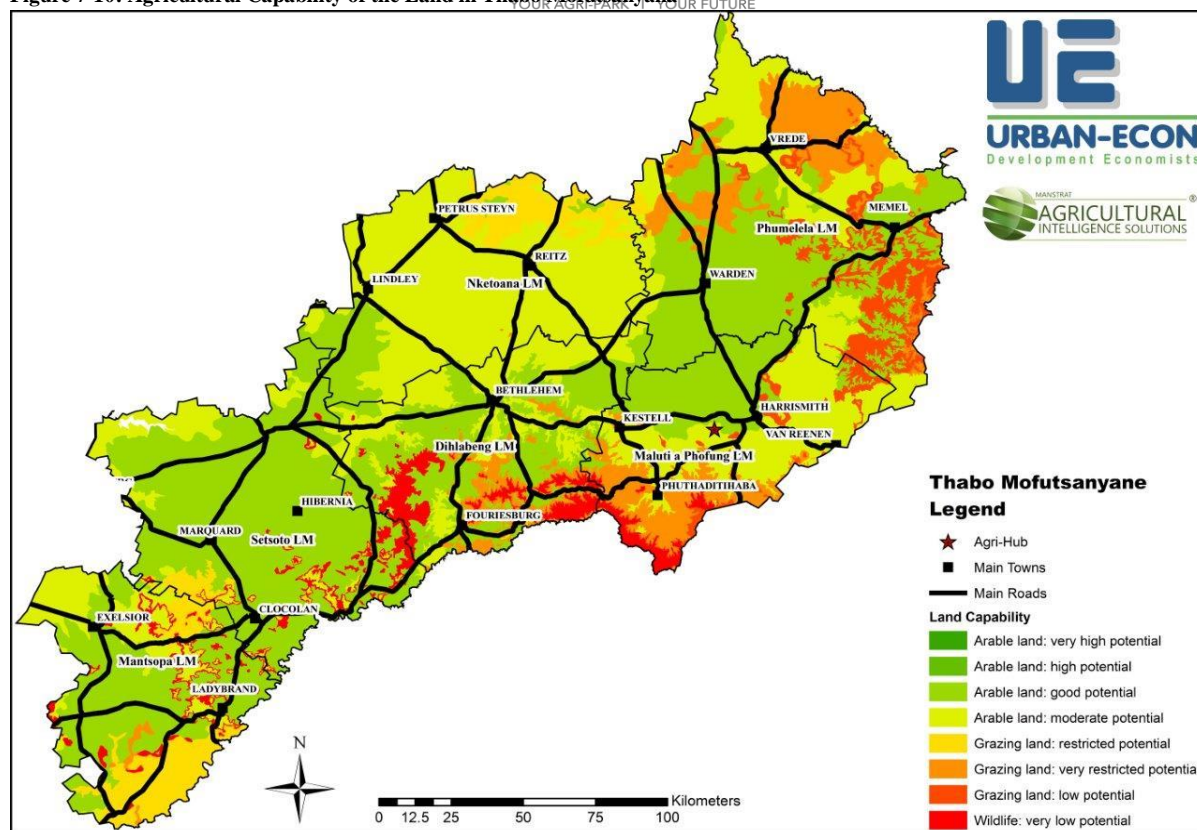
Figure 7-10 below, illustrates the arable agricultural capability of land within the Thabo Mofutsanyana District.



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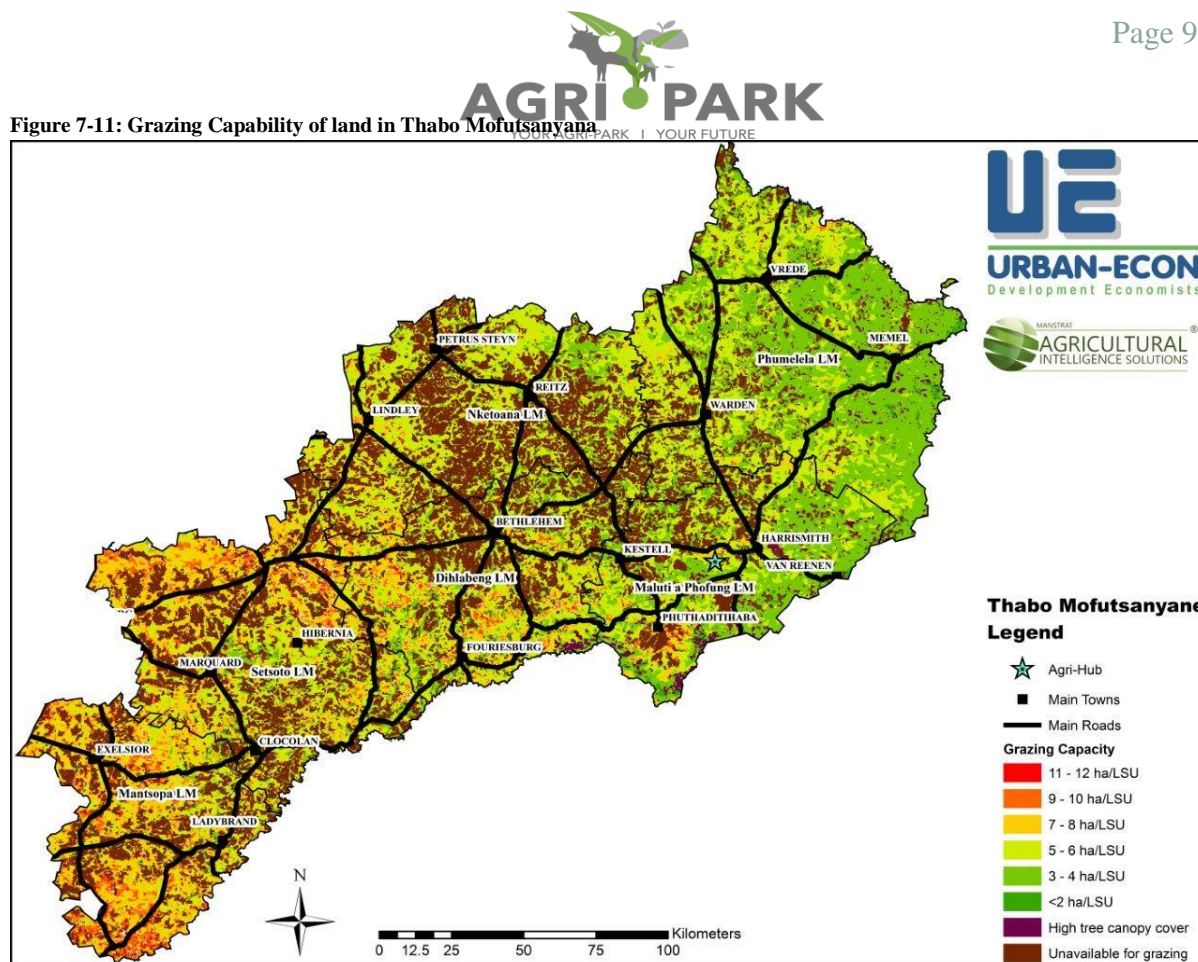
Figure 7-10: Agricultural Capability of the Land in Thabo Mofutsanyana



From Figure 7-10 above, there is a significantly large proportion of land that has good- to high potential of arable land in the Thabo Mofutsanyana District.

The green areas of the map indicate the areas that are arable and their relative potential; while yellow, orange and red indicate areas that are not suitable for grazing of livestock and wildlife. It can thus, be stated that the Thabo Mofutsanyana District has a significant amount of arable and grazing land.

Figure 7-11 below, illustrates the grazing capability of land in Thabo Mofutsanyana District. This is illustrated through hectares per livestock units (LSU (= 450kg animal)), roughly the required number of hectares suitable for grazing per a given number of LSU's sustainably.



From Figure 7-11 above, a large proportion of land in the western regions of the Thabo Mofutsanyana District has the capacity to carry one LSU for every average of 2-6 hectares (green highlighted areas). The brown areas indicate areas that are not available to grazing, while red highlights indicate areas of very low potential where 16-20 hectares are required per LSU.

7.3.8 Conclusion

The Free State climate reflects the middle ranges of temperature, evaporation, and rainfall. The utilisation of resources and spatial distribution of production potential in the province is significantly determined by the province's climate. The province experiences rainfalls during summer months and extremely cold weather during winter (specifically towards the eastern mountainous regions). The southern and western regions of the province are semi-arid. As stated previously, the province has approximately 3.2 million hectares of cultivation, along with 8.7 million hectares of natural veld and grazing land. There is approximately 0.23 million hectares of land suitable for cultivation that is not currently utilised 0.14 million hectares of which is state-owned land.

A range of escalating stresses on rural livelihoods are associated with dwindling agricultural productivity, that is, soil erosion, deforestation, land pressure, and a depleted water resources that would otherwise exist regardless of the climate change. Farmers and farm labourers might migrate either seasonally, temporarily or permanently and consider it as the most immediate coping strategy in cases where livelihoods are subjected to continuous stress, thus, increasing food insecurity.

Therefore, the Agri-Park plays a crucial role in eradicating some of the stresses experienced by farmers and farm labours, thus, reducing the impact of rural-urban migration (which leads to an increase in the unemployment rate) and food insecurity (Murali & Afifi, 2014).

7.4 Commodity Selection Criteria

The Department of Agriculture, Forestry, and Fisheries (2014) developed a strategy called the Agricultural Policy Action Plan (APAP) which aimed at aligning the development of the agricultural sector of South Africa with the goals set out in the National Development Plan (NDP). The APAP strategy was inspired by the New Growth Path (NGP), which promoted the need for inclusive growth through the creation of jobs in the agricultural sector of the country.

The agricultural sector makes up 14% of the Gross Domestic Product (GDP) in South Africa. South Africa's agricultural sector has the potential to create a large number of jobs for the Country's large unskilled workforce. Thus, reducing poverty and shrinking the gap between rich and poor (Kotze & Rose, 2015).

In order to achieve inclusive growth, the productive potential of agriculture, forestry, and fisheries need to be unlocked.

The following categories are deemed to have productive potential:

- Livestock Integrated Value Chain (including red meat, dairy, wool)
- Poultry Integrated Value Chain (layers, breeders, broilers)
- Fruit and Vegetables
- Wine
- Field Crops (including grains, sugar cane, etc.)
- Forestry: Category B&C refurbishment and forest protection strategy
- Fisheries: aquaculture and small-scale fisheries schemes
- Biofuels

However, the different categories/value chains of agriculture, forestry, and fisheries operate according to different dynamics and ultimately face different challenges. Thus, a need arises to be selective as to which categories will be focused upon in the short- and medium-term, while acknowledging that agricultural commodities are often interrelated. Using some general selection criteria, a discrete number of categories can strategically be identified to meet the objective of the APAP, NDP, NGP, and the Thabo Mofutsanyana Agri-Park.

The criteria for selection (set out by the APAP), is as follows:

- **Contribution to food security** (a food security commodity should: be produced all year round; affordable, nutritious and healthy; fit into consumer's daily diet etc.).
- **Job creation** (commodity with the potential of creating job opportunities, thus the commodity's industry must be labour intensive).
- **Growth potential.**
- **Potential contribution to trade balance.**
- **Value of production.**
- **Agro-Processing.**

7.5 Commodity Identification

The Free State has a relatively large range of agricultural activities compared to many of the other provinces. The province has an abundance of mineral rich soils and rainfall, suitable for the production of vegetables, horticulture, and field crops.



Table 7-4 below, illustrates the comprehensive list of commodities, which were identified as potential and viable commodities for the Thabo Mofutsanyane's Agri-Park.

Table 7-4: Comprehensive List of Commodities Identified for Thabo Mofutsanyana

Commodity	Justification for commodity
Apples	<ul style="list-style-type: none"> Produced in the District at present. Conducive rainfall patterns. Conducive soil conditions. Advantageous market conditions with regard to demand. Investment towards development of the industry.
Peaches	<ul style="list-style-type: none"> Produced in the District at present. Advantageous market conditions with regard to demand. Conducive rainfall patterns. Conducive soil conditions.
Soybeans	<ul style="list-style-type: none"> Free State is the second largest producer after Mpumalanga. Can produce an average of 2.5 to 3 tons of soy beans per hectare under dry land conditions. Produced in the District at present.
Vegetables	<ul style="list-style-type: none"> Proximity to the market. Conducive rainfall patterns. Currently produced in the District. Conducive soil conditions. Availability of water for irrigation.
Maize	<ul style="list-style-type: none"> Requires favourable rainfall patterns and conducive soil conditions. Advantageous market conditions with regard to demand. Maize is a summer crop thus, can grow in hot regions. Investment towards development of the industry. Historical production. Currently produced in the District. Skills availability. Availability of water for irrigation.
Wheat	<ul style="list-style-type: none"> Can produce 2 to 2.5 tons of wheat per hectare of dry land, and 5 tons per hectare of irrigated land. Free State is the second largest producer of wheat, after the Western Cape. Produced in many regions of the District at present. Can be produced in temperatures ranging from 5°C to 34°C.
Sheep	<ul style="list-style-type: none"> Produced in the District at present. Non-picky grazers (lower feed cost). Increasing demand market.
Dry beans	<ul style="list-style-type: none"> Larger rate of consumption than production in South Africa (high demand). Currently produced in the District. War season crop. Rate of production has increased relative to historical production. Requires between 85 and 120 days from planting to maturity. Requires favourable rainfall patterns and conducive soil conditions.



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Commodity	Justification for commodity
Sunflowers	<ul style="list-style-type: none"> Currently produced in the District. Requires favourable rainfall patterns and conducive soil conditions. Can produce around 1.2 and 1.8 tons of sunflower seeds per hectare under dry conditions. Around 25 000 and 35 000 sunflowers can be planted per hectare.
Cherries	<ul style="list-style-type: none"> Large consumer market. Currently produced in the District. Market is not saturated.
Beef Cattle	<ul style="list-style-type: none"> Proximity to grain producing areas. Currently produced in the District. Proximity to feedlots. Proximity to Abattoirs. Proximity to markets.
Dairy	<ul style="list-style-type: none"> Large consumer market. Currently produced in the District. Market is not saturated. Proximity to grain producing areas.

From Table 7-4 above, all the commodities are currently being produced in the District are listed; commodities such as cherries and dairy, both niche market commodities (value added dairy products can be considered niche products), have relatively unsaturated markets.

There is currently a gap in the market for dry beans, as South Africans consumer more than is produced within the country. Furthermore, the Free State is the second largest producer of soybeans and wheat, thus indicating that the two grain crops grow well within the District; however, the market (competition wise) for the two commodities is relatively saturated in the free state.

7.6 Commodity Prioritisation

The prioritisation of commodities for the Thabo Mofutsanyana District was done using a systematic evaluation process that focused on all the critical factors that play different roles in the successful production and processing of all commodities found in the District. Furthermore, economic and market considerations, environmental conditions, and smallholder constraints and preferences were also included in the systematic approach.

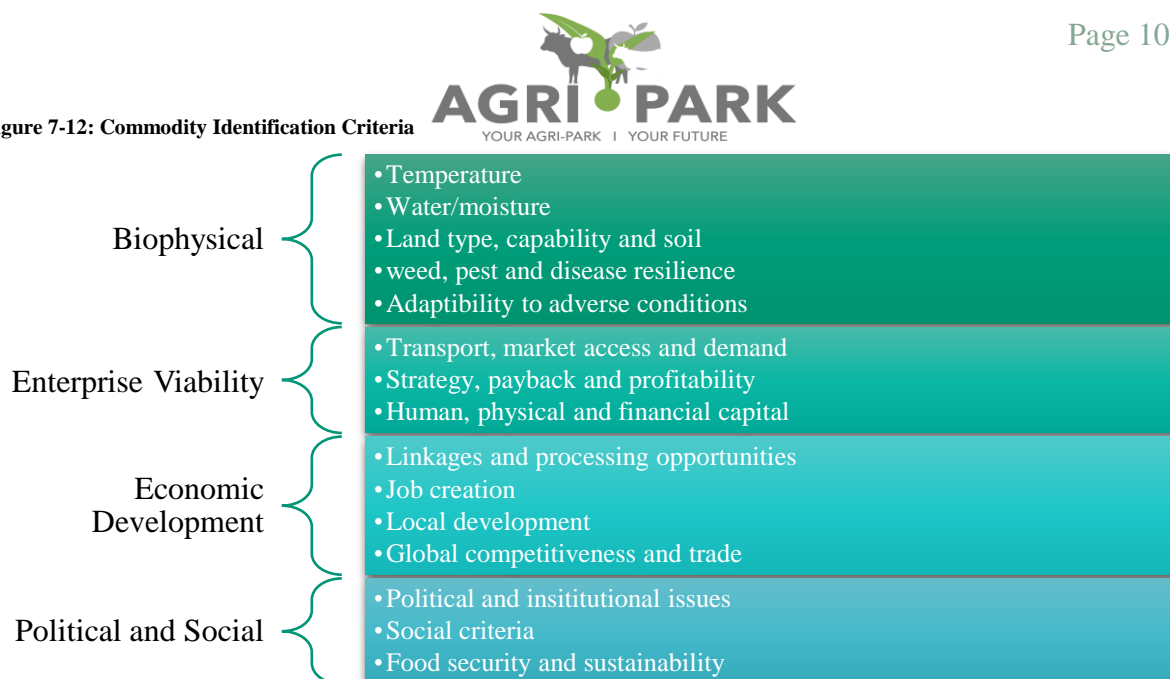
The identification criteria used to select and prioritise the commodities are illustrated in Figure 7-12 below.



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Figure 7-12: Commodity Identification Criteria



A comprehensive elimination process, which makes use of the commodity identification criteria illustrated in Figure 7-12 above, was used to shortlist each commodity. The biophysical requirements (such as rainfall, temperature, and land capability, among others) of each commodity were compared to the environmental conditions of the District. Commodities that displayed positive economic development potential (commodities which have markets within South Africa or reasonable export potential) were selected. The enterprise viability of each commodity was also evaluated to determine whether the commodity would be profitable and sustainable over the medium to long-term. Lastly, the commodity was evaluated in terms of social and political performance to determine whether the commodity contributes to societal upliftment such as, for example, food security.

Each commodity was scored with regard to the criteria illustrated in Figure 7-12 above, (refer to Appendix B for the complete selection criteria) the scoring was as follows:

- 3 = Within **optimal** range, most favourable or ideal condition;
- 2 = Within **near-optimal** range, sufficiently favourable but not ideal condition;
- 1 = Within **marginal** range (technically possible but probably not profitable or competitive);
- 0 = Impossible to grow or almost certainly not profitable or competitive, or highly **unfavourable** condition that are unlikely to be managed successfully. A score of zero may **disqualify** the enterprise, although mitigation might be possible in some cases.

Once the commodities were scored with respect to the identification criteria (refer to Appendix B), the scores were then weighed in order to derive a priority framework for each of the commodities. The weights are referenced as follows:

- 1 = Low importance
- 2 = Medium importance
- 3 = High importance

The scores given to the various criteria (see Figure 7-12, above), were then added up to get a total score for each commodity. Table 7-5 below, illustrated the accumulated scores for each criterion, along with the total score given to each commodity.



Table 7-5: Commodity Prioritisation Table for Thabo Mofutsanyana

Commodity	Scoring per Prioritisation Criteria					%
	Biophysical	Enterprise Viability	Economic Development	Political and Social	Total Out of 210	
Red meat	28	65	43	41	177	84
Dairy	27	53	50	54	184	88
Wool sheep	30	56	48	33	167	80
Apples	19	51	40	45	155	74
Cabbage	27	59	36	56	178	85
Asparagus	26	55	53	53	187	89
Potatoes	27	59	44	57	187	89
Carrots	21	51	38	49	159	75
Onions	23	54	44	49	170	80
Pumpkins	26	53	35	52	166	79
Peas (including dry peas)	30	45	37	55	167	80
Maize	26	52	50	42	170	81
Sorghum	30	60	50	41	181	86
Wheat	26	51	50	36	163	78
Quinoa	29	60	55	38	182	87
Chickpeas	23	57	44	49	173	82
Dry beans	22	56	48	57	183	87
Mung bean (Green gram)	30	54	48	45	177	84



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Commodity	Scoring per Prioritisation Criteria					%
	Biophysical	Enterprise Viability	Economic Development	Political and Social	Total Out of 210	
Soya Beans	23	60	48	49	180	86
Sunflower	23	58	44	34	159	76
Canola (rapeseed)	30	53	42	36	161	77

From Table 7-5 above, a total score was given to all the commodities that qualified for production within the Thabo Mofutsanyana District. Dairy, one of the commodities that was prioritised by the District, scored relatively high, indicating that the commodity has sufficient capacity to stimulate sustainable growth and job creation within the District. Proximity to feedstock and a favourable climate for dairy production makes the District competitive at regional but not international level for large scale dairy production.

Isolated and very specific sites have very high potential for apple production, mentioned in Table 7-5 above, mainly in the Bethlehem area. Suitable land occurs in isolated patches, therefore chill units and other suitability practices are required in other areas that desire to produce apples. While various vegetables, such as, for example, carrots, potatoes, and onions, have a very high suitability for the District from an agronomic perspective. Dry beans are well suited for the Harrismith, Witsieshoek and Bethlehem areas. Furthermore, local demand is very strong and it is a very important food security crop with important value adding opportunities.

7.7 Three Highest Ranked Commodities

With regard to the final selection of the top three commodities, meetings between the service provider, the DRDLR, and the Thabo Mofutsanyana District Municipality and Agri-Park council were held. During the meeting, the best commodities were then selected. After the meetings, a letter of consensus (refer to Appendix D) was received stating which three commodities should be evaluated and included the Thabo Mofutsanyana District's Agri-Park Master Business Plan. The top three commodity industries that will be evaluated are as follows:

1. The dairy industry,
2. The vegetable and fruit (mainly apples), industry, and
3. The dry bean industry.

The three commodities have significant potential to stimulate job creation, eradicate poverty, increase food security, and generate economic development within the Thabo Mofutsanyana District. Figure 7-13 below, illustrates the economic growth and job creation potential of various industries.



Figure 7-13: Economic Growth and Job Creation Potential



The National Development Plan, 2012

The Bureau for Agricultural Policy (BFAP) states that agricultural industries that fall into the second quadrant are the most favourable industries as they hold higher future growth and development potential. Industries in quadrant two are perceived as “winners” due to the industries being labour-intensive (thus, promoting job creation) and the industries have high growth potential. Thus, apples and vegetables are likely to generate job creation, food security, and economic growth. Nevertheless, industries that fall within other quadrants may also have favourable growth conditions. Figure 7-13 above, illustrates that the livestock (including dairy farming), oilseed, and grain industries fall into quadrant one. Quadrant one represents industries that are perceived to have high future growth potential along with non-labour intensive employment potential. Thus, dry beans and dairy farming have the potential to stimulate job creation and food security in the long-run.

7.7.1 Reasoning for the Prioritisation of Apples

Thabo Mofutsanyana is well suited for the production of fruits such as peaches, apples, and cherries. However, apples have been prioritised for the Agri-Park system for the following reasons:

- Food security,
- Price, and
- Years until fruit

Price and food security are complementary implications, as food security is achieved when individuals have access to dietary-sufficient, affordable, and nutritional food. Table 7-6 below, illustrates the years-to-fruit as well as the 2015 prices of peaches, apples, and cherries.

Table 7-6: Years Until Fruit and Prices

Type of Fruit Tree:	Years Until Fruit ¹⁰ :	Price (2015) per Kg ¹¹
Peaches	2-4 years	R36.99
Apples	2-5 years	R18.98

¹⁰ The “years until fruit” are the years **after** a 1-2-year-old tree is planted (StarkBros, 2015).

¹¹ Prices have been acquired from Pick ‘n Pay, Fruit & Veg City/Food Lovers Market, Makro, Checkers, and Spar.





Type of Fruit Tree:	Years Until Fruit ¹⁰ :	Price (2015) per Kg ¹¹
Cherries (sour)	3-5 years	R119.95
Cherries (sweet)	4-7 years	

From Table 7-6 above, it can be seen that cherry trees generally take between three to seven years after a tree is planted to bear its first fruit, while peaches and apples only take two to five years to bear fruit. Furthermore, apples are the cheapest fruit among the three fruit, as it costs approximately R18.98 per kg, while peaches and cherries cost R36.99 per kg and R199.95 per kg, respectively.

Thus, apples have been prioritised for the first few years of the Agri-Park system; however, peaches and cherries can be planted alongside the apple trees or in later phases of the Agri-Park system.

8 COMMODITY ANALYSIS: DAIRY

8.1 Dairy Industry Overview

The dairy industry in South Africa is estimated to produce roughly about 200 million litres of milk per month, translating into approximately 2.4 billion litres of milk per year. The milk production industry is the fifth largest agricultural industry in South Africa. Milk, which is produced daily, provides a regular income stream to many large- and small-scale producers. South Africa's milk production contributes approximately 0.5% towards the world milk production (Department of Agriculture, forestry, and fisheries, 2014; Milk South Africa, 2014).

At least seven breeds of cattle are recognised as being "dairy breeds" within South Africa. These breeds are recognised to have a higher level of milk production in relation to other breeds, and these breeds are well suited to intensive milk production systems such as cow housing, parlour equipment, and concentrate feeding. The seven "dairy breeds" are as follows:

- Holstein-Friesian,
- SA Dairy-Swiss,
- Jersey,
- Ayrshire,
- Guernsey,
- Brown Swiss, and
- Dairy Shorthorn.

The four main "dairy breeds" farmed within South Africa are: The Ayrshire breed, the Guernsey breed, the Holstein breed, and the Jersey breed. Table 8-1 below, illustrates the four most prominent dairy breeds and the climatic preferences required per breed.

Table 8-1: Dairy Breeds and Climate

Dairy Breed:	Description:	Climate Preference:	Milk Capacity on Average
Ayrshire breed	<ul style="list-style-type: none"> • White and red-brown in appearance. • Milk has a high butterfat content. • Smaller than the Holstein. • Drinking milk 	<ul style="list-style-type: none"> • Cold and warm climates. 	<ul style="list-style-type: none"> • 22.4 litres
Guernsey breed	<ul style="list-style-type: none"> • Red-Brown and white in appearance. • Milk has a high butterfat content. • Larger than a Jersey cow, but smaller than Holstein cow. • Good Temperament. 	<ul style="list-style-type: none"> • Cold and warm climates. 	<ul style="list-style-type: none"> • 17.6 litres
Holstein breed	<ul style="list-style-type: none"> • Most popular dairy breed. • White and black in appearance. • High milk producers. • Milk has a low butterfat content. • Difficulty calving and walking long distances. 	<ul style="list-style-type: none"> • Cool climates. 	<ul style="list-style-type: none"> • 29.0 litres
Jersey breed	<ul style="list-style-type: none"> • Popular in South Africa. • Light brown in appearance. 	<ul style="list-style-type: none"> • Warmer climates 	<ul style="list-style-type: none"> • 19.3 litres

Dairy Breed:	Description:	Climate Preference:	Milk Capacity on Average
	<ul style="list-style-type: none"> Milk has a high butterfat and protein content. Good grazers. 		

Adapted from Milk South Africa, 2014.

From Table 8-1 above, it is noted that the Ayrshire breed is white and red-brown in appearance (see Figure 8-1 below), and produces milk that has a high butterfat content and can also be culled for meat. The Ayrshire cow is smaller than the Holstein breed. The milk of the Ayrshire breed is well suited as a drinking milk. The Ayrshire cow produces an average of 22.4 litres of milk per day. The Guernsey breed is light red-brown and white in appearance (see Figure 8-2 below). The Guernsey cow produces an average of 17.6 litres per day. The milk of the Guernsey breed also has a high butterfat content. The Guernsey cow is larger than a Jersey cow but relatively smaller than a Holstein cow. The Guernsey breed is adaptable to climates, thus can be farmed in cold and warm climates. The breed is also known for its good temperament.

Figure 8-1: Ayrshire breed



Figure 8-2: Guernsey breed



From Table 8-1 above, the most popular dairy breed across the world and in South Africa is the Holstein breed. The Holstein breed is white and black in appearance (see Figure 8-3 below), and are considered to be high milk producing cows. The Holstein cow produces an average of 29 litres per day. The Holstein breed, just like the Ayrshire breed can be culled for meat. However, the breed produces milk that has a low butterfat content. Furthermore, the breed has difficulty calving and walking long distances. The Holstein breed is better suited for cooler regions. The Jersey breed is also very popular in South Africa and are smaller than other dairy breeds. The Jersey cow is light brown in appearance (see Figure 8-4 below), and is well suited for warmer regions. As the Jersey cow is relatively small relative to other breeds, they consume less and thus are considered to be good grazers. Furthermore, The Jersey cow produces an average of 19.3 litres per day, and the milk of the is high in protein and butterfat.

Figure 8-3: Holstein cow



Figure 8-4: Jersey cow



8.1.1 Dairy Producers and Production

The number of milk producers in South Africa has decreased over the years, from 3 899 producers in January 2007 to only 1 834 producers in January 2015. Table 8-2 below, illustrates the number of producers per province over the years.

Table 8-2: Number of milk producers per province

Province	2007 ¹²	2008 ⁹	2009 ⁹	2011 ⁹	2012 ⁹	2014 ⁹	2015 ⁹
Western Cape	827	815	795	683	647	529	533
Northern Cape	37	34	37	28	21	25	14
Eastern Cape	420	407	387	314	283	264	262
Gauteng	245	228	217	127	126	109	100
Mpumalanga	357	302	286	201	164	117	94
KwaZulu-Natal	385	373	373	323	322	281	267
North West	596	549	540	386	352	233	222
Limpopo	45	38	32	23	24	14	14
Free State	987	919	884	601	535	389	328
Total:	3899	3665	3551	2686	2474	1961	1834

Adapted from Milk Producers Organisation, 2015

Table 8-2 above, illustrates a decline of approximately 53% in the number of milk producers in South Africa over the years. Many milk producers are forced to exit the industry or integrate with larger producers due mainly to the price-cost squeeze. The Mpumalanga Province experienced the largest decrease (approximately 74%) in the number milk producers than any other province in South Africa. The Free State province had the largest number of milk producers in South Africa in 2007 until 2009 thereafter, the Western Cape housed the largest number of milk producers. Presently the Free State has the second largest number of milk producers in South Africa, however, the Province is only the third largest milk producing province in the country.

Table 8-3 below, illustrates the distribution of South Africa's milk production per province and the average number of cows in milk per producer in each province.

Table 8-3: Production per Province and Cows per Production

Province	Distribution of Milk Production (%)		Number of Cows in Milk per Producer (2014)
	Dec 1997	Oct 2014	Mean
Western Cape	22.9	26.8	281
Eastern Cape	13.8	27.7	769
Northern Cape	1.2	0.8	76
KwaZulu-Natal	15.7	26.8	574
Free State	18.0	7.3	740
North West	12.6	4.2	90
Gauteng	4.4	2.3	117
Mpumalanga	11.0	3.3	169
Limpopo	0.4	0.8	230
Total:	100	100	353

Adapted from Milk Producers Organisation, 2015

¹² Referring to January of the month.

Table 8-3 above, mentions that the average number of cows in milk per producer for South Africa is 353 cows, producers in the Free State surpass the average with a mean of 740 cows per producer. In December 1997, the Free State produced the second largest amount of milk accounting for approximately 18% of the country's milk production exceeded only by the Western Cape which accounted for approximately 23% of South Africa's milk production. In October 2014, the Free State only accounted for 7.3% of the country's milk production despite the Province having a far larger number of cows per producer than the Western Cape and KwaZulu-Natal (both provinces produce 26.8% of the country's milk each). These coastal regions have a competitive advantage in milk production as the regions are well suited to milk production systems that are lower in cost as they use natural and irrigated pastures. However, this does not suggest that inland milk producers, such as producers in the Free State, could not be profitable or competitive. The Agri-Park will play a pivotal role in allowing many of the milk producers in the Free State to compete within the dairy market.



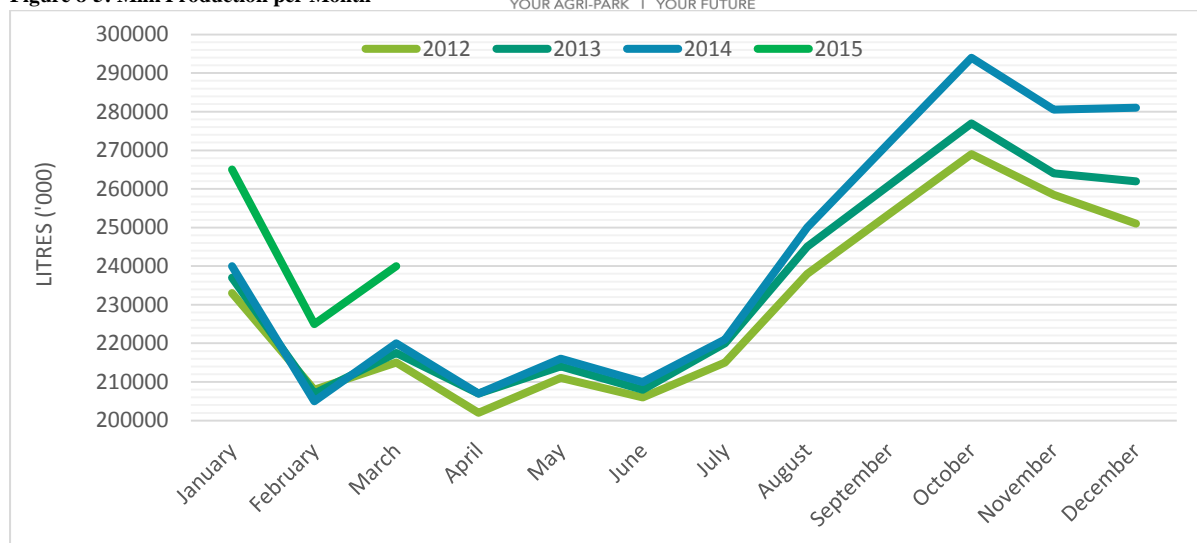
The milk yield of a dairy cow depends on four main factors, namely:

- Herd management,
- Genetic ability,
- Health, and
- Feeding programme.

Genetically, cows continue to improve thus, it is important that the nutrition and management of the cows also improves in order to allow the cows to produce at their intrinsic potential. For a feeding program to be considered efficient, it must consider the suitability of the feed, the quantity fed, and how and when the feeds are offered (Food and Agriculture Organisation, 2011; Department of Agriculture and Rural Development, 2015).

The milk yield from cows is highly correlated with feed efficiency. Cows with more efficient feed (1.83 kg milk per kg dry matter intake) produced 98% more milk, but consumed only 21% more feed than the less efficient cows (1.03 kg milk per kg dry matter intake) (Milk SA, 2015).

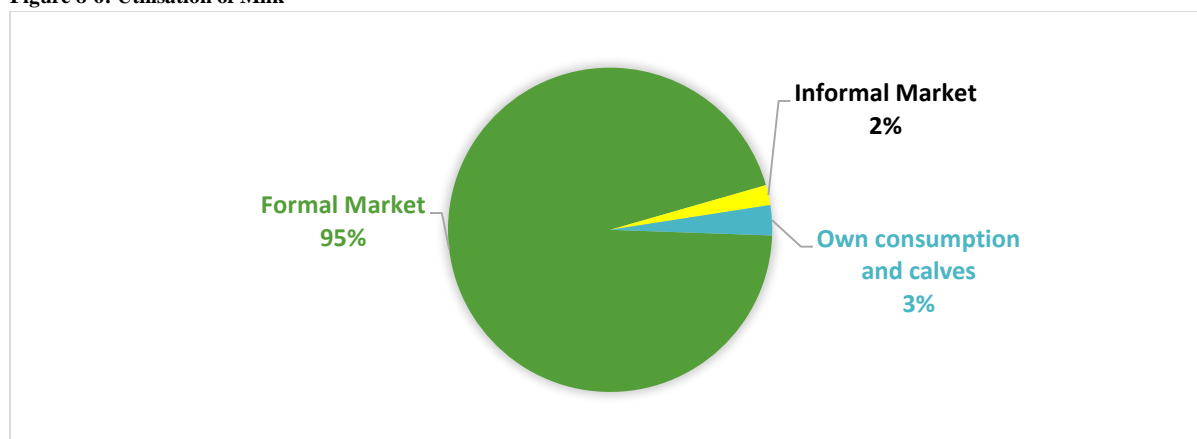
On average in 2014, a cow could produce approximately 20.2 litres of milk per day. Despite a decrease in the number of milk producers seen in Table 8-2 above, milk production as shown in Figure 8-5 below, exhibits a steady upward trend over the years. From Figure 8-5 below, during the first quarter of 2015 realised a substantial increase in monthly milk production. Approximately 265 million litres of milk were produced in January 2015, which is approximately 10.4% more than the milk produced in January 2014 (which was approximately 240 million litres). Similar trends are visible for February and March 2015 as production increases considerably from the previous years. October displays the highest producing over the years, while April and January tend to have the lowest milk production.

Figure 8-5: Milk Production per Month

Adapted from Milk Producers Organisation, 2015

However, not all the milk produced by farmers enter the commercial market; the majority of milk that enters the market comes from about only 1 250 herds (which equates to roughly into 440 000 cows in milk).

Figure 8-6 below, illustrated the percentage of milk used per market and own consumption and calves.

Figure 8-6: Utilisation of Milk

Adapted from Milk Producers Organisation, 2015

Figure 8-6 above, depicts that approximately 95% of milk produced in South Africa is sold to the formal market while only 2% is sold to informal market. The remaining milk is used by the farmers for own consumption and for calves.

The secondary dairy sector of South Africa consists of a large number of smaller dairy processors in specific areas, a few larger dairy processors in one or several regions, and a number of dairy producer distributors¹³ (PDs). Table 8-4 below, illustrates the number of milk buyers and PDs per province that are registered with Milk SA.

¹³ producers which sell their produce directly to retailers and consumers.

Table 8-4: Number of Milk Buyers and PDs per Province

Province	Number of Milk Buyers	Number of PDs
Western Cape	36	25
Eastern Cape	12	15
Northern Cape	2	9
KwaZulu-Natal	17	11
Free State	13	13
North West	15	6
Gauteng	46	26
Mpumalanga	8	9
Limpopo	4	8
Total:	153	122

Adapted from Milk Producers Organisation, 2015

From Table 8-4 above, it can be seen that there are approximately 25.4% more buyers than PDs in South Africa. Gauteng has the largest number of milk buyers and PDs, while the Northern Cape has the least milk buyers and the North West Province has the least PDs. The Free State only has approximately 13 milk buyers and 13 PDs, despite the province having the second largest number of milk producers. Thus, there is significant potential for the Agri-Hub to capture the underutilised catchment of dairy products.

8.1.2 Dairy Consumption

Milk and dairy products are considered to be important sources of calcium. Calcium is important for the development of strong bones and teeth during childhood and adolescence, it is also important for the maintenance of strong bones in order to prevent osteoporosis. The Recommended Daily Allowance (RDA) of calcium is illustrated in Table 8-5 below.

Table 8-5: Daily Recommended Allowance of Calcium

Age Group	Calcium per Day (mg)
Infants	1000
Children and adolescents	1500
Young adults	1000
Pregnant and lactating females	1500
Post-menopausal women	
• on hormone replacement	1000
• not on hormone replacement	1500

Adapted from National Osteoporosis Foundation, 2015

The RDA of calcium for infants, young adults, and post-menopausal women that are on a hormonal replacement is 1000mg of calcium per day. Pregnant and lactating females, children, adolescents, and post-menopausal woman who are not on a hormonal replacement are recommended to consume 1500mg of calcium per day. A single glass of milk contains approximately 300mg of calcium, which is nearly a third of the RDA for young adults and infants (National Osteoporosis Foundation, 2015).



The basic consumer basket in South Africa consists of: bananas (1 kilograms), oranges (1 kilograms), apples (1 kilogram), beef chuck (1 kilogram), baked beans - tinned (410 grams), a brick of margarine (500 grams), eggs (1.5 dozen), Ceylon/black tea (62.5 grams), cabbage (1 kilograms), chicken portions-frozen (1 kilogram), chicken portions-fresh (1 kilogram), canned fish (excluding tuna) (425 grams), instant coffee (750 grams), loaf of brown

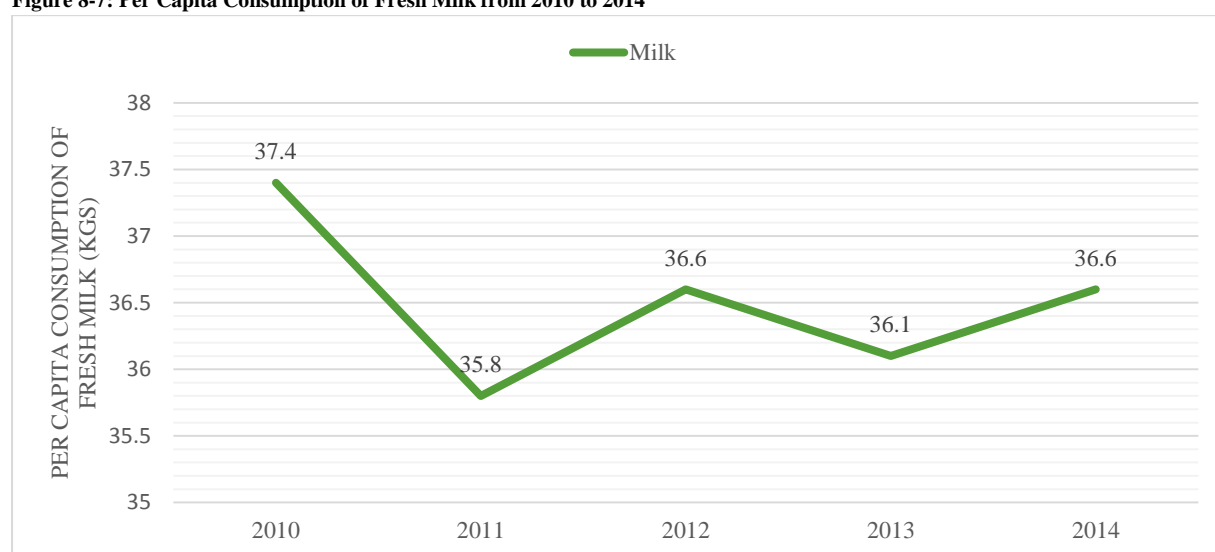


bread (700 grams), loaf of white bread (700 grams), full cream milk or long life (1 litre), maize meal super (5 kilograms), peanut butter (400 grams), potatoes (1 kilogram), rice (2 kilogram), onions (1 kilogram), tomatoes (1 kilogram), and sunflower oil (750 millilitres) (National Agricultural Market Council, 2015).

A litre of milk equates to approximately 4 glasses of milk, which suggests that a basic consumer basket with only a litre of milk is not sufficient to meet the RDA of calcium per day. In developed countries, the per capita consumption of milk and milk products is relatively higher than that of developing countries. However, the gap between many developing countries is narrowing. With population growth, urbanisation, rising incomes, and changes in diets, the demand for milk and milk products in developing countries is growing. a good opportunity is thus offered for producers (and other actors in the dairy chain) in high-potential, pre-urban areas to enhance their livelihoods through increased production.

South Africa's per capita consumption of fresh milk over the years is illustrated in Figure 8-7 below.

Figure 8-7: Per Capita Consumption of Fresh Milk from 2010 to 2014



Adapted from Department of Agriculture, Forestry, and Fisheries, 2015

From Figure 8-7 above, it can be seen that South Africa's per capita consumption of milk has decreased by approximately 2.1% over the five-year period (from 2010 to 2014). The lowest per capita consumption (of approximately 35.8kg) per year occurred in 2011, while the highest per capita consumption (of approximately 37.4kg) per year occurred in 2010. The average per capita consumption of milk is approximately 36.5 kg.

8.2 Market Assessment: Dairy

The following market assessment provides an analysis of the local markets, global markets, and commodity markets for the dairy industry within a South African context.

8.2.1 Local markets

The South African dairy industry operates as a relatively free market, as the industry has relatively fewer import tariffs compared to other industries such as, for example, the pork industry. Furthermore, the dairy industry also has a range of preferential trade agreements covering dairy product imports.

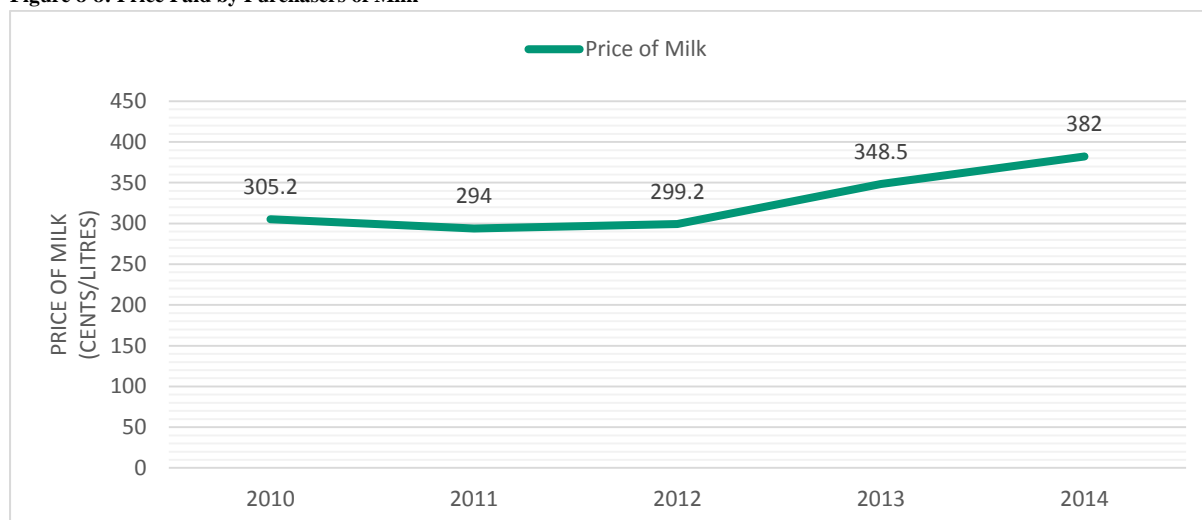


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Figure 8-8 below, illustrates the price paid by purchasers of milk to milk producers.

Figure 8-8: Price Paid by Purchasers of Milk



Adapted from Department of Agriculture, Forestry, and Fisheries, 2015

Figure 8-8 above, illustrates the increase in the prices paid by purchasers of milk throughout the years, in 2010 the price of litre of milk was approximately R3.05 per litre of milk. In 2014, the price of milk was approximately R3.82 per litre of milk. The price of milk increased by approximately 25% from 2010 to 2014.

8.2.1.1 Local Marketing Channels

There are various local marketing channels available for dairy farmers; the farmers can utilise these channels to sell their milk. The marketing channels are as follows:

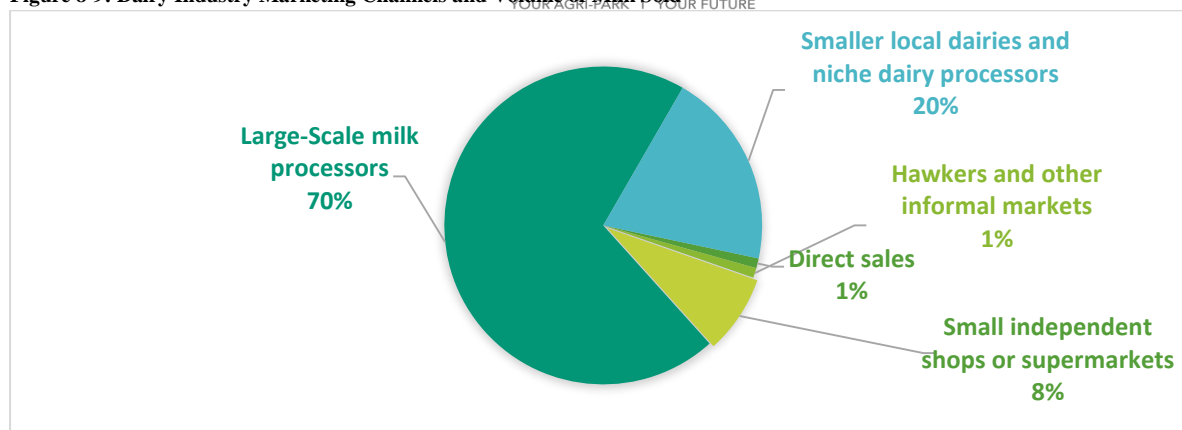
- **Direct sales** - farmer-to-consumer channel, the farmer sells milk directly to consumers through personal contact at the farm gate or stall, or at farmer's markets.
- **Hawkers and other informal markets** – farmers engage in selling milk to informal traders or hawkers whom, in turn, sell the milk to members of the public from stalls set up on the corner of streets or isolated patches (as opposed to large market areas), usually in areas where low income people reside, work, or transit through.
- **Small independent shops or supermarkets** – farmers sell milk to small, independent retailers, such as shops that do not belong to, or who are not franchises of large national or global groups. This marketing channel includes general dealers, "corner shops", "spaza" shops, dairy shops, etc.,
- **Large-Scale milk processors** - farmers may sell milk to large regional or national milk distributors or processors. This channel is the most commonly used channel in the country.
- **Smaller local dairies and niche dairy processors** - a farmer may sell milk to a local dairy company, which may be a cooperative of local dairy farmers, a local dairy retailer, or a niche dairy product manufacturer.

Figure 8-9 below, illustrates the various marketing channels available for farmers and the total volume of milk sold by farmers through the particular marketing channel.



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Figure 8-9: Dairy Industry Marketing Channels and Volume of Milk Sold



From Figure 8-9 above, approximately 70% of South Africa's milk is sold to large-scale milk processors. Smaller local dairies and niche dairy processors account for 20% of the milk sold in South Africa. The third largest channel that dairy producers supply milk to is small independent shops or supermarkets, which accounts for approximately 8% of South Africa's milk sales, while direct sales and hawkers only account for 1% of sales each.

Table 8-6 below, illustrates the advantages and challenges related to reach of the local marketing channels.

Table 8-6: Advantages and Challenges of the Various Channels

Channel	Advantages	Challenges
Direct sales	<ul style="list-style-type: none"> Simple, easy, and requires relatively little skills. 	<ul style="list-style-type: none"> Small volumes sold per transaction.
Hawkers and other informal markets	<ul style="list-style-type: none"> Potentially a viable channel for small-scale farmers. 	<ul style="list-style-type: none"> Not a conventional or major channel. Cannot support cold chain distribution.
Small independent shops or supermarkets	<ul style="list-style-type: none"> Good prices can be attained, Potentially profitable channel for small-scale farmers. Ideal when there are lots of small independent supermarkets or shops in the area, and the farmer has the energy to be closely involved in selling and distributing to them. Can build strong relationships with the shop owners thereby gain strong customer loyalty. Well established channel for small dairy farmers. 	<ul style="list-style-type: none"> Rapidly declined in recent decades due to competition from large retailers who tapped into more efficient, national level cold chains. Management intensive channel. Retailers needs to be nearby to minimise transport costs. Entrepreneurial spirit, willingness to accept risk, invest in the sales effort, and to build customer relationships is important. Rare for a farmer to supply raw milk directly to large retail chains due to health and regulatory considerations.
Large –Scale milk processors	<ul style="list-style-type: none"> Provide extensive support to farmers. An extensive network of cold trucks operates nationally, picking up milk from farmers. 	<ul style="list-style-type: none"> Require fairly large quantities of milk (possibly at least 100 litres per day). Strict hygiene and quality criteria. Legal consequences in case farmer cannot supply as per contract.

Channel	Advantages	Challenges
Smaller local dairies and niche dairy processors	<ul style="list-style-type: none"> • Might be more willing to buy from smaller farmers or engage in out-grower schemes. • Market for a larger variety of milk types. • Specialist milks, e.g. goat's milk, high fat or protein milk, milk from very specific breeds, organically produced milk, etc. 	<ul style="list-style-type: none"> • Strict hygiene criteria. • Many dairies have been displaced by large milk processors. • The importance of this channel is severely reduced in recent years because of competition from large milk processors in the District and the rest of the country.

From Table 8-6 above, the advantage of direct sales is that relatively little skills are required to sell milk; however, only small volumes of milk can be sold at a time. The advantage of hawkers and other informal markets is that the channel provides a viable channel for small-scale farmers in cases where logistical arrangements are well planned and the farmer is situated near to informal market areas. However, the channel is not a conventional or a major channel because of health risks, and logistical inefficiencies for many other small-scale and emerging farmers.

Small independent shops or supermarkets, mentioned in Table 8-6 above, have the advantage of providing a potentially profitable channel for small-scale farmers particularly if farmers are in close proximity to the independent shops or supermarkets. The channel also provides fairly good prices for milk producers, however, the market channel is management intensive and the channel has declined in the past years due to large retailers.

The large -scale milk processors marketing channel, mentioned in Table 8-6 above, has the advantage of providing support to dairy farmers while also providing collection services. However, the channel requires at least 100 litres of milk per day from producers, and has strict hygiene and quality criteria.

Smaller local dairies and niche dairy processors, mentioned in Table 8-6 above, are the last marketing channel available to milk producers, has the advantage of providing a market for a larger variety of milk types, including specialty milks such as goats milk. However, the channel has strict hygiene criteria and has also decreased over the years, due to large milk processors which dominate the market.

The Agri-Park will serve as another marketing channel for many dairy farmers that have been excluded from participating due to challenges such as transportation, health risks, etc.

8.2.2 Global markets

The dairy industry is also an important contributor to the South African GDP, particularly through its role in the foreign exchange market. As stated before, milk production in South Africa contributes approximately 0.5% to the world milk production.

Figure 8-10 below, illustrates the South African imports and exports of the dairy industry over a five-year period (from 2011 to 2015).

Figure 8-10: Dairy product imports and exports

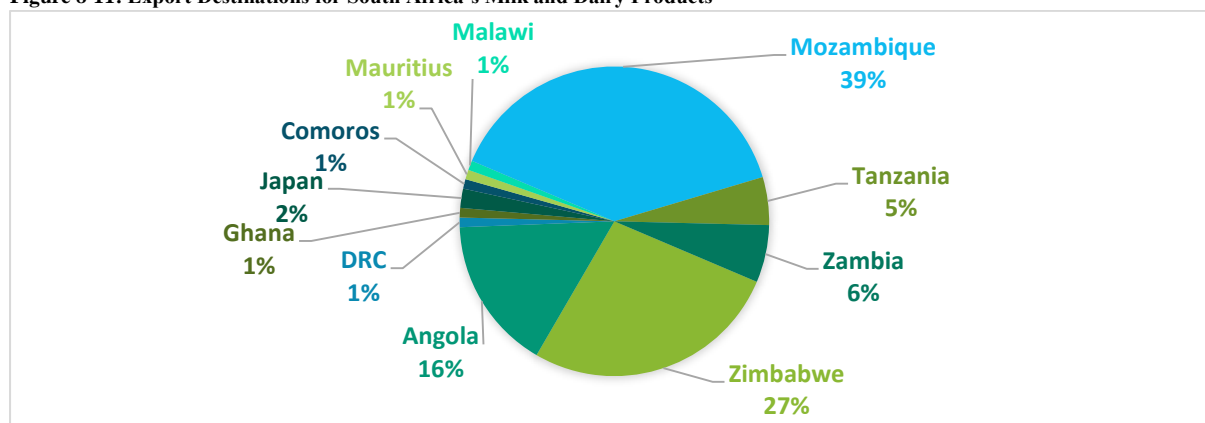


Adapted from Milk Producers Organisation, 2015

From Figure 8-10 above, it is clear that South African imports and exports fluctuate over time. In 2011, South Africa exported approximately 11% more dairy products than it imported. However, in 2015 the country imported approximately 31% more dairy products than it exported. On average, South Africa imported approximately 49 094 tons of dairy products over the five-year period, while exporting approximately 58 344 tons of dairy products on average during the same period. During 2014, approximately 431 million litres of milk was exported from South Africa, the same as in 2013. In 2015 (from January to July), South Africa exported approximately 232 million litres milk, which was approximately 3.6% lower than its exports during the same period in 2014 (Milk Producers Organisation, 2015).

Figure 8-11 below, illustrated the various destinations to which South Africa exports milk and dairy products.

Figure 8-11: Export Destinations for South Africa's Milk and Dairy Products



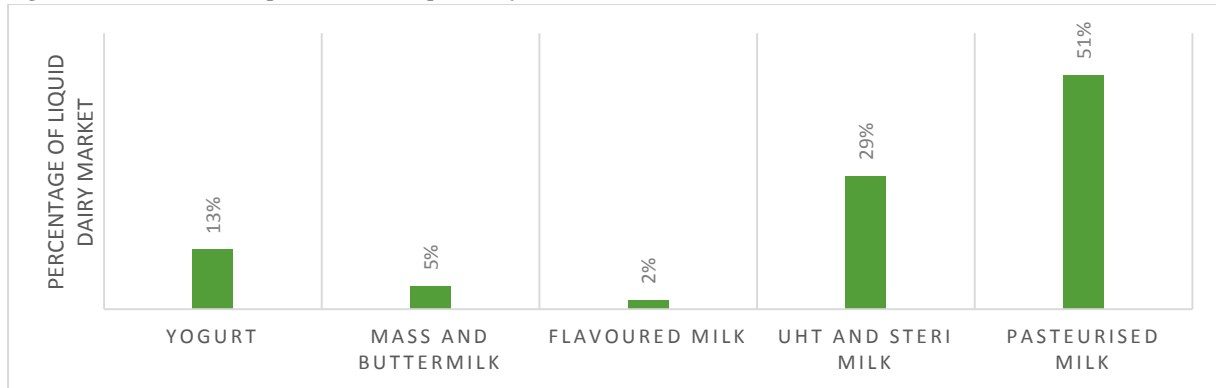
Adapted from Department of Agriculture, Forestry, and Fisheries, 2014

From Figure 8-11 above, it is clear that the largest importer of South Africa's milk and dairy products is Mozambique, followed closely by Zimbabwe. Mozambique accounts for approximately 39% of South Africa's exports, while Zimbabwe accounts for approximately 27% of South Africa's exports. Angola accounts for 16% of exports, while Zambia and Tanzania account for 6% and 5% of exports, respectively. Japan, Malawi, and Mauritius account for approximately 2%, 1%, and 1% respectively, which are the smallest share of exports.

8.2.3 Dairy Market

The dairy market within South Africa is divided into liquid (approximately 58% of the dairy market) and concentrated products (approximately 42% of the market). The most prominent liquid products within the South African dairy market are Ultra-High Temperature (UHT) milk and pasteurised liquid milk, while hard cheese is the most prominent concentrated dairy products. Figure 8-12 below, illustrated the estimated composition of the liquid dairy market.

Figure 8-12: Estimated Composition of the Liquid Dairy Market

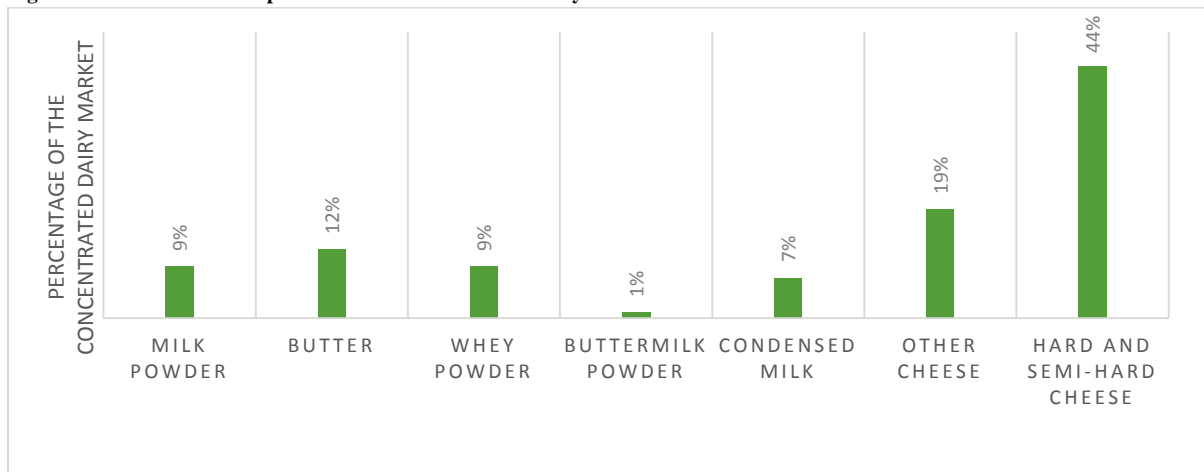


Adapted from Milk Producers Organisation, 2015

Figure 8-12 above, illustrates that pasteurised milk accounts for approximately 51% of the liquid dairy market, followed by UHT and sterilised milk, which accounts for approximately 29%. Yogurt accounts for 13% of the liquid dairy market, while maas and buttermilk account for 5% of the market. Flavoured milk only accounts for 2% of the market.

The estimated composition of the concentrated dairy market is illustrated in Figure 8-13 below.

Figure 8-13: Estimated Composition of the Concentrated Dairy Market



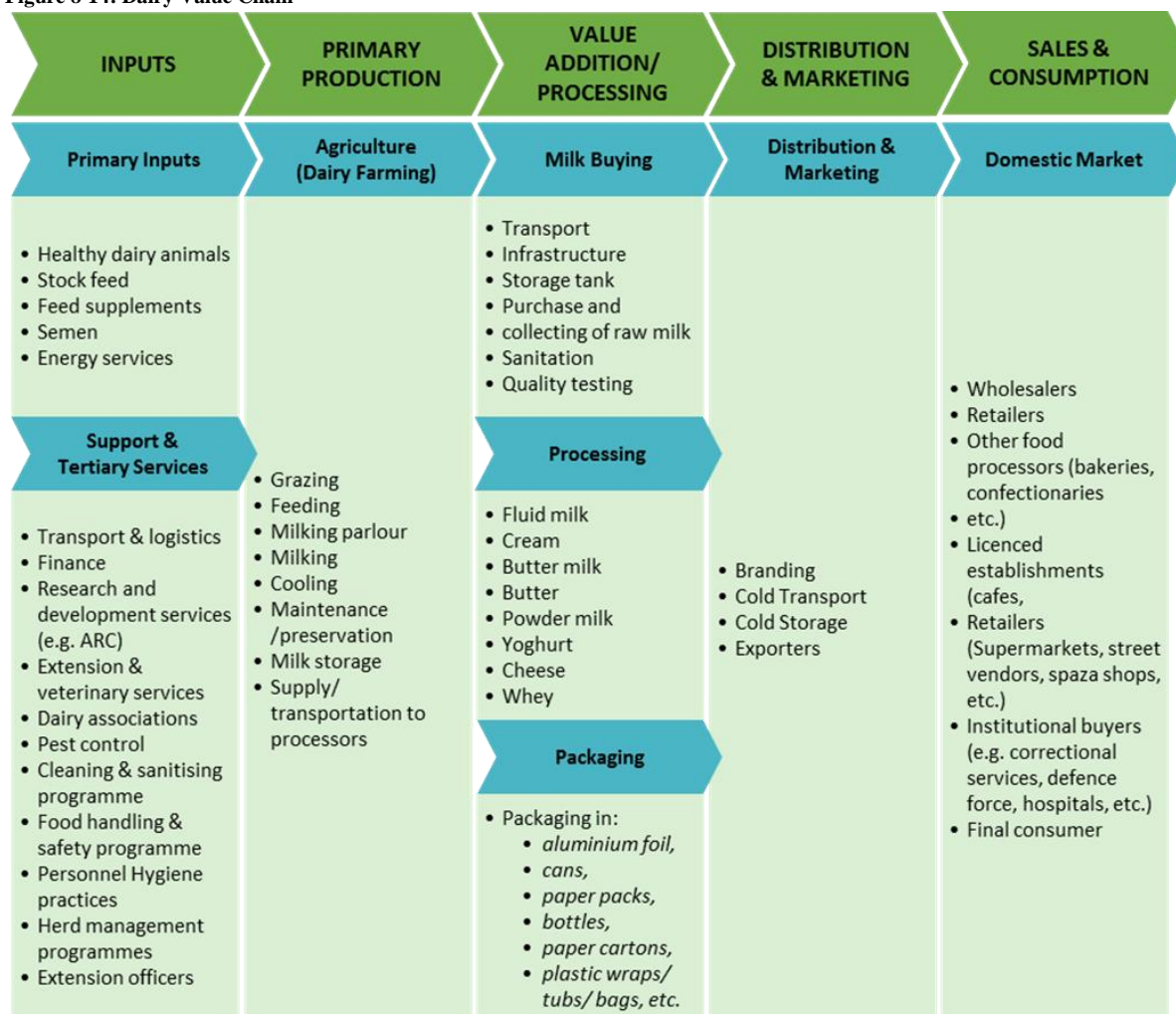
Adapted from Milk Producers Organisation, 2015

From Figure 8-13 above, hard and semi-hard cheese account for approximately 43% of the concentrated dairy market, while other cheese account for a further 19% of the market. Butter is the third largest concentrated dairy product, as it accounts for approximately 12% of the market. Milk and whey powder accounts for 9% of the market, each. Followed by condensed milk which accounts for 7% of the market; buttermilk powder only accounts for 1% of the market.

8.3 Value chain assessment

The dairy value-chain comprises the full range of activities, from primary production at farm level, through to the distribution and sale of value-added products in both the local and export markets. Dairy primary production involves the production of milk either for direct human consumption or for further processing, and covers all on-farm activities, from farm and herd management practices to those activities undertaken during milk collection and storage operations. Figure 8-14 below, illustrated the value chain of the dairy industry.

Figure 8-14: Dairy Value Chain



From Figure 8-14 above, it can be seen that production is dependent on the availability of access to quality feed, forage, and sufficient water supply, as the quality of inputs will determine both the quantity and quality of the milk and other dairy products produced. During the production phase, animal health is maintained through proper nutrition and veterinary management.

The activities here include the rearing, grazing, feeding and milking of animals and the storage of milk on the farm. The value of milk and other dairy products is enhanced through sanitation, quality testing and processing. Processing of milk allows producers a consistent additional market for their milk supply throughout the year and to obtain higher prices in accordance with local demand. Value addition/processing covers a range of activities, from the processing and value-adding of raw milk to improve the quality of milk, to further processing into other



dairy products. It also involves packaging to improve the appearance of the products, thereby giving it more market value. After this process, the products are marketed and distributed through various marketing channels.

8.3.1 Upstream and Primary Production Activities

Dairy farming is classified as primary production thus, the upstream activities relevant to the value chain are primarily the input supplies used in the production system. The major inputs for dairy production include:

- Animal genetic resources,
- feeds and forages,
- veterinary drugs,
- vaccines,
- machinery equipment,
- energy and water services,
- healthy animals, and
- skills and knowledge.

Most of these inputs are supplied by Agricultural Co-Operatives in the respective areas, such as, among others, Alta Genetics and NUTRI Feeds.

As mentioned previously, milk production is more suited in the coastal regions of South Africa, with the Free State Province accounting for 7.3% of the country's milk production in 2014 (Milk SA, 2015). Nonetheless, there are approximately 328 milk producers operating in the Province. Milk production in the Free State is concentrated in regions to the north, east, and west of the Province, as is evidenced in Figure 8-16 and Figure 8-15 below. In the south east regions of the Province that, border Lesotho, milk production is between 25.1 and 50 litres per km² however, the majority of the province produces between 2.1 and 25 litres of milk per km². While the eastern regions of the province have the largest number of cows per km².

Figure 8-16: Milk production density (litres/km²) per District, 2014

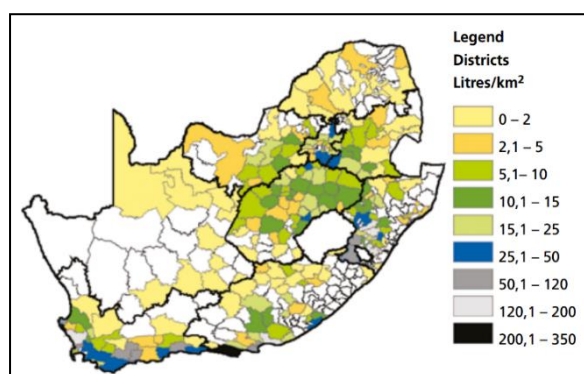
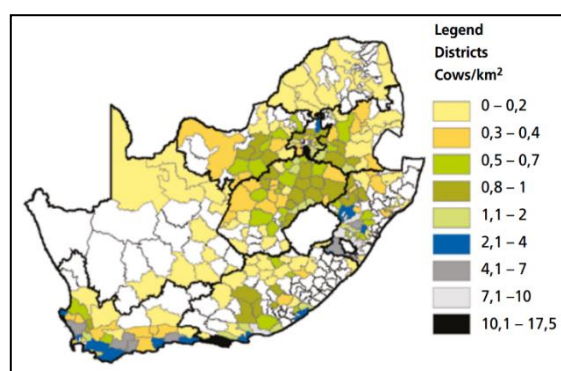


Figure 8-15: Cow density per District (cows/km²), 2014



(Milk SA, 2014; Milk Producers Organisation, 2015)

As is the case for South Africa, the number of milk producers in Free State decreased by approximately 67% from 987 producers in 2007 to 328 in 2015. This has also led to a reduction by more than half in the share of milk production contributed by the Province (Milk SA, 2015). Despite this, the Free State Province has, over the past few years, played a major role in the export of milk and dairy products, likely due to the fact that the province is located in close proximity to the Gauteng province, which is the main exit point for most exports.



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8.4 Downstream and Agro-Processing Activities

Depending on the end product to be produced, a number of processes are required. These include processes such as:

- **Separation/ raw processing:** Regardless of the product to be produced, all raw milk goes through separation to remove fat solids from the milk (water and other non-fat solids). Cold raw milk goes through either a clarifier or a separator. The clarifier removes debris, bacteria and any sediment that may be present in the raw milk. The separator does the same, but also separates the heavier milk fat from the lighter milk to produce both cream and skim milk. This allows for the production of raw skim milk on one hand and raw cream on the other, which can be processed into cream or butter.
- **Blending:** This involves the re-blending of fat into different fluid products in line with fat requirements, together with additives such as vitamins, stabilisers, dry-milk. Blending allows for the production of products such as whole milk, 2% milk, 1% milk and skimmed/fat free milk. The flavouring of milk also takes place at this stage.
- **Pasteurisation/ sterilisation:** Pasteurisation is undertaken to destroy pathogenic organisms/ bacteria that may be present in milk, without affecting the taste or nutritional value of the milk. This is done to increase the milk safety and shelf life. Milk is pasteurised by being heated. Depending on the product, different pasteurisation durations and temperatures are applied, which allow for different storage requirements (such as refrigeration or room temperature storage) and shelf life duration. Typical pasteurisation types include Batch/vat; continuous, high temperature short time (HTST); continuous higher heat shorter time (HHST); continuous ultra-pasteurisation; aseptic, and ultra-high temperature (UHT) pasteurisation, as well as complete sterilisation for canned products. Products include heat-treated liquid drinking milk.
- **Homogenisation:** The purpose of this process is to distribute the butterfat uniformly throughout the milk. This process is important because it prevents milk fat from separating and floating to the surface as cream. During this process, high pressure is applied to milk to break down the fat globules. The homogenising process makes milk appear whiter, improves the taste, and makes milk easier to digest. It also allows milk to be frozen.
- **Fermentation:** Fermentation involves the introduction of bacteria cultures at temperatures that allow bacteria to grow and to convert milk sugars into lactic acid. This results in a sour taste and improved digestibility of the product. This process is used to produce products such as yoghurt, sour cream and cultured buttermilk.
- **Concentration and drying:** This involves the removal of liquid content to produce concentrated or dry milk products such as condensed milk and milk powders.
- **Further processing:** involves the adding of coagulates and other ingredients to milk and cream, as well as the further processing of cream into products such as ice cream, sweets and cheese products.
- **Packaging:** Packing of dairy products differs in accordance with the type of product produced. To ensure the safety and shelf life, products are placed in packaging containers and sealed, with expiration dates stamped onto the packaging. From there, the packaged products are shipped to distribution warehouses in refrigerated trucks and then on to the individual markets (AGMRC, 2003; Milkfacts, 2015; Fiaz *et al.*, 2013).



Table 8-7 below, illustrates the various products that are produced in the dairy industry.

Table 8-7: Main Products of the Dairy Industry

Main Product	By-Product	Processing Method	Products Made
Cream	Skim milk	<ul style="list-style-type: none"> Pasteurisation Fermentation Sterilisation Concentration Drying Coagulation 	<ul style="list-style-type: none"> Flavoured milk Cultured buttermilk Sterilised flavoured milk Concentrated sour skim milk Plain and sweetened condensed skim milk Cottage cheese Dried skim milk or skim milk powder
Butter	Butter milk	<ul style="list-style-type: none"> Coagulation Concentration Drying Fermentation 	<ul style="list-style-type: none"> Condensed buttermilk Dried buttermilk Soft cheese
Cheese	Whey	<ul style="list-style-type: none"> Drying Concentration Fermentation 	<ul style="list-style-type: none"> Dried whey Whey beverages Yeast whey Plain and sweetened condensed whey Whey protein concentrate Whey paste Lactose
Ghee	Ghee residue	<ul style="list-style-type: none"> Processing butter 	<ul style="list-style-type: none"> Toffee Sweet paste Sweetmeats

Table 8-7 above, there are various products that are produced in the dairy industry from main products such as cream and butter, to further processed products such as flavoured milk and soft cheese, among others.

8.5 Main Input Suppliers

The main suppliers, including, but not limited to, suppliers of breeding stock, advisory service providers, and veterinary service providers, to the dairy industry within the Thabo Mofutsanyana District and regionally are summarised in Table 8-8 below.

Table 8-8: Input Suppliers for the Dairy Industry

Supplier:	Service:
<ul style="list-style-type: none"> SA Stud Book and Livestock Improvement Association 	<ul style="list-style-type: none"> Dairy recording and stud book service providers. Advisory service providers.
<ul style="list-style-type: none"> SA Dairy Swiss SA Guernsey Cattle Breeders' Society SA Holstein 	<ul style="list-style-type: none"> Advisory service providers. Society membership. Suppliers of dairy cows

Supplier:	Service:
<ul style="list-style-type: none"> Milk SA Milk Producers Organisation Dexter Cattle Breeders Society of South Africa EAC Voerkrale (Bethlehem) 	
<ul style="list-style-type: none"> State Veterinarian (Bethlehem) 	<ul style="list-style-type: none"> Veterinarian services and medication
<ul style="list-style-type: none"> Alta Genetics Taurus Livestock Co-op Semen Zoo Italy Cooperative Resources International Genimex ABS South Africa Pty Ltd 	<ul style="list-style-type: none"> Breeding service providers. Suppliers of breeding stock. Advisory service providers. Suppliers of dairy cows
<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Electricity provider
<ul style="list-style-type: none"> A La Dairy 	<ul style="list-style-type: none"> Milk Suppliers Value-added producer
<ul style="list-style-type: none"> Mountain View Dairy 	<ul style="list-style-type: none"> Milk Suppliers Value-added producer
<ul style="list-style-type: none"> MelPro 	<ul style="list-style-type: none"> Milk Suppliers
<ul style="list-style-type: none"> Die Suiwelhoekie 	<ul style="list-style-type: none"> Value-added producer Milk Suppliers
<ul style="list-style-type: none"> Dairy Dynamics Delmar Milktech GUTH South Africa DeLaval 	<ul style="list-style-type: none"> Equipment and machinery Equipment and machinery upgrades and maintenance Advisory service providers. Source of raw materials and accessories for production plants.
<ul style="list-style-type: none"> Agri SETA 	<ul style="list-style-type: none"> Training Programmes
<ul style="list-style-type: none"> NUTRI Feeds OPTI DAIRY\ Afgri Animal Feeds (Bethlehem) BKB (Vrede) Eagle Farm Feeds OTK (Afgri) Ltd Saamstaan Veevoere Sparta Beef Cattle Feeders Van Dijkhorst Leon 	<ul style="list-style-type: none"> Feed provider
<ul style="list-style-type: none"> Thabo Mofutsanyana District Municipality 	<ul style="list-style-type: none"> Water provider

From Table 8-8 above, it can be seen that there are various input suppliers required for the production of dairy products. Dairy cattle can be purchased from various suppliers such as, for example, SA Dairy Swiss and SA Guernsey Cattle Breeders' Society, among others. Dairy Dynamics and Delmar Milktech, among others, supply dairy-related equipment and machinery.

8.6 Competitors

Milk is used in nearly every meal and many beverages, and is one of the most consumed goods in the world. With such high demand, it is no astonishment that there are numerous dairy competitors within South Africa. Table 8-9 below, illustrates the main five dairy competitors within the value-added dairy market.

Table 8-9: Main Dairy Competitors

Competitor	Type of Products Produced
Clover SA	Milk, cheese, whipped cream, flavoured milk, sour cream, butter, maas, and cream, milk powder
Parmalat	Cheese, milk, butter, flavoured milk, and cream, milk powder
Nestlè	Milk, flavoured milk, butter, cream, condensed milk, and powder milk.
FairField	Milk, butter, cheese, and cream.
DairyBelle	Milk, butter, cheese, and cream, and powder milk.
Douglasdale	Milk, cream, buttermilk, and maas.
Woodlands Dairy (First Choice)	Butter, high-protein recovery milk, cheese, UHT milk, custard, dairy desserts, and cream.
DewFresh	Maas, buttermilk, and cream.
Fair Cape	Maas, and flavoured milk.
Inkomazi	Maas
Mageu No. 1	Maas, flavoured maas, and custard
Dairy Companies in District	
A La Dairy	Milk, butter, cheese, and cream.
Die Suiwelhoekie	Milk, butter, and cream.
Melpro	Milk and cream.
Mountain View Dairy	Milk and cream.

From Table 8-9 above, it can be noted that there are a large number of dairy product producers within South Africa. The majority of producers, produce butter, milk, cream, flavoured milk, and cheese.

8.7 Stakeholders

South Africa has several organisations and associations that serve to represent the interests of the dairy farming industry. The associations aim at providing support for producers and consumers of dairy products within South Africa as well as strive to promote the sustainability and profitability of the industry.

The following have been identified as stakeholders and interest groups in the milk industry and within Free State Province, under the Thabo Mofutsanyana District.

Table 8-10 below summarises the stakeholders that are likely to be involved in the dairy industry.

Table 8-10: Dairy Industry Stakeholders

Stakeholder	Service
<ul style="list-style-type: none"> Bethlehem Department of Agriculture Ficksburg Department of Agriculture Reitz Department of Agriculture Senekal Department of Agriculture Vrede Department of Agriculture Witsieshoek Department of Agriculture 	<ul style="list-style-type: none"> Advisory service providers. Support units. Training.
<ul style="list-style-type: none"> State Veterinarian (Bethlehem) 	<ul style="list-style-type: none"> Veterinarian Services.
<ul style="list-style-type: none"> Milk Producers Organisation 	<ul style="list-style-type: none"> Advisory service providers.
<ul style="list-style-type: none"> SAMPRO 	<ul style="list-style-type: none"> Voluntary member organisation for secondary dairy sector.
<ul style="list-style-type: none"> Box /Plastics Manufacturers: <ul style="list-style-type: none"> ✓ Nampak (South Africa) ✓ Tetra Pak ✓ Tully's Plastics 	<ul style="list-style-type: none"> Companies that manufacture packing boxes and plastic bottles for milk.
<ul style="list-style-type: none"> Industry Machinery Companies: <ul style="list-style-type: none"> ✓ Central Milk 	<ul style="list-style-type: none"> Companies that provide machines for milk processing companies.
<ul style="list-style-type: none"> National Milk Producers: <ul style="list-style-type: none"> ✓ Clover SA ✓ Dairybelle ✓ Parmalat ✓ Nestle 	<ul style="list-style-type: none"> Production, grading and standards of milk produced.
<ul style="list-style-type: none"> Milk SA 	<ul style="list-style-type: none"> Advisory service providers. Coordinating primary (MPO) and secondary (SAMPRO) sectors in the milk industry.
<ul style="list-style-type: none"> SA Dairy Swiss SA Guernsey Cattle Breeders' Society SA Holstein Ubisi Mail Dairy Mail 	<ul style="list-style-type: none"> Advisory service providers. Society membership. Magazines and reports on milk production which are free for emerging farmers.

From Table 8-10 above, there are various dairy industry stakeholders such as producer societies and agricultural departments that play a role in keeping the industry at a reasonable level of standards. Stakeholders such as Ubisi Mail and Dairy Mail provide magazines and reports to emerging farmers (at no charge) on various events within the dairy industry, and the magazines also provide advertisements of dairy cattle for sale, equipment, and machinery.

8.8 Technology

Technology is important for economic growth as it promotes education, improves economic development as well as addresses societal issues such as gender (for example women participation). Table 8-11 below, illustrates the various types of dairy related technologies available to the Agri-Park, along with their accompanying advantages (benefits), disadvantages, costs, and required skill levels.

Table 8-11: Dairy Related Technology

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
Mechanisation				
Small-scale implements and tractors	<ul style="list-style-type: none"> Modern mechanisation, Large leaps in productivity, and Lower cost compared to conventional implements used by large commercial farmers. 	<ul style="list-style-type: none"> Cost may still be prohibitive, especially for the very small farmer. 	Medium to high	Medium to high (especially for maintenance and repair).
Precision farming, integrated farm management systems, and software				
Precision farming: Gaining real-time or exact information within particular parts of a single field.	<ul style="list-style-type: none"> Optimising production levels, Yield is maximised, and Inputs are minimised. 	<ul style="list-style-type: none"> Very taxing in terms of capital, equipment, and skills; Not well tailored to small-scale farming conditions yet. 	High	High
Integrated farm management software: Information and management system which coordinates farming activities.	<ul style="list-style-type: none"> Maximise profitability, Maximise efficiency, and Coordinate and simplify management processes. 	<ul style="list-style-type: none"> Applications for small-scale farmers is currently still limited. Some software and systems are not tailored for South Africa yet. 	Medium to high	High
Plan-A-Head Dairy Management Software and System: Total dairy herd management system.	<ul style="list-style-type: none"> Integrate with the systems of dairy breeder societies, Allow for whole-farm enterprise management, Most software bugs have already been fixed, and Light edition is particularly suitable for small-scale farmers. 	<ul style="list-style-type: none"> - 	Free trial	Moderate
Plan-A-Head Pasture Management Software Program with Pasture Management System.	<ul style="list-style-type: none"> Integrate with other Plan-A-Head farming software, and Record keeping ability 	<ul style="list-style-type: none"> - 	Free trial	Moderate
SimJunior: financial management and accounting software.	<ul style="list-style-type: none"> Easy to use, Ideal for the small-scale farmer. 	<ul style="list-style-type: none"> - 	Free	Low
Accord: Human resource management system.	<ul style="list-style-type: none"> Simplicity, coverage of basic employment legislation. 	<ul style="list-style-type: none"> - 	Low (R 4 560 to download plus annual fee of R 2 890)	Moderate

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
Agrimilk: Complete dairy enterprise management system.	<ul style="list-style-type: none"> Integrate with dairy breeder societies systems. Record keeping ability. 	<ul style="list-style-type: none"> - 	Low (R5 130 to download plus annual fee of R 2 890)	Moderate
Animal reproduction				
Artificial insemination (AI)	<ul style="list-style-type: none"> Cost efficient method to introduce generically superior traits into his/her herd or flock. 	<ul style="list-style-type: none"> Require significant skills and investment. 	Moderate	Moderate
Animal feeding				
Rolling molasses lick	<ul style="list-style-type: none"> Ensuring a fresh supply of molasses. 	<ul style="list-style-type: none"> Possible contamination risk in case of poor hygiene. 	Low (R3 500)	Low
Mixer wagons	<ul style="list-style-type: none"> Increase efficiency in feed mixing, and Delivery of well-balanced feed. 	<ul style="list-style-type: none"> Expensive for small-scale farmers. 	High (R390 000)	Moderate
Feed mixers with advanced feed circulation capability	<ul style="list-style-type: none"> Requires significantly less energy and time compared to conventional hammer mills. 	<ul style="list-style-type: none"> Cost may be prohibitive for many small-scale farmers. 	High	Moderate to high
Phosphorus supplements for grazing cattle and sheep	<ul style="list-style-type: none"> Growth, general health and reproductive success may be significantly improved. 	<ul style="list-style-type: none"> May rapidly dissolve in rainwater. 	Low to moderate	Low
Animal watering				
Auto-refill watering troughs	<ul style="list-style-type: none"> Steady and easy to clean, small build-in reservoir, minimises contamination and risk of wastage. 	<ul style="list-style-type: none"> Important to make certain the trough material is UV resistant. 	Low (R 3000)	Low
Farm energy				
Wind energy	<ul style="list-style-type: none"> Less vulnerable to theft compared to solar panels. Wind is a renewable form of energy. 	<ul style="list-style-type: none"> Only a few areas in South Africa do have sufficient wind profiles to justify investment in small wind turbines. Larger battery storage capacity compared to solar energy are required. 	Medium to high.	High
Solar technology	<ul style="list-style-type: none"> Solar is a renewable form of energy. 	<ul style="list-style-type: none"> Large battery storage capacity is required in case of photovoltaic panels. 	Medium	Low

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
		<ul style="list-style-type: none"> Highly vulnerable to theft. 		
Apps for mobile phones and tablets				
The Merck Veterinary Manual	<ul style="list-style-type: none"> Comprehensive animal health and reproduction reference not only to vets but to farmers as well. 	<ul style="list-style-type: none"> Not free 	Low (\$49.99)	High
Cattle breeds	<ul style="list-style-type: none"> Useful for the new farmer to help in breed selection. 	<ul style="list-style-type: none"> - 	Free	Low
AgriSuite Online	<ul style="list-style-type: none"> Can be accessed in the office or on the farm. Contains useful and concise information Simple and user-friendly format. 	<ul style="list-style-type: none"> Not publicly available yet 	-	Low

From Table 8-11 above, it can be seen that there are various technologies ranging from mobile applications to animal reproduction technologies that are available to the dairy industry. The majority of the technologies require moderate to high levels of skill in order to operate the technology; they are also accompanied by relatively high costs to acquire and use.

8.9 Demand and Needs Analysis

Local dairies (including small-scale dairies) and large-scale regional processors have the largest potential for participating farmers to make a profits. Local dairies command the potential due to the fair profit expectations and lower barriers of entry, while large-scale regional processors have the potential mainly due to the strong demand and support provided; however, profits may be very low per unit of milk sold.

With regard to processing options, the Agri-Hub can engage in value adding processes during the initial phases. However, supplying to existing dairies and milk processors is strongly encouraged for the following reasons

- profit margins are very low,
- the market is saturated, and
- competition is aggressive (particularly competition from imports, specifically with regard to value-added products).

However, the agri-hub can engage in processes such as pasteurisation, bottling, and branding once the agri-parks farmers become well established and organised. In later phases of the Agri-Park project, the Agri-Hub can engage in producing fermented products such as, for example, yoghurt, cheese (may be viable if combined with excellent branding only, especially if focus is on speciality cheeses or possibly Geographic Indicator branding), canned or bottled dairy drinks (rapidly expanding market), etc.

The region's competitiveness is not such that powdered milk or other advanced products will be viable at present, however, it may be considered for production in the future or for exporting.

8.10 Socio-Economic Benefit: Job Creation

The production of milk is a relatively labour-intensive job; as dairy cows must be milked at a minimum of twice a day throughout the year. The dairy industry is an important sector in South Africa regarding the job market, the industry has over 1 961 milk producers which cumulatively, employ over 60 000 farm workers, while also providing 40 000 people with indirect jobs within the dairy value chain such as the milk processing and feed milling industry, among others (Milk South Africa, 2014; DAFF, 2014).

The Free State Province has an unemployment rate of 57.2% (approximately 77, 060 unemployed individuals) as of the second quarter of 2015, which is higher than the national rate of unemployment. There are approximately 117, 680 individuals that are not economically active within the Free State (Regional Standardised data, 2015, 2015).

According to Statistics South Africa (2015), South African women are relatively more impoverished than South African men; with a poverty rate of 58.6% among women and 54.9% for men. In the Free State Province, approximately 29, 407 women are unemployed. Thus, women participation is important within the project as it will lower the rate of impoverished women.

The National Development Plan (NDP) states “to promote large-scale job creation, the functioning of the labour market will have to improve” (National Planning Commission, 2012). Thus, it is crucial that training and skills development be addressed with South Africa. The dairy industry comprises of highly sophisticated equipment, which is used for milking and processing. Therefore, it is essential that workers are skilled and well-trained. (Milk South Africa, 2014). Training and development will be provided to all employees hired by the Agri-Park to ensure low accident rates and provide a smooth entry into these various positions.

Thus, job creation is a big socio-economic benefit that can be acquired from the implementation of the Thabo Mofutsanyana Agri-Park.

8.11 Contribution to Food Security

Nutritional status, livelihoods, and food security of low-income households, continues to be threatened by volatile commodity prices. Low-Income households continue to suffer malnutrition despite 50% of the households' income being spent on food. A country has achieved food security when at all times, all people, have social, physical, and economic access to safe, sufficient, and nutritious food that meets their dietary needs and food preferences required for a healthy and an active life (Sekhampu, 2014).

A number of dimensions and layers of complexities relate to South Africa's food security. Firstly, at a national level food security can be achieved through:

- the internal (domestic) production and processing of crops, and
- the purchasing and importing food staples.

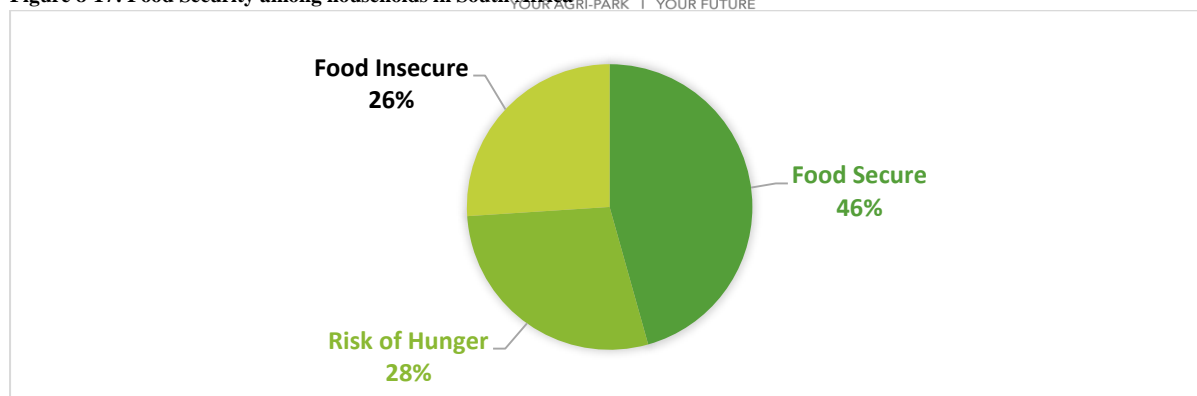
Secondly, food security achieved at a national level may not automatically translate into household level food security¹⁴ (Baleta & Pegram, 2014).

Figure 8-17 below, illustrates the state of food security among households in South Africa.

¹⁴ For example, the Northern Cape and North West provinces has a food insecure population of nearly 20% even though South Africa is considered to be a food secure country (Baleta & Pegram, 2014).



Figure 8-17: Food Security among households in South Africa

Adapted from Shisana *et al.*, 2013

From Figure 8-17 above, approximately 46% of the population's households are considered food secure (have access to enough food to meet daily dietary requirements), while 28% of the population are at risk of hunger (having minimal access to food, thus barely reaching daily dietary requirements). Approximately 26.0% of South Africa's households experienced hunger (do not have enough access to food in order to meet daily dietary requirements).

Thus, food security is another socio-economic benefit that can be derived from the Thabo Mofutsanyana Agri-Park, as the Agri-Park will be able to supply safe, nutritional, and affordable food items such as milk, yoghurt, and butter, among other items. The Agri-Park can also supply food items to feeding schemes and soup kitchens to further alleviate food insecurity within the Thabo Mofutsanyana District.

8.12 Regulatory Requirements

The dairy industry is regulated by certain legislations, which dairy products must comply with in order to maintain required standards and ensure food safety. Some of these Acts and Regulations, together with governing government departments are listed in Table 8-12 below.

Table 8-12: Dairy Market Acts and Regulations

Regulation	Description
Marketing Act, 1968 (Act No. 59 of 1968)	The Act provides for the introduction of a <ul style="list-style-type: none"> • System of control over the marketing of agricultural products and • Regulates the quantitative control over the import or export of these products.
Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970)	The Act regulates the subdivision of <ul style="list-style-type: none"> • Agricultural land and • Its use for purposes other than agriculture.
Co-Operatives Act, 1981 (Act No. 91 of 1981)	The Act regulates the following: <ul style="list-style-type: none"> • Formation, registration, management and functioning of various types of cooperatives and • Winding-up and dissolution of co-operatives.
Perishable Products Export Control Act, 1983 (Act No. 9 of 1983)	This Act provides for the control of, <ul style="list-style-type: none"> • Perishable products intended for export from the Republic of South Africa and • For the continued existence of a statutory board to bring about the orderly and efficient export of perishable products from the Republic.



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Regulation	Description
Agricultural Product Standards Act, 1990 (Act No. 119 of 1990)	This Act provides for, <ul style="list-style-type: none"> Control over the sale and export of certain agricultural products and other related products, with a view to the maintenance of certain standards regarding the quality of products and The packing, marking and labelling thereof.
Agricultural Produce Agents Act, 1992 (Act No. 12 of 1992)	This Act provides for the establishment of <ul style="list-style-type: none"> An Agricultural Produce Agents Council (AAC) and Fidelity funds in respect of agricultural produce agents, and For the control of certain activities of agricultural produce agents. <p>This Act has not been brought into operation in its entirety but will eventually replace the Commission for Fresh Produce Markets Act, 1970 (Act No. 82 of 1970), and the Agricultural Produce Agency Sales Act, 1975 (Act No. 12 of 1975).</p>
Agricultural Development Fund Act, 1993 (Act No. 175 of 1993)	This Act provides for the establishment of and control over <ul style="list-style-type: none"> An agricultural development fund for the handling of money received for development.
Marketing of Agricultural Products Act 1996, (Act No. 47 of 1996)	This Act controls statutory measures relating to levies and guidelines for prices of milk and other dairy products, registration of persons involved in the secondary dairy industry, as well as records and returns in respect of milk and other dairy products.
Consumer Protection Act, 2008 (Act No. 68 of 2008)	This Act mainly protects consumers' rights in terms of products and services for the purpose of promoting a conducive and sustainable marketplace.
Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No 54 of 1972)	In terms of this Act, the department governs the regulations relating to hygiene requirement for milking sheds, the transport of milk and related matters, (R961 of 2012; No R1555 of 1997).

Given the above exhaustive list (Table 8-12) of legislation that the agricultural industry is governed by, it will be imperative that the Agri-Park management establishes a compliance committee that implements best management practices while also evaluating and monitoring the effective implementation of the best practices.

It is further vital that the development application requirements for the Agri-Parks is explored and properly addressed as they are mandatory. In accordance with SPLUMA – which governs land use nationally - it is crucial that a development application to be submitted to the Local Municipality before any development can be considered. SDF alignment is of optimal importance while the IDP and Local Municipality Land Use Planning By-law should also guide implementation. Failure to comply with the specific planning and development policies and legislation may cause stunting delays to the process. As such, alignment with each of these documents is of optimal importance before any development of the Agri-Hubs or FPSUs commence. The following pertinent legislation is applicable to a development application:

- Spatial Planning and Land Use Management Act, 16 of 2013
- Mangaung Spatial Development Framework
- Mangaung Integrated Development Plan
- Mangaung Metropolitan Municipality Land Use Planning By-laws

In addition to these the environmental guidelines for sustainable development as outlined within the **National Environmental Management Act 107 of 1998 and its subsequent by-laws** will also need to be adhered to. Once again neglecting this vital pre-development application(s) could halt development in its tracks. As such an environmental practitioner will need to be contacted on a site-to-site basis and based on that findings and relevant processes development will need to be directed accordingly.



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8.13 Substitute Products and Services

Substitute goods/products are goods that, as a result of changed conditions, may replace each other in use, or consumption. A substitute good, in contrast to a complementary good, is a good with a positive cross-price elasticity of demand, meaning that as the demand for a good increase, the price of another good is increased.

The Agri-Park can substitute away from cow's milk for a number of reasons, such as, but not limited to, for example, cost of production and consumer demand. This section of the report will cover substitute products for cow's milk.

8.13.1 Soy Milk

One of the most popular non-dairy milk products on the market is soy milk. Soy milk contains relatively the same amount of protein as dairy milk, and is made from soybeans. Soy milk originated in China and is an East Asian, vegan, and vegetarian cuisine staple.

Soybean oil and protein consumption accounts for approximately 25% of the South African soybean market, while 60% of the soybeans are used within the livestock sector. A variety of soybean products can be processed from soy milk, for example:

- Yogurt,
- flavoured soymilk products, and
- soups.



8.13.2 Goat or Sheep's Milk

Goat or sheep's milk can be another alternative to cow's milk, particularly in the Free State. Goats and Sheep are small ruminants that have higher resilience to temperature changes than other livestock. Small ruminants can also adapt to different climate conditions in terms of rainfall. Thus, increasing temperatures (that could be a result of climate change), would result in the increasing number of goats and sheep. Furthermore, sheep and goats are also non-selective in their grazing habits (they will graze on any type of roughage or pasture). Thus, goats and sheep require far less food and space than cows (Cloete et al., 2014; Bureau of Food and Agricultural Policy, 2015).

8.14 New Entrants and Potential Entrepreneurs

In South Africa, one of the main goals, for many years, has been the reduction of poverty through job creation. The Agri-Park project proposed by the South African government lends a hand in achieving this goal, as the project not only supports the growth of small-scale farmers, but it allows for the participation and inclusion (within the market) of emerging farmers.

Emerging dairy farmers in the Thabo Mofutsanyana District are mentioned in Table 8-13 below.

**Table 8-13: Emerging dairy farmers in the Thabo Mofutsanyana District**

#	Farmer	Farm Name	Local Municipality
1	Wilhelmina Project	Wilhelmina	Setsoto
2	Mr. Mohapi	BVQ	Setsoto
3	Mr. Nhlapo	Weltevrede	Setsoto
4	Mr. Mthimkulu	Ursula	Nketoana
5	Mr. Masaneng	Fraai Uitsicht	Setsoto
6	Mbhele S	Danielsrust	Maluti-A-Phofung
7	Vrede Dairy project	-	Phumelela
8	Zim M.J	Kayalami	Maluti-A-Phofung
9	Lephoto T.A	Voorberg	Maluti-A-Phofung
10	Makoele L.J	Dagbreek	Maluti-A-Phofung
11	Diyatalawa project	Diyatalawa	Maluti-A-Phofung
12	Mokoena J	Toekomst	Maluti-A-Phofung
13	Malinga K.A	Beulah	Maluti-A-Phofung
14	Dr. Khalema	Harrismith	Maluti-A-Phofung
15	Motlokoa Pienaar	Java	Maluti-A-Phofung
16	Moloi N.L (WARD)	Maanhaar	Maluti-A-Phofung
17	Mphuthi R (WARD)	Weltevrede	Maluti-A-Phofung
18	Ms Hika	Goede Hoop	Maluti-A-Phofung

Adapted from Department of Agriculture Free State Province, 2015

From Table 8-13 above, there are approximately 18 emerging farmers within the Thabo Mofutsanyana District. approximately 12 of the 18 farmers are within the Maluti-A-Phofung Local Municipality, with one of the 12 farmers located in Harrismith. Many of these emerging farmers will benefit greatly from the Agri-Park project as the Agri-Hub will serve as a viable market for the producers.

8.15 Societal and Cultural Trends

Societal and cultural trends are movements that relate to the social and cultural standards and practices within a society, or culture. These trends tend to be long term (at least two to five years), and they generally serve to explain why individuals behave in certain ways. The food industry in South African has a growing influence of demographics, especially with respect to societal and cultural trends.

Table 8-14 below, illustrates the various societal and cultural trend with regard to the dairy industry.

Table 8-14: Societal and Cultural Trends, Dairy

	Societal Trends	Cultural Trends
Milk & Dairy products	<ul style="list-style-type: none"> Fermented milk, most commonly known as yoghurt is a common social trend in dairy products. Cheeses (coagulation of milk protein) is a popular trend. Butter, ghee, cream, and condensed milk, are used commonly in Southern Africa. It is a trend to use milk for the medical properties it contains, 	<ul style="list-style-type: none"> Using milk to make the traditional fermented milk also known as “Amasi” or “maas” (sour milk) which is a source of nutrition. Popular in South African Indian cuisine which is used to make curd and sweet meats. Milk is used in various religious prayers, particularly in the Hindu religion.



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	such as, bone health, heart health, muscle building etc. <ul style="list-style-type: none"> • Dry milk or milk powder is a trend amongst consumers who are lactose intolerant. • Whey products are famous for being used in combination with milk for fitness and nutrition. • Popular ingredient in many South African baked goods, e.g. Milk Tart • Special processed powdered milk or liquid milk can be used to breastfeed an offspring. 	
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From Table 8-14 above, it can be seen that South Africa has many cultural and societal trends involving dairy products. Products such as whey and yoghurt are included in the Societal trends in South Africa, as they are commonly included in fitness and dietary programmes. Milk is used in cultural trends such as Hindu prayers and Indian cuisines; it is also used to make a sour milk called “maas”.

8.16 SWOT analysis

The major challenges and weaknesses facing the dairy industry, as well as potential opportunities for development and strengths are summarised in Table 8-15 below.

Table 8-15: SWOT Analysis of the Dairy Industry

<u>Strengths</u> <ul style="list-style-type: none"> • High demand for value-added products. • High import volumes. 	<u>Weaknesses</u> <ul style="list-style-type: none"> • Large dominant players. • Seasonality of Production. • Imported dairy products. • Low financial support. • Cost of production and processing. • Low shelf-life of raw milk products.
<u>Opportunities</u> <ul style="list-style-type: none"> • Higher-value products for alternative uses. • Innovations to increase product shelf-life. • Growth of smallholder farmers. 	<u>Threats</u> <ul style="list-style-type: none"> • Price volatility. • Diseases. • Quality and quantity deficiencies by smallholder farmers.

The weaknesses, mentioned in Table 8-15 above, include, among others, the presence of large dominant players, which makes it difficult for small-scale producers to penetrate the dairy market. Another weakness is that milk production is determined by a combination of biological, environmental, and economic factors. Therefore, milk supply is affected by factors such as change in weather conditions, which affects the performance of dairy animals as well as feed availability. Threats to the industry include consequential price volatility and outbreaks of contagious diseases, which can contribute adversely to milk supply.

The opportunities, mentioned in Table 8-15 above, include higher-value products for alternative uses, such as, for example, protein bars and shakes for the body building market. Further processing and packaging innovations to increase product shelf-life could increase the market for dairy products in the lower income groups. In this regard,



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the African market could also be further exploited as the longer shelf-life would reduce transport costs to African countries. The strengths of the industry are high import volumes, which indicate a significant latent market for dairy products that could be supplied by local producers and processors, should the pricing be competitive.

9 COMMODITY ANALYSIS: DRY BEANS

9.1 Dry Bean Industry Overview

Dry beans are considered to be an important leguminous food crop, which is rich in plant proteins and are often referred to as grain legumes. Approximately 50 000 tons of dry beans are produced by commercial and small-scale farmers annually. They form pods which are filled with seeds, and once the seeds are mature the pod splits open. Dry beans are a good source of soluble and insoluble dietary fibres and complex carbohydrates in addition to proteins; they also have no cholesterol and a low fat and salt content. Dry beans are mainly produced in developing countries where, particularly in the absence of fish or animal protein sources, it represents a major source of dietary proteins. Beans are generally produced largely by resource poor subsistence farmers (Fourie, 2011; Farmer's Weekly, 2014; Liebenberg, 2009; Department of Agriculture, Forestry, and Fisheries, 2014; Beneke, 2010; Messina, 2014).



There are three types of dry beans that are considered the most important in South Africa, namely: small white canning beans, speckled sugar beans, and large white kidney beans. The small white canning beans, for example, lima beans and pinto beans, are, as its name suggests, used mainly for canning, and due to the increasing demand for convenience foods, the market for these beans is growing. The speckled sugar beans command the largest share of the market and are sold mainly in supermarkets at retail quantities for preparation at home. The speckled sugar bean market discriminates against producers with regard to the weight of the beans (no smaller than 100 seeds per 40g) and colour of the beans (seeds which rapidly change colour (seeds main colour gets darker)). Large white kidney beans are used mainly for retail packaging, while a relatively smaller portion of the beans are used for canning. The Haricot bean, also commonly known as navy beans, is commonly used as a canning bean (baked beans are Haricot beans).

9.1.1 Dry Bean Production

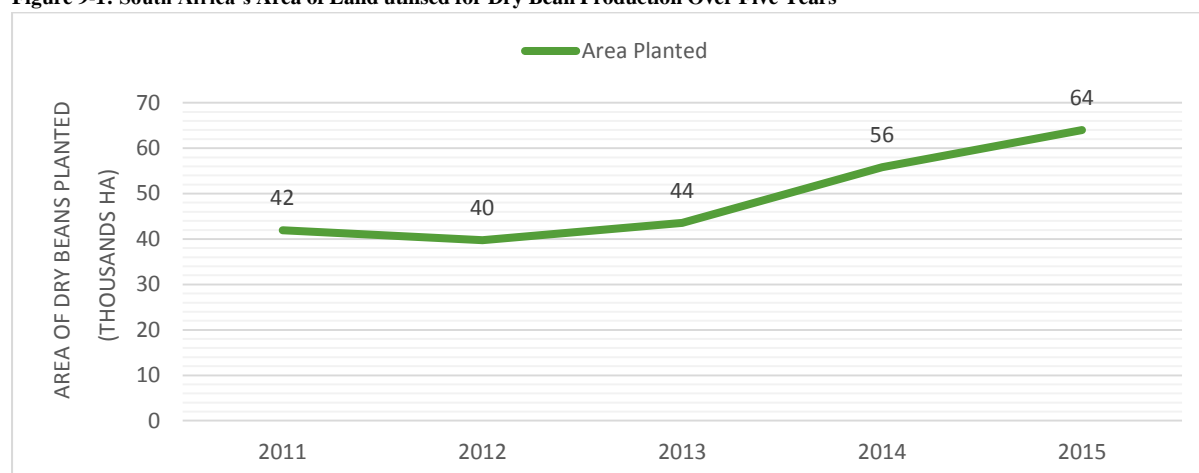
In many countries, beans are considered to be cash crops, as they bring in an income earlier compared to other crops. Dry beans are an annual crop that generally thrives in regions with warm climates. Dry beans are commonly produced for consumption as a grain.

The dry bean industry plays a significant role in the production systems of many South African small-scale farmers, the crop is mainly produced in the rural regions of KwaZulu-Natal, Mpumalanga, Eastern Cape, and the Free State province in combination with maize. Dry beans are a good rotation crop, thus it makes sense from an economic perspective, to rotate between beans and maize on suitable soils.



It is estimated that South Africa has approximately 1 200 dry bean producers who produce an average of approximately 63 000 tons of dry beans per annum. Figure 9-1 below, illustrates the increase in the area of land utilisation for the production of dry beans over five years (from 2011 to 2015).

Figure 9-1: South Africa's Area of Land utilised for Dry Bean Production Over Five Years

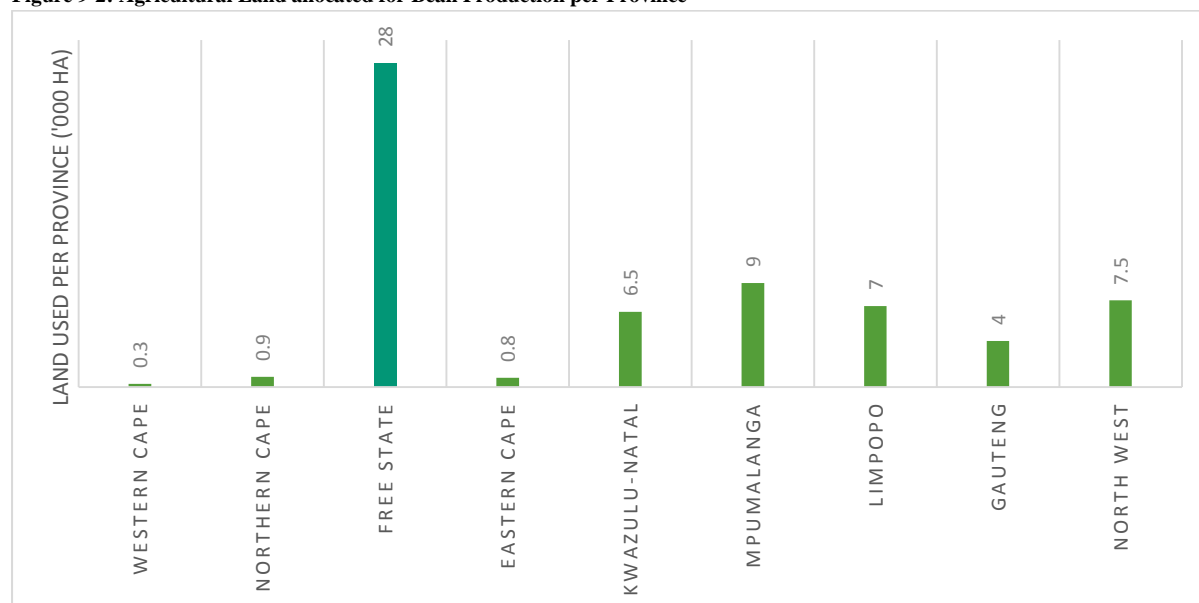


Adapted from GrainSA, 2015

From Figure 9-1 above, it can be seen that over the five-year period the area of land utilised for the cultivation of dry beans in South Africa has increased by approximately 52.4%. The average area of land used for dry beans is approximately 49 200 hectares.

Figure 9-2 below, illustrates the distribution of the land utilised for dry bean production per province.

Figure 9-2: Agricultural Land allocated for Bean Production per Province



Adapted from GrainSA, 2015

From Figure 9-2 above, the Free State accounts for approximately 44% of the total area of land utilised for dry bean production in South Africa. Mpumalanga has the second largest area of land dedicated to the production of dry beans, accounting for approximately 14% of the total area of land used for the cultivation of dry beans. The

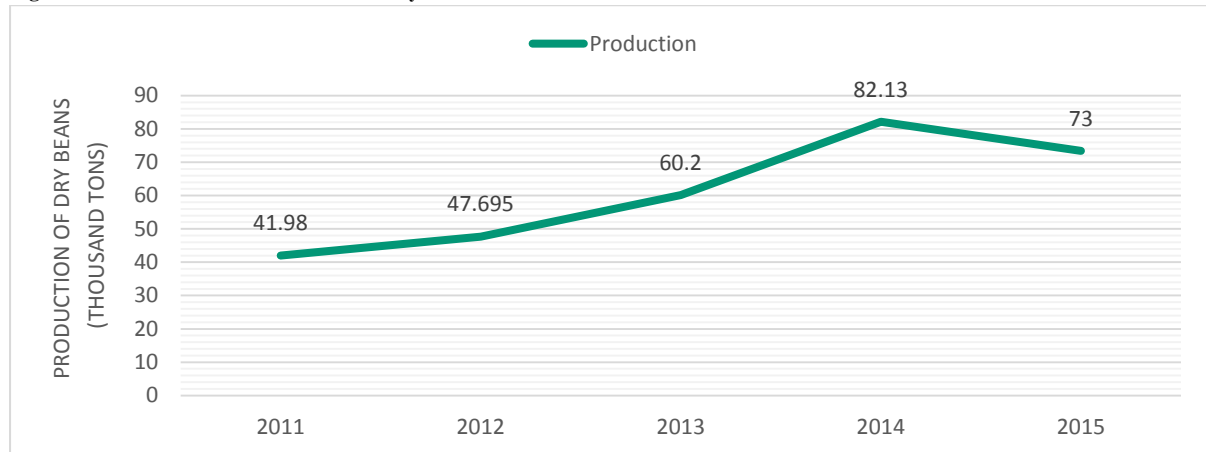


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North West Province accounts approximately 12% of total land area utilised for dry bean production, followed closely by Limpopo, which accounts for approximately 11% of the total area of land.

Despite the increase in the area of land used for the cultivation of dry beans as illustrated in Figure 9-1 above, the production of dry beans did not exhibit the same exponential growth. Figure 9-3 below, illustrates the production of dry beans over a five-year period (from 2011 to 2015).

Figure 9-3: South Africa's Production of Dry Beans



Adapted from GrainSA, 2015

From Figure 9-3 above, the production of dry beans increased exponentially from approximately 95.6% from 2011 until 2014; thereafter production decreased by approximately 11.1% from 2014 to 2015. The average production of dry beans is approximately 61 000 tons per year. The decrease in production from 2014 to 2015 can be attributed to the severe drought experienced in South Africa.

Figure 9-4 below, illustrates the contribution to dry bean production per province.

Figure 9-4: South Africa's Production per Province



Adapted from GrainSA, 2015

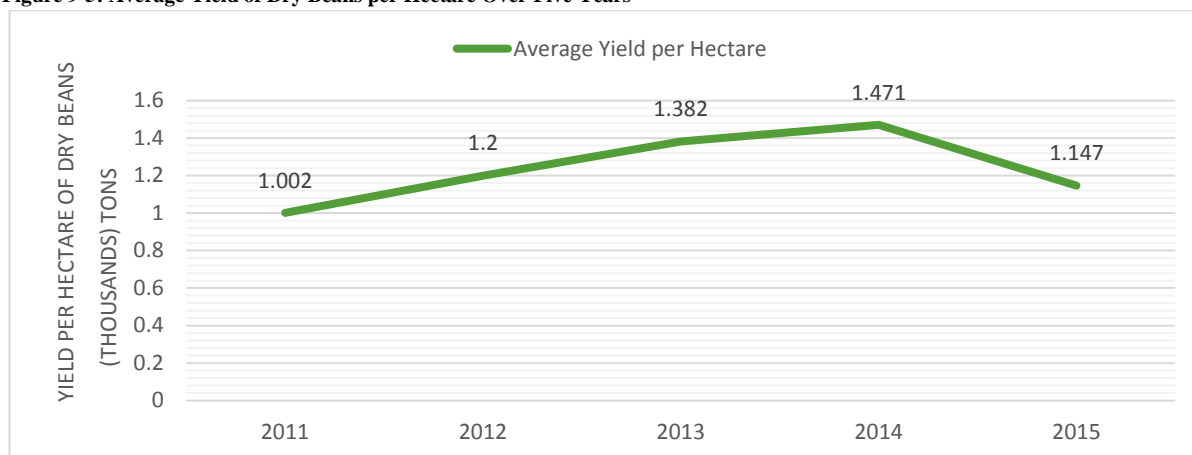
From Figure 9-4 above, the Free State province accounts for the largest portion of dry bean production, with approximately 30% of country's dry beans originating from the Province. The second largest producing province



is Limpopo, which accounts for approximately 23% of the Country's dry bean production despite the fact that Province only accounts for 11% of the total South African land used for the cultivation of dry beans (illustrated in Figure 7-2 above). Mpumalanga is the third largest dry bean producing province, accounting for approximately 15% of the country's dry bean production.

Figure 9-5 below, illustrates the average yield of dry beans per hectare of land.

Figure 9-5: Average Yield of Dry Beans per Hectare Over Five Years



Adapted from GrainSA, 2015

From Figure 9-5 above, the average yield of dry beans per hectare of land increases exponentially from 2011 until 2014, thereafter experienced a decline. The decline can be attributed to the severe drought experienced in South Africa in 2015. In 2015 the average yield per hectare was approximately 1,1 tons of dry beans per hectare, which was approximately 22% lower than the average yield acquired in 2014.

9.1.2 Problems Faced by Dry Bean Producers

The key challenges that may restrict the potential of bean production to contribute to farmers' incomes include the following:

- Lack of market information,
- lack of structured market,
- multiple crops planted on the same plot,
- access to quality seeds
- insects and diseases

Beans are more vulnerable to attack by insects and diseases under low input conditions such as those experienced by subsistence farmers, whilst also being largely influenced by stress on environmental conditions such as drought and low soil fertility. Bean seeds that are stored, are still vulnerable to attack particularly by bean bruchids (see Figure 9-6), also called bean weevils (a beetle that infests various types of beans), which ultimately leads to considerable losses in quality and quantity of the product. Thus, farmers are forced to sell

Figure 9-6: Bean Bruchids Consuming Beans



their crops early in the harvesting season when prices are fairly low (Beneke, 2010; Birachi, 2012).

There is a variety of measures used, on a small-scale level, in the disinfestation and protection of on-farm stored bean seeds. Chemical control measures, on a small-scale level often do not have the desired effect due to low levels of literacy among subsistence farmers and a lack of information. Traditional control measures used by small-scale farmers such as the addition of vegetable oil, ash, and dust to the beans, or physical measures such as heat treatment or s bean tumbling, can be effective in protecting beans against weevils. However, the traditional measures are only effective for small quantities of seed and are relatively labour intensive (Beneke, 2010).

9.1.3 Consumption of Dry Beans

Dry beans are the most important food legume consumed worldwide, and in developing countries it provides an important source of protein (22%), minerals (Ca, Cu, Fe, Mg, Mn, and Zn), and vitamins (folate) for human diets.

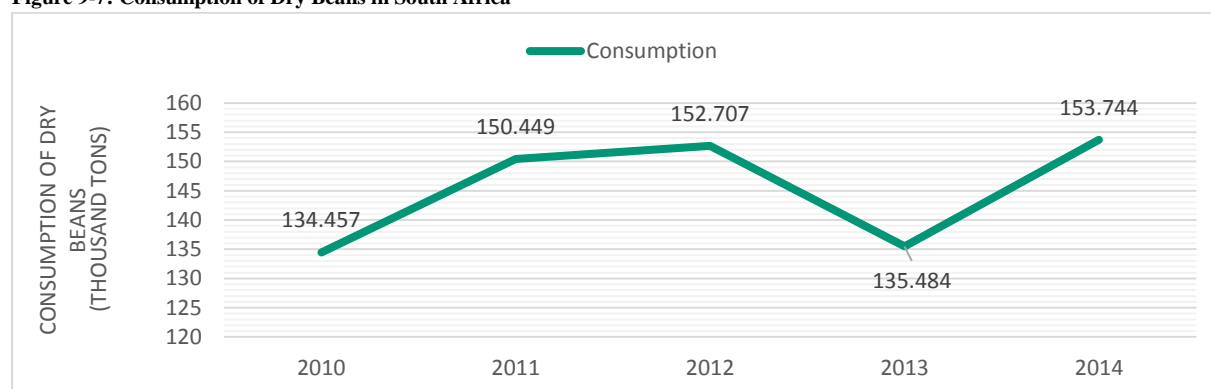


In first world countries, dry beans are nonetheless recognised for their nutritional contribution in targeting problems such as heart diseases, cancer, and diabetes. Many of the health benefits of dry beans are derived from the attributes associated with them, such as the high content of essential nutrients and phytochemicals, and the low saturated fat content, among others. In South Africa dry beans are considered to be a zero-rate¹⁵ commodity. Thus, beans are one of the more affordable foods in South Africa and greatly benefit children and the poor in the society. Institutions such as schools, hospitals,

and prisons regularly use beans to generate the required proteins for the consumers (Birachi, 2012; Messina, 2015; Beneke, 2010).

The South African consumption of dry beans has, over the years, fluctuated. Figure 9-7 below, illustrates the fluctuation in the consumption of dry beans within South Africa.

Figure 9-7: Consumption of Dry Beans in South Africa



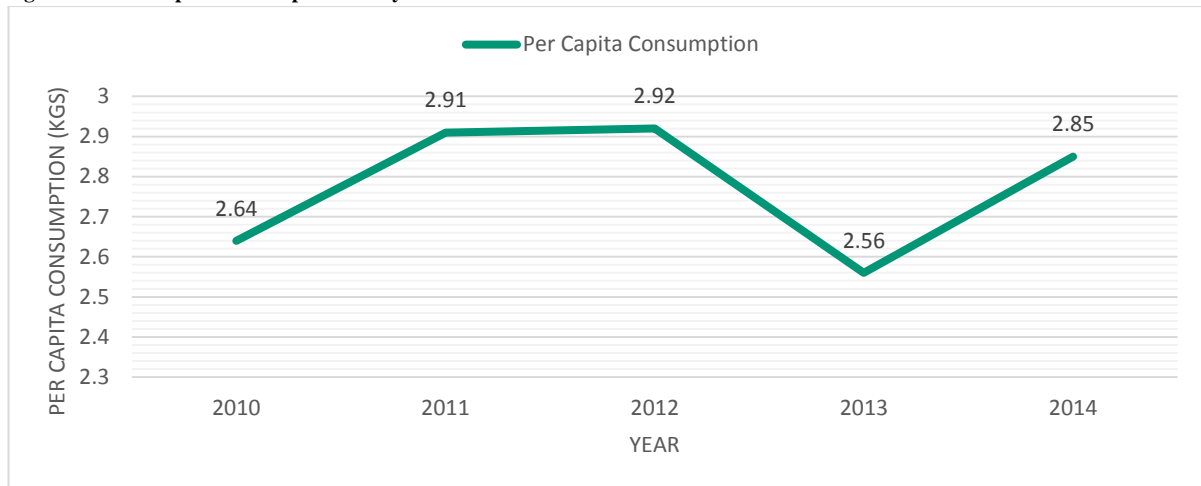
Adapted from Department of Agriculture, Forestry, and Fisheries, 2015

¹⁵ The zero-rating Value Added Tax (VAT) system was developed to reduce poverty and inequality by reducing the regressive effect that VAT systems had on low-income household (Van Heerden, 2004; Jansen & Calitz, 2015).

From Figure 9-7 above, the consumption of dry beans in South Africa in 2014 was approximately 154 thousand tons. This was approximately 13.5% higher than the consumption of dry beans in 2013, which was approximately 135 thousand tons. The consumption of dry beans has increased by approximately 14.3% over the five-year period from 2010 to 2014. The average consumption of dry beans within South Africa over the five-year period (from 2010 to 2014) was approximately 145 thousand tons.

The per capita consumption of dry beans in South Africa over a five-year period (from 2010 to 2014) is illustrated below in Figure 9-8.

Figure 9-8: Per Capita Consumption of Dry Beans in South Africa



Adapted from Department of Agriculture, Forestry, and Fisheries, 2015

From Figure 9-8 above, the per capita consumption of dry beans, similar to the South African consumption illustrated in Figure 9-8 above, displays a fluctuating curve over the five-year period. The highest per capita consumption of beans occurred in 2012, which was 2.92 kg.

In 2014, the per capita consumption of dry beans was approximately 2.85kg, which is 2.4% lower than the per capita consumption of 2012. The per capita consumption of dry beans, over the five-year period, increased by approximately 7.95%. The average per capita consumption of dry beans in South Africa, over the five-year period, was approximately 2.8kg.

9.2 Market Assessment: Dry Beans

The following market assessment provides an analysis of the local markets, global markets, and commodity markets for the dry bean industry within a South African context.

9.2.1 Local markets

In 2004, The Dry Bean Producers Organisation (DPO) established an electronic trading platform for the marketing of beans, known as *Beanex*. *Beanex* plays a significant role in the present marketing of bean products; through this marketing medium, beans are traded electronically via the internet.



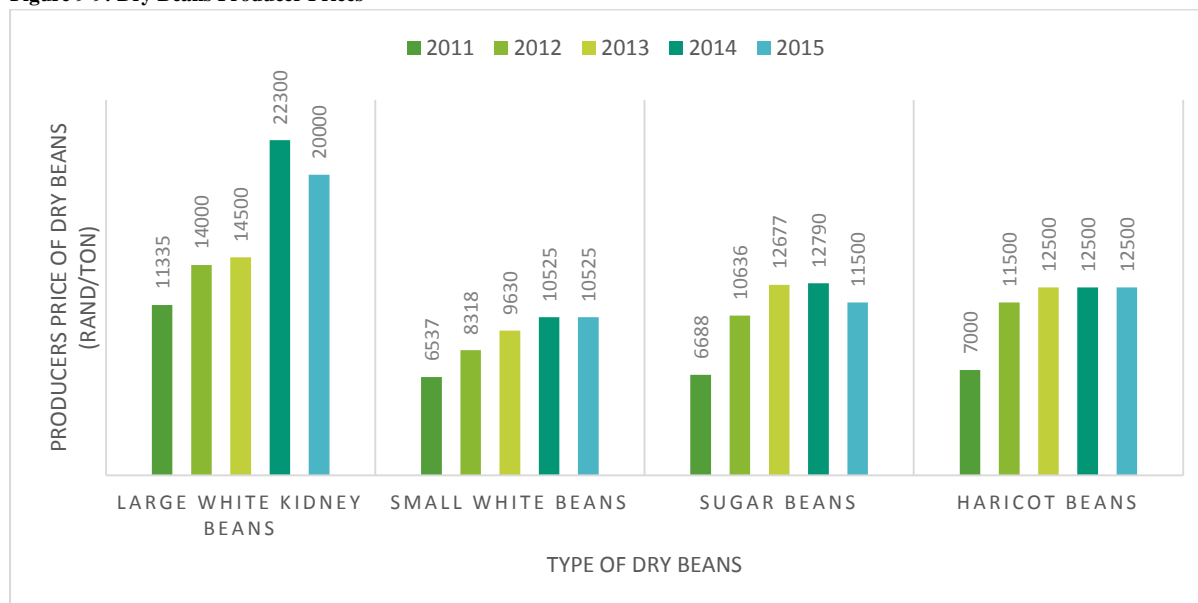
Participating bean sellers offer specific quantities of beans for sale and buyers select their purchases on the strength of digital photos and a digital grading certificate in respect of the consignment on offer.

It is believed that the *Beanex* transactions have contributed to a measure of stability within the dry bean market. The main benefit producers derive from *Beanex* transactions, is guaranteed payments while the buyer, enjoys a measure of quality assurance.



Figure 9-9 below, illustrated the price paid by purchasers of dry beans to the producers, over a five-year period.

Figure 9-9: Dry Beans Producer Prices



Adapted from Department of Agriculture, Forestry, and Fisheries, 2015

From Figure 9-9 above, large white kidney beans have a relatively higher price than any of the other types of dry beans, while small white beans have the lowest price. The industry has experienced fluctuations in producer prices over the five-year period (from 2011 to 2015). Generally, all four types of dry beans have exhibited increasing trends since 2011, with the highest prices for all types of beans being attained in 2014.

9.2.2 Commodity markets

Dry beans, in South Africa are either canned or sold in pre-packed quantities, the latter dominates the market; almost 90% of the total dry beans production in South Africa, goes to the pre-pack side of the market. The remaining dry beans are absorbed in the food-processing sector for various canning products.

Approximately 85% of the dry bean production is marketed by pre-packers, with the Red Speckled variety being the most popular marketed dry bean. There are more than 30 large pre-packers of beans in South Africa. These pre-packers are found in most of the provinces, with the largest number located in KwaZulu-Natal, primarily due to the large quantities of dry beans imported via Durban each year to satisfy the domestic demand. Once the dry beans have been packaged, they are then distributed and sold via the usual marketing channels within the food industry, such as, among others, wholesalers and retailers.



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However, the canning side of the industry utilises between 15,000 to 17,000 tons of dry beans per annum. This implies that pre-packers use around 100,000 tons of beans per annum. The canning side of the industry tries to buy their dry bean requirements locally, however has, in the past also bought relatively large quantities on the international market.

There are approximately 13 large canners in South Africa. The largest canner in South Africa, which cans more than 50% of the beans destined for canning, is situated in the Gauteng Province nevertheless, other canners are found in the Western Cape, KwaZulu-Natal, and Mpumalanga.



Table 9-1 below, describes specific marketing channels that are available to dry bean producers.

Table 9-1: Marketing Channels Available to Dry Bean Producers

Marketing channel	Description	Advantages	Challenges
Beanex	<ul style="list-style-type: none"> Electronic trading platform established by the Dry Bean Producers Organisation. 	<ul style="list-style-type: none"> Convenient, efficient, and well established marketing mechanism. Fair prices can be obtained. 	<ul style="list-style-type: none"> Forward contracts with packers/processors may in some cases be more profitable.
Bean, grain, oilseed, milling by-product and other commodity crop traders	<ul style="list-style-type: none"> These traders buy dry beans, grain, oilseed and milling by-products such as chop, bran, and oilcake from farmers or processors and distribute it to grain millers, oilseed crushers, animal feed producers or intensive animal farmers producing their own feed etc. Farmers usually sign a forward contract. They usually act as exporters of these products as well. 	<ul style="list-style-type: none"> Traders often fetch the dry beans on farms therefore, no transport is needed. 	<ul style="list-style-type: none"> In case the dry bean volume is too small (smaller than a truckload), traders might be reluctant to fetch it on the farm. Many traders prefer to focus on grains and soya (Safex commodities) rather than dry beans.
Packers and processors	<ul style="list-style-type: none"> Pack or can the dry beans. 	<ul style="list-style-type: none"> Strong and secure demand. Some processors provide support to farmers. 	<ul style="list-style-type: none"> Generally, prices tend to be low. Processors prefer not to buy from small-scale farmers, but smaller manufacturers probably will and there are increasing pressure on processors to source from small-scale farmers as well.

From Table 9-1 above, there are three main marketing channels available to dry bean producers, namely: *Beanex*, Packers and processors, and crop traders. The advantage of *Beanex* is that it is a convenient, efficient, and well established marketing mechanism for many bean producers. However, the channel simulates a forward contract between packers/processors and the bean farmers, thus, the price earned by the farmer may be less than the market price for beans.



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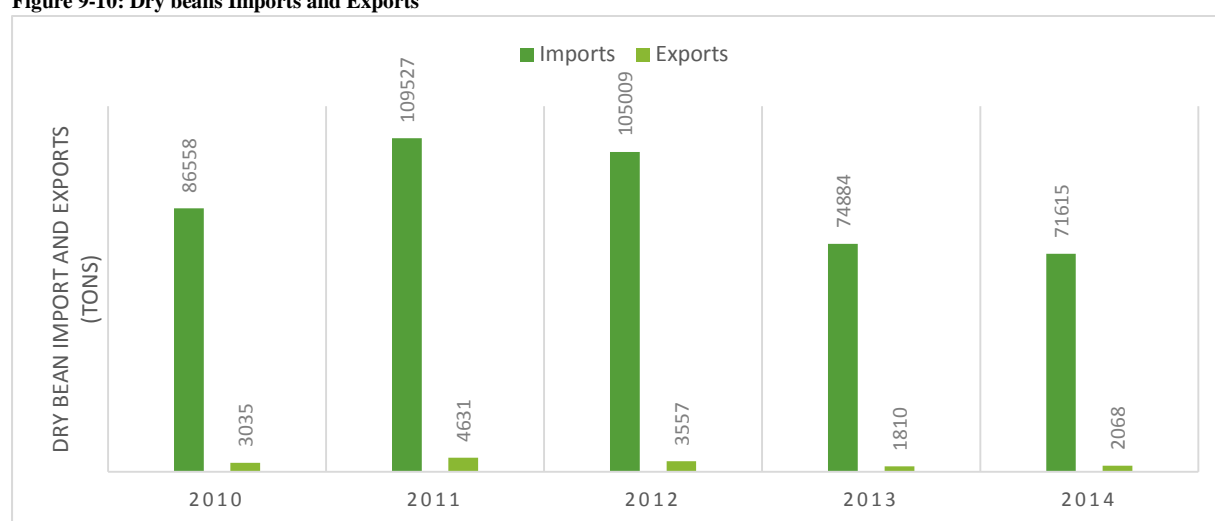
Crop traders, mentioned in Table 9-1 above, are another marketing channel available for bean producers, the advantage of the channels is that traders often collect the dry beans from farms, provided there is a large volume of beans to collect, therefore, no transport is needed by the farmers. Packers and processors are the last market channel available, the advantage of the channel is that it provides a strong and secure demand for dry beans while also providing favourable prices to farmers, however, prices tend to be low.

9.2.3 Global markets

The consumption of dry beans in South Africa exceeded the local production of dry beans. South Africa produces, on average, approximately 61 thousand tons of beans per year, while the average annual domestic consumption of beans is approximately 145 thousand tons. Thus, implying that domestic production only supplies approximately 42% of the dry beans consumed locally, while the balance is met through imports.

Figure 9-10 below, illustrates the South African imports and exports of dry bean.

Figure 9-10: Dry beans Imports and Exports



Adapted from Department of Agriculture, Forestry, and Fisheries, 2015

From Figure 9-10 above, it is observed that approximately 89 519 tons of dry beans are imported per year, while only approximately 3 020 tons of dry beans are exported per year. In 2011, South Africa imported approximately 10 9527 tons of dry beans, while only exporting 4 631 tons during the same year. In 2014 however, imports and exports declined by approximately 35% and 55%, respectively, from 2011.

Figure 9-11 below, illustrates the top five markets from which South Africa imports dried kidney beans and small white beans. Figure 9-11 below, also illustrated the rand value of South Africa's imports over a four-year period.

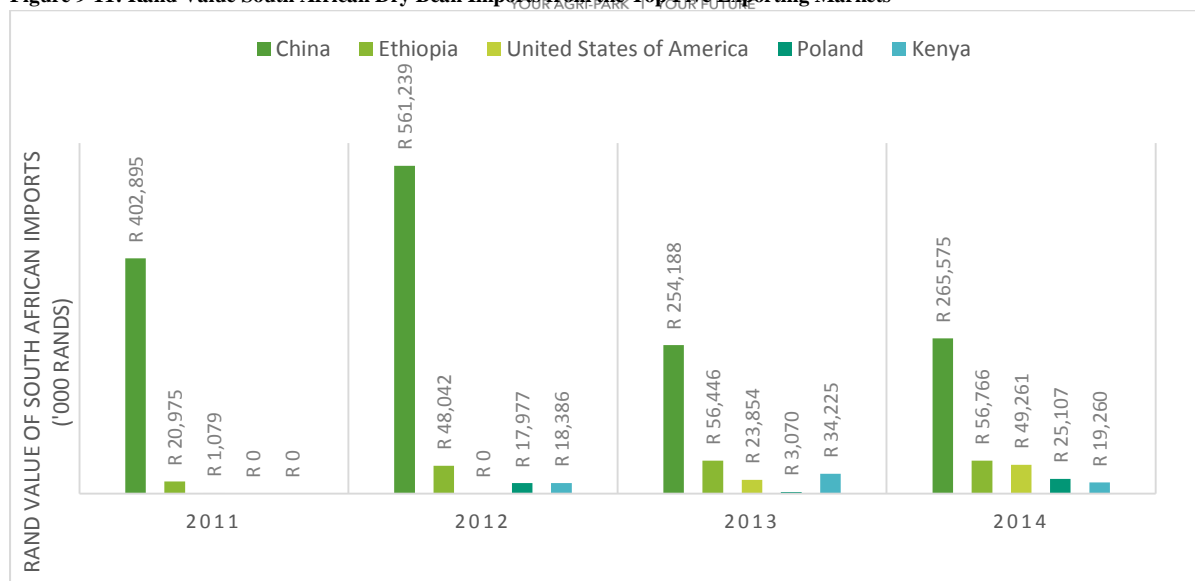


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Figure 9-11: Rand Value South African Dry Bean Imports from the Top Five Exporting Markets



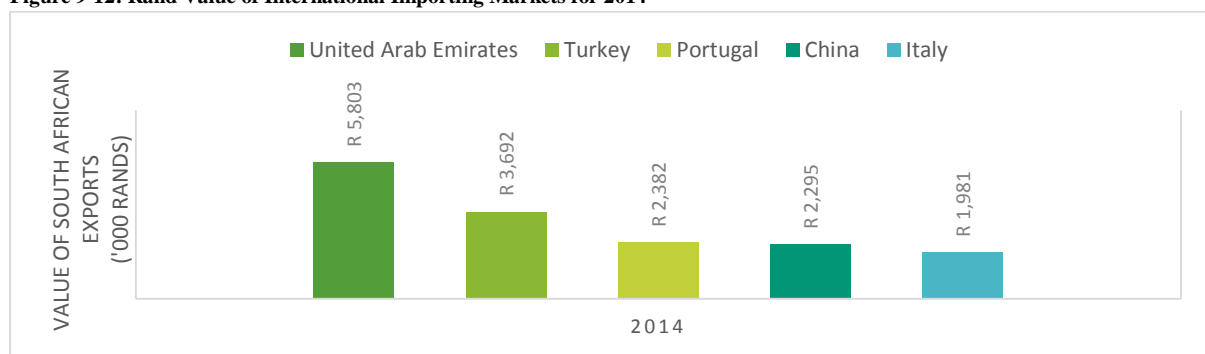
Adapted from UN COMTRADE, 2015

From Figure 9-11 above, it is noted that South Africa's top five dry bean (kidney beans and small white beans) exporting markets are: China, Ethiopia, the United States of America, Poland, and Kenya. Among the top five, only China, Ethiopia, and the United States of America have been exporting dry beans to South Africa from 2011. In 2012 the United States of America did not export dry beans to South Africa, however in 2013 South Africa began importing dry beans from the United States of America again. China is South Africa's biggest supplier of dry beans; however, South Africa's imports from China declined by approximately 34% from 2011 to 2014.

A promising international market exists for locally produced dry beans, particularly in Africa and, in recent years Turkey, the United Arab Emirates, and Portugal among other countries. Neighbouring African countries such as Zimbabwe, Lesotho, Mozambique, and Swaziland are the main export destination for South Africa's dry beans. The export of specific types of beans depends largely on the demand for the type of bean concerned, coupled with the specific quality requirements. The majority of dry beans are traded via *Beanex*. South Africa's exports of dry beans account for approximately 0.9% of the world's dry bean exports.

Figure 9-12 below, illustrates the top five international importing markets of dried kidney beans and small white beans.

Figure 9-12: Rand Value of International Importing Markets for 2014



Adapted from UN COMTRADE, 2015



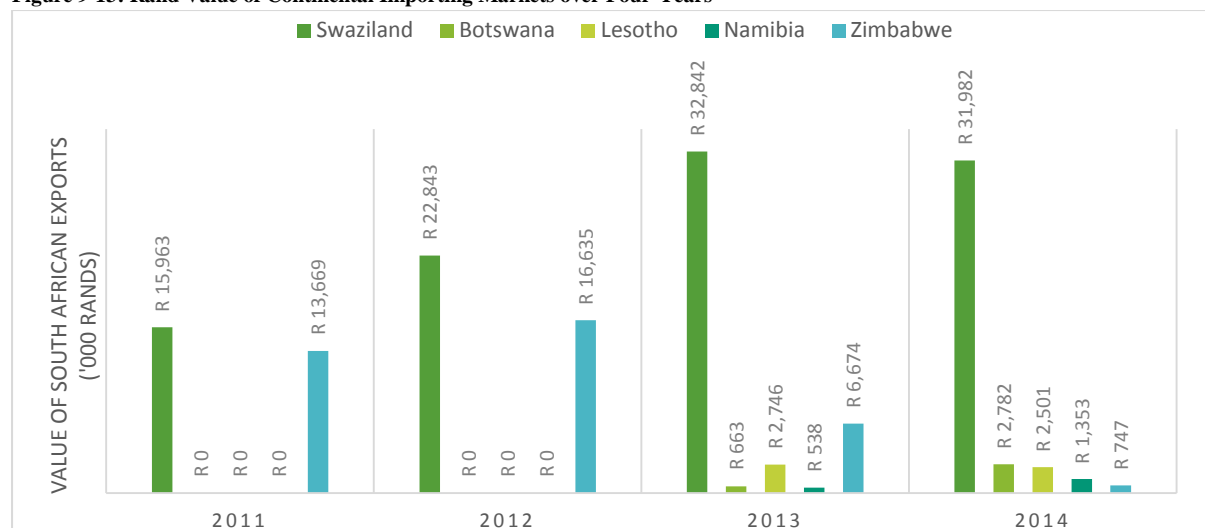
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From Figure 9-12 above, the top five international markets that import from South Africa are: The United Arab Emirates, Turkey, Portugal, China, and Italy. China is the only international market, among the five mentioned, that has imported dry beans (only kidney beans and small white beans) from South Africa prior to 2014; China imported approximately R2.1 million worth of imports in 2013. In 2014, China imported R2.3 million worth of beans, an increase of approximately 5.8% from 2013. The largest importing market is the United Arab Emirates, who imported approximately R5.8 million worth of dry beans in 2014.

Figure 9-13 below, illustrates the value imported, of dried kidney beans and small white beans by the top-five continental importing markets over a four-year period.

Figure 9-13: Rand Value of Continental Importing Markets over Four-Years



Adapted from UN COMTRADE, 2015

From Figure 9-13 above, it is shown that South Africa's top five continental importing markets are: Swaziland, Botswana, Lesotho, Namibia, and Zimbabwe. Out of the five countries mentioned, only Swaziland and Zimbabwe have been importing dry beans (kidney and small white beans), from 2011; while Botswana, Namibia, and Lesotho only began importing from 2013. Swaziland commands the largest share of South Africa's dry bean exports to Africa and internationally. Over the four-year period, Swaziland has increased its imports of dry beans from South Africa by approximately 100%, while Zimbabwe decreased imports by approximately 95% during the same period.

9.3 Value chain assessment

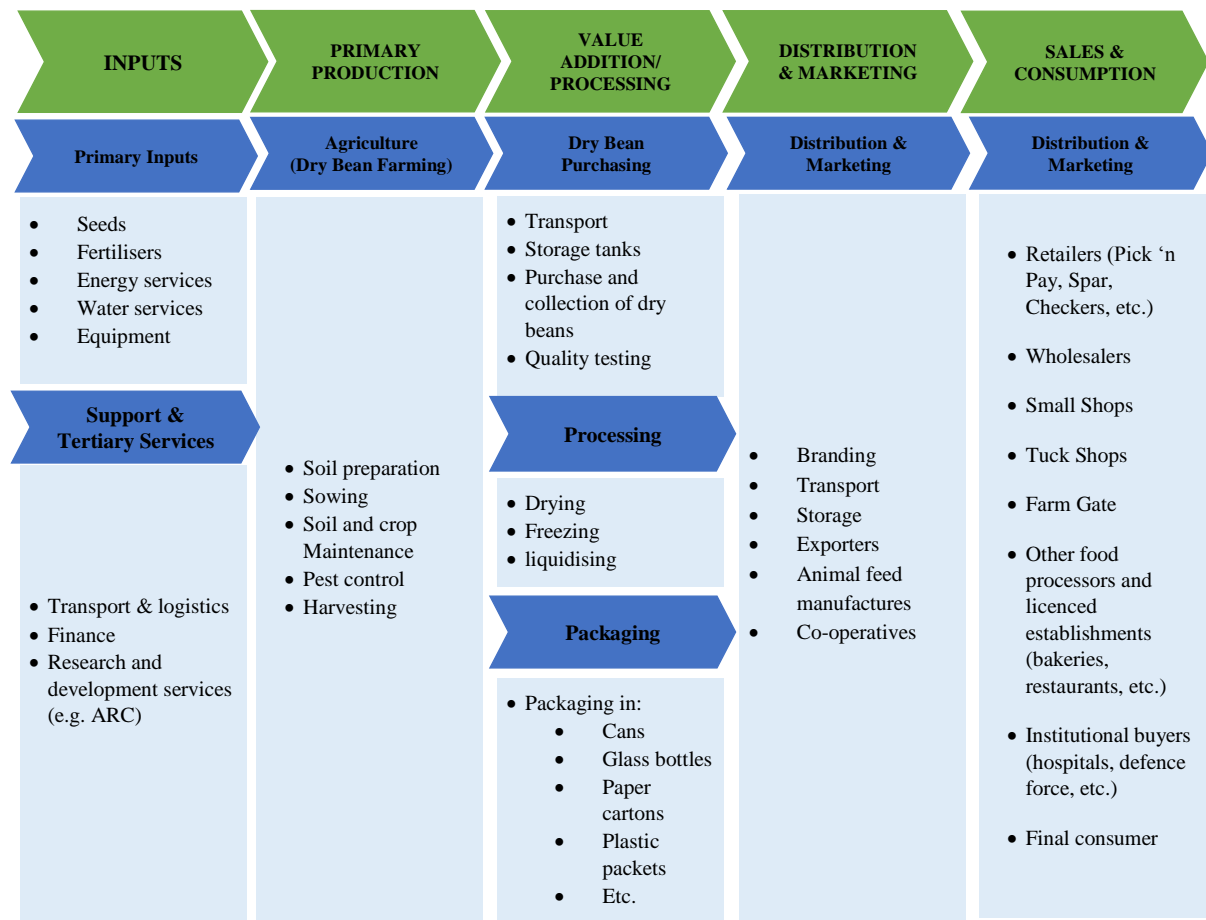
The dry bean value-chain comprises of a range of activities, from primary production at farm level, through to the distribution and sale of value-added products in both the local and export markets. Dry bean primary production involves the production of dry beans either for direct human consumption or for further processing, and covers all on-farm activities, from farm practices to collection and storage operations.

Figure 9-14 below, illustrated the value chain of the dry bean industry.



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Figure 9-14: Dry Bean Value Chain



From Figure 9-14 above, the value chain of the dry bean industry begins with primary inputs (for example, fertilisers and seed) and services (among which include research and development services). The next step in the value chain is primary production in which the beans are grown, thereafter value-adding (such as quality testing), processing (for example liquidising) and packaging occurs. Finally, the beans are distributed and marketed to the end consumer.

9.3.1 Upstream Activities and Primary Production Activities

Since dry bean production is classified as primary production, the upstream activities relevant to the value chain are primary input suppliers used in the production system. The major inputs for dry bean production include seed, fertiliser, chemicals for weed, pests and disease control, machinery and equipment, as well as knowledge. Most of these inputs are supplied by agricultural organisations/entities in the respective areas. The main industry role-players, include the likes of:

- AB Gani Wholesale Produce
- Irrigation Unlimited
- Kynoch Fertilizer

Dry beans grow in a great variety of soil types; however, deep, warm, rich, and well drained soils are preferred. The soil should not be sandy and soils with a pH of lower than 5.2 should be avoided or can be corrected by the application of lime. The most suitable soil type for dry bean production is a soil with a good effective depth,



favourable physical properties (especially texture and structure), good internal drainage, an optimal moisture regime, sufficient and balanced quantities of plant nutrients and chemical properties.

Climatic requirements: The critical temperature, which if exceeded, is detrimental to crop yields is 30°C for small white and red speckled, while the maximum temperature for large white kidney beans is 26 °C. Flowering occurs best at temperatures ranging from 18 °C to 24°C. Yield loss can occur if the beans are exposed to high temperatures during the flowering stage. Annual total rainfall of between 600mm and 650mm is ideal of bean growth.

Cultivars: There are many registered cultivars within seed companies that are adapted to various dry bean producing areas of the country. The most important characteristics that are of assistance in cultivar selection include yield potential, length of growing season, lodging, tillage, prolificacy, and percentage grain moisture. To fully utilise these different aspects, it is important that the producer be familiar with the positive and negative properties of each cultivar. For this reason, additional information regarding cultivar characteristics, long-term yield data and relative yields is made available to the producer, by either public or private agents.

Seed quality: it is important that high-quality (certified) seed with a high germination percentage (80 % or higher) be used for successful production. benefits of disease-free seed are that it is:

- Low yield losses due to disease or poor stand.
- Guaranteed true to type.
- Ensures homogeneity.
- Guaranteed “weed seed” free.

Fertilisation: it is recommended that soils be fertilised prior to the beans being planted. Dry beans are sensitive to high concentrations of mineral salts; thus general fertilisation of the soil is more advantageous than direct fertilisation.

Planting: Generally, broad optimum planting dates are determined by the following:

- Soil temperature (preferably above 13 °C).
- Heavy rain may cause crusting of the soil and thus, restrict the emergence of seedlings.
- Crop rotation programmes.
- Growing season length.

Irrigation: increases the possibility of attaining a yield from soils that would otherwise be deemed unsuitable for production. the most frequently used form of irrigation for dry beans is sprinkler irrigation. Scheduled irrigation is essential for optimal yield per unit of water. Expert advice must be obtained for the correct irrigation scheduling.

Harvesting: at physiological maturity, dry beans have a moisture content of about 50 %, however, the beans are only ready for harvesting when the moisture content of the bean drops to between 16% and 15%. Dry beans can be harvested in the follows methods:

- Hand pulling.
- Threshing (tractor).
- Partially mechanised systems.
- Fully automated system.



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9.4 Downstream and Agro-Processing Activities

Dry beans are available either as packaged dry beans or as processed dry beans. As stated before, the canning side of the dry bean industry uses roughly between 15 thousand tons and 17 thousand tons of dry beans per annum. Small white beans (such as, for example, the navy bean), large white kidney, and red speckled beans are often canned in either a saline (brine) solution or in a tomato or curry sauce. Baked beans are the most common canned bean available in a tomato sauce (Department of Agriculture, Forestry, and Fisheries, 2014).

Table 9-2 below, mentions the two main options available to the Agri-Hub for local value-adding to dry beans.

Table 9-2: Two Main Options for Local Value-Adding to Dry Beans

Value adding options	Description	Advantages	Challenges
Drying and packaging	Drying and packaging beans, usually in plastic bags that are sized appropriately for household consumption and, to a lesser degree, in bulk for institutional kitchens.	Very large market, not saturated yet. Most suitable for the large white kidney bean varieties.	Local production has to be supplemented with imported beans.
Canning	Preservation by canning in brine or more often in a starch-based or another savoury sauce.	Potential for further growth. Convenient to the user. Most suitable for the white bean varieties.	Fairly capital intensive.

From Table 9-2 above, the two main agro-processing options available to the Agri-Hub are:

- Drying and packaging and
- Canning.

Each of the two option have advantages and disadvantages. The advantage of drying and packaging is that the market is not saturated yet, while the disadvantage is that there is an insufficient supply of dry beans; thus, imports are needed to supplement production. The advantage of canning is that there is sufficient potential for growth; however, this option is relatively capital-intensive.

9.5 Main Input Suppliers

The main suppliers, including; but not limited to, suppliers of seed, fertilisers, and water; to the dry bean industry within the Thabo Mofutsanyana District and regionally, are summarised in Table 9-3 below

Table 9-3: Main Input Suppliers for the dry Bean Industry

Input Supplier	Services
<ul style="list-style-type: none"> • AB Gani Wholesale Produce • Advance Grain CC • African Grain • Akfa Foods • Goldkeys Prepacks • Kimberley Grain Commodities • S & K Packaging • Surplus Grain Traders 	<ul style="list-style-type: none"> • Packaging • Wholesaler • Exporters • Produce “open pollinated” seeds • Advisory services
<ul style="list-style-type: none"> • Bean-Agri Trading Corp of SA • Beanex 	<ul style="list-style-type: none"> • Trading • Bean seed suppliers • Marketing

<ul style="list-style-type: none"> • Giants Canning • Ball® Canning Supplies • Ace Hardware 	<ul style="list-style-type: none"> • Packaging services (canning) • Packaging supplies
<ul style="list-style-type: none"> • BulkFertilizer • Kynoch Fertilizer • Premier Seeds • Triomf South Africa • AgriworldSA 	<ul style="list-style-type: none"> • Fertilisers • Seeds
<ul style="list-style-type: none"> • Eskom 	<ul style="list-style-type: none"> • Electricity
<ul style="list-style-type: none"> • Thabo Mofutsanyana District municipality 	<ul style="list-style-type: none"> • Water
<ul style="list-style-type: none"> • Stewarts & Lloyds Irrigation • Rhino Plastics • The irrigation shop • Irrigation Unlimited • Rainbow-irrigation • SA Plastikor Irrigation Systems & Water Pumps • Bosal Group • AGRIPLAS • Agrinet • NWK 	<ul style="list-style-type: none"> • Irrigation equipment • Generators • hardware • Seeds • Spare parts • Chemicals and fertiliser
<ul style="list-style-type: none"> • Dry Bean Seed 	<ul style="list-style-type: none"> • High quality, disease-free certified, and certified seed
<ul style="list-style-type: none"> • Tag & Label SA 	<ul style="list-style-type: none"> • Labelling and branding

From Table 9-3 above, there are numerous input suppliers within the dry bean industry. There are several seed suppliers, such as, for example, African Grain and Akfa Foods, which also provide packaging and marketing services. There are numerous input suppliers available to market the final products, or branding can be done through Tag & Label SA.

9.6 Competitors

Dry beans are primarily used for human consumption as a cheaper source of protein in many countries. The world demand for dry beans has increased over the year worldwide, particularly due to the growing population of vegetarian and vegan consumers. In South Africa, the average per capita consumption of dry beans is approximately 2.8kg; the majority of beans consumed are large kidney beans. South Africa has many producers that utilise dry beans to process products. Table 9-4 below, illustrates the various dry bean competitors that the Thabo Mofutsanyana Agri-Park will face.

Table 9-4: Dry Bean Competitors in South Africa

Type of Processing Activity	Competitor
Canning (covered in sauce/spices/liquid)	<ul style="list-style-type: none"> • Rhodes Quality • Koo • Heinz beanz • Mayfair • Dürsots • Rieses Food Imports (Serena)

	<ul style="list-style-type: none"> Wellington's
Jar (covered in sauce/spices/liquid)	<ul style="list-style-type: none"> Koo Rieses Food Imports (Serena)
Box (covered in sauce/spices/liquid)	<ul style="list-style-type: none"> Werda Salads
Preserved (in a packet with liquid)	<ul style="list-style-type: none"> Amoy
Dried beans (packet)	<ul style="list-style-type: none"> Akhalwaya's Spice Products Lion beans Pakco Food Division Tiger Food Brands Sasko Grain (e.g. Crossbow, Imbo, etc.) Pride Milling Rieses Food Imports (Serena)

From Table 9-4 above, it can be seen that there is a large number of competitors that the Agri-Park will have to contend with in the market. The majority of competitor's produce dried beans and canned beans. Werda Salads produces various salads that are ready-to-eat; the meals are packages in foil or plastic bags and placed in boxes to prevent the packets from breaking. Amoy, an imported product, produces a variety of preserved bean products such as sauces and stir fries.

9.7 Stakeholders

South Africa has several organisations and associations that serve to represent the interests of the dry bean industry. The associations aim at providing support for producers and consumers within South Africa as well as strive to promote the sustainability and profitability of the industry. The following have been identified as stakeholders and interest groups within the dry bean industry and within the Free State Province (The Thabo Mofutsanyana District) in particular.

Table 9-5 below, summarises the stakeholders that are likely to be involved in the dry bean industry

Table 9-5: Stakeholders of Dry Beans

Stakeholder	Services
<ul style="list-style-type: none"> OVK (Arlington) OVK (Clocolan) OVK (Ficksburg) OVK (Fouriesburg) OVK (Paul Roux) OVK (Rosendal) 	<ul style="list-style-type: none"> Supply and marketing of agricultural requisites and services. Acquisition and marketing of agricultural products. Processing of agricultural products. Advisory service. Support units. Insurance.
<ul style="list-style-type: none"> Bethlehem Department of Agriculture Ficksburg Department of Agriculture Reitz Department of Agriculture Senekal Department of Agriculture Vrede Department of Agriculture Witsieshoek Department of Agriculture Dry Bean Producers Organisation 	<ul style="list-style-type: none"> Advisory service providers. Support units. Training. Research.
<ul style="list-style-type: none"> Bean Traders: ✓ Advance Grain CC 	<ul style="list-style-type: none"> Advisory service providers. Possible market.

Stakeholder	Services
<ul style="list-style-type: none"> ✓ Bean-Agri Trading Corp of SA ✓ F R Waring International ✓ J F R Marketing ✓ Harvesters ✓ Africas Own Food ✓ Triotrade 	
<ul style="list-style-type: none"> • CBS (Coen Bezuidenhout Saad Toestssentrum) • Plantovita 	<ul style="list-style-type: none"> • Seed testing laboratories
<ul style="list-style-type: none"> • Cropcell 	<ul style="list-style-type: none"> • Conducts research

From Table 9-5, there are various stakeholders associated with the dry bean industry, Oos Vrystaat Kaap Operations Limited ("OVK"), various agricultural departments, and the Dry Bean Producers Organisation all offer support and advisory services. OVK provides services such as, among others, insurance and processing of agricultural products (including dry beans) to members of the organisation.

9.8 Technology

Economic growth is largely dependent on technological innovation, every industry has progressed and become more efficient through the implementation of technology. Thus, the dry bean industry is no different because technology is needed to improve efficiency and capacity. Table 9-6 below, illustrates the various dry bean related technologies.

Table 9-6: Dry Bean Related Technology

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
Mechanisation				
New generation small hand tools	<ul style="list-style-type: none"> • Many farming activities, • speeding up production, • reduce health and safety risk. 	<ul style="list-style-type: none"> • Mainly limited to small-scale farming. 	Low	Low
Precision farming, integrated farm management systems, and software				
Precision farming: Gaining real-time or exact information within particular parts of a single field.	<ul style="list-style-type: none"> • Optimising production levels, • Yield is maximised, and • Inputs are minimised. 	<ul style="list-style-type: none"> • Very taxing in terms of capital, equipment, and skills; • Not well tailored to small-scale farming conditions yet. 	High	High
Integrated farm management software: Information and management system which coordinates farming activities.	<ul style="list-style-type: none"> • Maximise profitability, • Maximise efficiency, and • Coordinate and simplify management processes. 	<ul style="list-style-type: none"> • Applications for small-scale farmers is currently still limited. • Some software and systems are not tailored for South Africa yet. 	Medium to high	High

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
SimJunior: financial management and accounting software.	<ul style="list-style-type: none"> Easy to use, Ideal for the small-scale farmer. 	<ul style="list-style-type: none"> - 	Free	Low
Accord: Human resource management system.	<ul style="list-style-type: none"> Simplicity, coverage of basic employment legislation. 	<ul style="list-style-type: none"> - 	Low (R 4 560 to download plus annual fee of R 2 890)	Moderate
Farm energy				
Wind energy	<ul style="list-style-type: none"> Less vulnerable to theft compared to solar panels. Wind is a renewable form of energy. 	<ul style="list-style-type: none"> Only a few areas in South Africa do have sufficient wind profiles to justify investment in small wind turbines. Larger battery storage capacity compared to solar energy are required. 	Medium to high.	High
Solar technology	<ul style="list-style-type: none"> Solar is a renewable form of energy. 	<ul style="list-style-type: none"> Large battery storage capacity is required in case of photovoltaic panels. Highly vulnerable to theft. 	Medium	Low
Soil improvement and prevention of soil erosion				
In-field rainwater harvesting: Small capture rainwater.	<ul style="list-style-type: none"> Increases soil's water absorption. Increase in yield (certain crops). 	<ul style="list-style-type: none"> Labour intensive, Require regular maintenance. 	Low	Low
Apps for mobile phones and tablets				
AgriSuite Online	<ul style="list-style-type: none"> Can be accessed in the office or on the farm. Contains useful and concise information. Simple and user-friendly format. 	<ul style="list-style-type: none"> Not publicly available yet 	-	Low

From Table 9-6 above, it can be seen that there are various technologies ranging from mobile applications to soil improvement technologies that are available to the dry bean industry. The majority of the technologies require moderate to low levels of skills in order to operate the technology, they are also accompanied by relatively low in costs.

9.9 Demand and Needs Analysis

The most profitable marketing channel for the Agri-Park dry bean farmers will either be to secure direct forward contracts with packers and canners, or to trade on the *Beanex* platform. The latter might be the easiest channel to enter during the early phases of establishment. However, if the farmers do not have the sufficient supply required by the Agri-Hub, the farmers may only sell to the Agri-Hub.



With regard to agro-processing, during the initial phase of the Agri-Park project, only packing is recommended. Thereafter, as soon as there is sufficient dry bean production among farmers, and strong ties are established with wholesalers and retailers, canning may become a very profitable option.

9.10 Socio-Economic Benefit: Job Creation

Amongst the objectives of the Agri-Parks Model is to create opportunities for employment within the agricultural sector. Employment, however, may not only be limited to primary production, but also the value adding activities that may occur through the value chain.

Using assumption and multipliers (BFAP multipliers) at the end of the 10 year Agri-Park programme, the following should be achieved:

Estimated targeted hectares– range between 4 000 and 15 000 under production.

Number of small-holder farmers– 800 and 3 000 small-holder farmers participating in production.

Estimated number of jobs– an average of 7 208 jobs (both small-scale and value adding jobs), depending on the successfully and sustainable implementation practices with regard to the programme.

The Free State Province has as a significantly high unemployment rate of 57.2%. The Agri-Park will promote the growth of dry bean farmers within the Province, particularly in the Maluti-A-Phofung District, which will increase the number of workers employed by farms. The Agri-Hub itself will provide jobs, direct and indirect, to the Free State population in terms of construction, transportation, etc.

9.11 Contribution to Food Security

Dry beans are considered to be a crop that has the potential to alleviate hunger as they are deemed to be a dependable and complete meal (with regard to their nutrition information) (Birachi, 2012).

Dry beans, an annual crop, can be planted up to 2-3 times before the crop is rotated. Furthermore, dry beans are relatively cheaper than other crops, they also have high rate of local and international consumption, and is ranked second after maize and third in some places after maize and groundnuts.

Dry beans require a shorter production time to reach full maturity (ready to harvest) and have multiple consumption options before the grain is harvested such as leaves and fresh pods. They are often used as both a relish and a staple food, particularly among vegetarian, low-income households, and vegans. Thus, dry beans hold greater opportunities of mitigating food security problems (Birachi, 2012).

9.12 Regulatory Requirements

The dry Bean industry is regulated by certain legislations that producers must comply with in order to maintain required standards and ensure food safety. Some of these Acts and Regulations together with governing government departments are listed in Table 9-7 below.

Table 9-7: Dry Bean Industry's Regulations and Acts

Regulation	Description
Marketing Act, 1968 (Act No. 59 of 1968)	<p>The Act provides for the introduction of a,</p> <ul style="list-style-type: none"> • system of control over the marketing of agricultural products, and • Regulates the quantitative control over the import or export of these products.



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Regulation	Description
Genetically Modified Organisms Act (No. 15 of 1997)	The Act provides measures which <ul style="list-style-type: none"> Promote the responsible use, development, production, and application of GMOs. Provides protection for consumers and producers.
Agricultural Pests Act (No. 36 of 1983)	This Act provides measures under which pest control and prevention actions may be taken.
Plant Improvement Act (No. 53 of 1976)	This Act provides the requirement required for the, <ul style="list-style-type: none"> Cleansing, packaging, and sale of certain plants, Control of import and export of certain plants.
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No. 36 of 1947)	This Act serves to control <ul style="list-style-type: none"> Pest control operations. The importation, sale, acquisition, disposal, or use of fertilisers, feed, stock remedies, and agriculture remedies.
Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970)	The Act regulates the subdivision of , <ul style="list-style-type: none"> Agricultural land and Its use for purposes other than agriculture.
Co-Operatives Act, 1981 (Act No. 91 of 1981)	The Act regulates the, <ul style="list-style-type: none"> Formation, registration, management and functioning of various types of cooperatives and Winding-up and dissolution of co-operatives.
Perishable Products Export Control Act, 1983 (Act No. 9 of 1983)	This Act provides for the control of, <ul style="list-style-type: none"> Perishable products intended for export from the Republic of South Africa and For the continued existence of a statutory board to bring about the orderly and efficient export of perishable products from the Republic.
Agricultural Product Standards Act, 1990 (Act No. 119 of 1990)	This Act provides for <ul style="list-style-type: none"> Control over the sale and export of certain agricultural products and other related products, with a view to the maintenance of certain standards regarding the quality of products and The packing, marking and labelling thereof.
Agricultural Development Fund Act, 1993 (Act No. 175 of 1993)	This Act provides for the establishment of and control over <ul style="list-style-type: none"> An agricultural development fund for the handling of money received for development.
Consumer Protection Act, 2008 (Act No. 68 of 2008)	This Act mainly protects consumers' rights in terms of products and services for the purpose of promoting a conducive and sustainable marketplace.

From Table 9-7 above, it can be seen that the dry bean industry has a large number of legislation that the industry is governed by, thus, it is important that the Agri-Park management establishes a compliance committee that implements the best management practices while also evaluating and monitoring the effective implementation of the best practices.

It is further vital that the development application requirements for the Agri-Parks is explored and properly addressed as they are mandatory. In accordance with SPLUMA – which governs land use nationally - it is crucial that a development application to be submitted to the Local Municipality before any development can be considered. SDF alignment is of optimal importance while the IDP and Local Municipality Land Use Planning By-law should also guide implementation. Failure to comply with the specific planning and development policies and legislation may cause stunting delays to the process. As such, alignment with each of these documents is of optimal importance before any development of the Agri-Hubs or FPSUs commence. The following pertinent legislation is applicable to a development application:



- Spatial Planning and Land Use Management Act, 16 of 2013
- Mangaung Spatial Development Framework
- Mangaung Integrated Development Plan
- Mangaung Metropolitan Municipality Land Use Planning By-laws

In addition to these the environmental guidelines for sustainable development as outlined within the **National Environmental Management Act 107 of 1998 and its subsequent by-laws** will also need to be adhered to. Once again neglecting this vital pre-development application(s) could halt development in its tracks. As such an environmental practitioner will need to be contacted on a site-to-site basis and based on that findings and relevant processes development will need to be directed accordingly.

9.13 Substitute Products and Services

Substitute products are products that may replace each other in consumption or use, as a result of changing conditions, such as, for example, an increase in prices, or a change in consumer tastes. This section of the report will focus on substitute products for dry beans.

9.13.1 Maize

In South Africa, one of the most important grain crops is maize, as it is a major feed grain for livestock and the staple food for a significant portion of the population. Approximately 60% of South Africa's maize produced is white maize, while the other 40% is yellow maize. Yellow maize is mostly used for animal feed production and white maize is primarily produced for human consumption.

Maize is produced throughout South Africa with Free State (43%), Mpumalanga (22%), and North West (18%) provinces being the largest producers, accounting for approximately 83% of total production. Maize can serve as a substitution or rotation product for dry beans. Many farmers in the Thabo Mofutsanyana District already produces maize, thus, it will be viable in the District.



9.13.2 Soy beans

In South Africa there is a growing interest in soybean products because of the health benefits associated with these products. Approximately 60% of South Africa's soybean production is utilised to make animal feed; a further 32% is utilised for oil and oil cakes, while only 8% is utilised for human consumption. Approximately 18% of the soy bean consists of oil, and the oil is processed into oil products which is used in the food industry.

Soybean products are a valuable source of proteins for vegans and vegetarians, they also have many health benefits such as the combating of heart diseases and lowering cholesterol. The Free State is the second largest soybean producer in South Africa, accounting for approximately 33% of production. Thus, soybeans can be a viable alternative to dry beans.

9.14 New entrants and Potential Entrepreneurs (BBEE)

The Agri-Park project serves to support the growth of small-scale farmers, while also allowing for the participation and inclusion (within the market) of emerging farmers.



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Emerging dry bean farmers in the Thabo Mofutsanyana District are mentioned in Table 9-8 below.

Table 9-8: Emerging Dry Bean farmers in the Thabo Mofutsanyana District

#	Farmer	Farm Name	Local Municipality
1	Mr. Macapasa	Unit 3.09	Maluti-A-Phofung
2	Mr. Komako	Unit 2.20	Maluti-A-Phofung
3	Mr. Jan Zim	Kyalami	Maluti-A-Phofung
4	Mr. SM Moloi	Fouriesburg Town lands	Dihlabeng
5	Mr. Nyambose and Motsima	Lorelei/Kaallagte	Dihlabeng

From Table 9-8 above, it can be seen that there are approximately five emerging dry bean farmers within the Thabo Mofutsanyana District. Three of the five farmers are located within the Maluti-A-Phofung Local Municipality, while the other two are located in the Dihlabeng local municipality.

9.15 Societal and Cultural Trends

Societal and cultural trends are the movements that relate to the social and cultural values and practices within a society or culture.

Table 9-9 below, mentions the societal and cultural trends with regard to dry beans, in South Africa.

Table 9-9: Societal and Cultural Trends, Dry Beans

	Societal Trends	Cultural Trends
Dry beans	<ul style="list-style-type: none"> • Canned beans are convenient and cost effective. • Suitable protein substitute for low income, vegan, and vegetarian societies. • Dry beans are used in many South African dishes such as soups, chilli dishes, and casserole recipes. • When standards are not met in production for human consumption, dry beans can be used as livestock feed. 	<ul style="list-style-type: none"> • Used in slow cooking process of (dried maize and beans) also known as “Umngqusho”. • Cultural foods such as “Biryani”, an Indian dish, include the use of dry beans as one of the ingredients. • Dry beans are used in combination with other dry vegetable products such as “samp”.

From Table 9-9 above, it can be seen that dry beans form part of many societal and cultural trends in South Africa. Dry beans are utilised in many societal trends such as many South African dishes, as well as livestock feed. Dry beans are also used to make cultural dishes such as “biryani” and “Umngqusho”.

9.16 SWOT analysis

The major challenges and weaknesses facing the dry bean industry, as well as potential opportunities for development and strengths are summarised in Table 9-10 below.



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Table 9-10: SWOT Analysis of the Dry Bean Industry

<p><u>Strengths</u></p> <ul style="list-style-type: none"> • Large number of seed suppliers. • Support from organisation. • High import volumes 	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> • Increase in packers in the canning industry. • Access to quality seeds.
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Increase in demand neighbouring African countries. • Increase in the domestic demand for canned beans. 	<p><u>Threats</u></p> <ul style="list-style-type: none"> • Unfavourable climatic conditions. • Insects and diseases.

The weaknesses, mentioned in Table 9-10 above, include the increase in packaging companies within the canning side of the dry bean industry, and the difficulty that emerging and small-scale farmers experience with regard to the quality of the seeds they possess. The threats to the industry include loss of profits due to insect infestations (such as bean weevils) and unfavourable weather conditions (such as drought).

The opportunities, mentioned in Table 9-10 above, include the increase in the demand for dry beans within various neighbouring African countries (such as, for example, Botswana, Malawi, and Lesotho) and the increase in the demand for convenience foods such as canned beans. The strengths of the industry are high import volumes, which indicate a gap in the market for dry bean products that could be supplied by local producers and processors, should pricing be competitive

10 Commodity Analysis: Vegetables and Apples

10.1 Vegetable and Apple Industry Overview

South Africa has recently adopted green economy principles and is in the process of transitioning towards a resource-efficient, low-carbon economy. A green economy aims to improve the well-being and social equity of South Africa's population while protecting the environment. Poverty reduction, job creation, livelihoods, and equity are social factors that are addressed by a green economy.

Small-Scale farming is aligned with the government's priority to "address poverty and unemployment and to achieve sustainable development driven by a green economy" (Musvoto, 2015). Vegetable and horticultural farming are considered to be green agricultural practices as vegetable and horticultural farming produces less carbon emissions relative to other forms of farming. Furthermore, the water footprint of vegetable and horticultural farming, is significantly lower than that of other types of farming. For example, the average global water footprint for apples, is approximately 822 litres of water for a kilogram of apples, and the average global water footprint for tomatoes, is approximately 214 litres of water for a kilogram of tomatoes, while the average global water footprint for beef is approximately 15 415 litres of water for a kilogram of beef (Musvoto, 2015; Mekonnen & Hoekstra, 2011).

There are numerous types of vegetables within South Africa, ranging from potatoes to beetroots; with over 200 000 tons of vegetables being processed per year (Atwood-Palm, 2015). The Free State produces 40 000 tons of fruit and 100 000 tons of vegetables per year. According to Statistics South Africa (2015), 9.5% of the country's vegetable farming takes place in the Free State. Thus, making the Free State the 4th largest producer of vegetables in South Africa.

However, this report will focus on the following vegetables: **cabbages, carrots, onions, and potatoes**; however, vegetables will be taken as a single commodity as a number of farmers within the Free State produce a variety of vegetables ranging from the four selected to other vegetables such as asparagus. Furthermore, the report will also be focusing on the production of apples. The reason for the selection is due to the vegetables being:

- the most commonly consumed,
- relatively tolerant to arid regions,
- a major production commodity for small-scale and commercial farmers in the District, and
- annual crops (thus, can be supplied year round).

One of the most important¹⁶ deciduous fruits grown in South Africa is apples. Apples contributed approximately 36% (approximately R4.8 billion) to the total gross value for deciduous fruits (approximately R13.8 billion) in South Africa in 2013 (Department of Agriculture, Forestry, and Fisheries, 2014).



Depicted in Table 10-1 below, is the relative importance of various types of vegetables with respect to 2013/2014's gross value of production.

¹⁶ In terms of foreign exchange earnings, employment creation, and linkages with support institutions (Department of Agriculture, Forestry, and Fisheries, 2014).

Table 10-1: Importance of Vegetable Types

Rank	Product	% Share
1	Potatoes	42%
2	Tomatoes	16%
3	Cabbages	13%
4	Onions	4%
5	Pumpkins	3%
6	Carrots	3%
7	Gem squashes	2%
8	Sweet potatoes	1%
9	Cauliflower	1%
10	Green beans	1%

Adapted from Abstract of Agricultural Statistics, 2015

From Table 10-1 above, potatoes are the most important vegetable in South Africa with a gross value of production of approximately 42% of the total for vegetables. Cabbages, carrots, and onions are important vegetable crops with a combined gross value of 20%.

10.1.1 Production of Apples and Vegetables

10.1.1.1 Vegetables

Vegetables are produced in most parts of the country. However, farmers tend to concentrate on specific crops in certain areas; for example, green peas are farmed mainly in George and Vaalharts, green beans are grown mainly in Kaapmuiden, and asparagus mainly in the Krugersdorp and Ficksburg regions.

Table 10-2 below, illustrates South Africa's production of vegetables for the period 2009/10 to 2013/14.

Table 10-2: Production Volumes of Vegetable Types

Year July to June	2009/10	2010/11	2011/12	2012/13	2013/14
	'000 tons				
Potatoes	1 955	2 165	2 205	2 202	2 193
Tomatoes	575	523	545	527	525
Pumpkins	234	237	244	247	245
Green mealies	339	340	347	361	362
Onions	489	563	625	596	592
Sweet potatoes	60	63	55	57	69
Green peas	17	12	8	11	12
Beetroot	67	62	66	68	61
Cauliflower	25	16	16	14	12
Cabbage and red cabbage	141	153	141	136	145
Carrots	151	152	178	183	184
Green beans	23	25	25	24	19
Other	400	406	421	420	416
Total	4 476	4 717	4 876	4 846	4 835

Adapted from Abstract of Agricultural Statistics, 2015

From Table 10-2 above, the total production of vegetables decreased by 0.22%, from approximately 4 846 000 tons to 4 835 000 tons from 2012/13 to 2012/13.

Concerning the four major vegetable types selected for the District, the production of potatoes, carrots, onions, and cabbages increased by approximately 12%, 22%, 21%, and 3% respectively, over the five-year period. However, most of the vegetable crops, decreased over the period.

According to the agricultural census survey, which was conducted in 2011, a total of 1 123 520 households were found to be participating in vegetable production. Table 10-3 below, illustrates the number of households participating in a specific agricultural activity by province.

Table 10-3: Number of households participating in a specific agricultural activity by province

Province	Livestock Production	Poultry Production	Vegetable Production	Production of other crops	Fodder/grazing production	Other
Western Cape	28,334	29,176	39,337	22,725	16,516	23,804
Eastern Cape	330,354	334,665	246,412	99,052	24,335	33,493
Northern Cape	28,040	25,853	9,334	11,324	4,518	5,415
Free State	45,207	51,414	106,809	63,193	11,106	13,811
KwaZulu-Natal	268,656	356,881	340,743	109,580	27,393	45,715
North West	88,633	117,453	36,620	42,923	16,013	25,301
Gauteng	62,047	82,403	147,870	89,167	50,650	78,847
Mpumalanga	72,896	127,759	91,214	59,885	11,439	20,595
Limpopo	172,683	173,681	105,181	161,888	13,995	31,067
South Africa	1,096,850	1,299,285	1,123,520	659,737	175,965	278,048

Adapted from Abstract of Agricultural Statistics, 2015

From Table 10-3 above, the province with the largest number of households involved in vegetable production is KwaZulu-Natal (approximately 30%), followed by the Eastern Cape (approximately 22%) and Gauteng (approximately 13%). The Free State Province has approximately 106 809 households that are involved in vegetable production.

Table 10-4 below, illustrates the gender of the head of the households which produce vegetables.

Table 10-4: Gender of household head and province

Province	Male	Female	Total
Western Cape	11,618	27,719	39,337
Eastern Cape	132,952	113,460	246,412
Northern Cape	3,370	5,963	9,333
Free State	50,914	55,895	106,809
KwaZulu-Natal	184,361	156,381	340,742
North West	12,869	23,750	36,619
Gauteng	51,082	96,788	147,870
Mpumalanga	41,581	49,633	91,214
Limpopo	52,159	53,021	105,180
South Africa	540,906	582,610	1123 516

Adapted from Abstract of Agricultural Statistics, 2015

From Table 10-4 above, generally, 51% of the households involved in vegetable production in South Africa are headed by female members.

The Western Cape province has the highest number of female headed households participating in vegetable production, while Limpopo has a relatively even split of male and female household heads. Approximately 52% of households involved in vegetable production in the Free State Province are headed by females. Thus, the Agri-Park will not only stimulate job creation, it will also promote women participation.

10.1.1.2 Apples

The apple industry in South African is relatively export oriented, with approximately 50% of South African grown apples being exported to foreign markets. The industry functions within an environment that is largely deregulated, thus, the prices of apples are determined by demand and supply.



Approximately 22 925 hectares of land is used to cultivate apples in south Africa, which is the second largest area of land utilised for horticultural cultivation, second only to the production of grapes (both dry and table grapes), that utilises approximately 26 739 hectares (HortGro, 2014).

Table 10-5 below, illustrated the areas of apple production and the number of hectares used per District.

Table 10-5: Production Areas of Apples

District	Number of Trees	Hectares of Land
Ceres	8 884 650	6 724
Groenland	7 424 929	5 819
Langkloof East	4 249 975	4 191
Villiersdorp	4 246 462	3 707
Langkloof West	606 689	534
Free State	724 259	489
Southern Cape	600 528	411
Piketberg	467 455	337
Klien Karoo	257 350	271
Mpumalanga	263 872	187
Somerset West	297 157	133
Worcester	64 078	35
Wolseley	24 616	22
Northern Province	20 140	20
Eastern Cape	3 739	15
Stellenbosch	20 869	15
Paarl	13 163	11
Franshoek	3 036	2
Total:	28 172 967	22 925

Adapted from HortGro, 2014

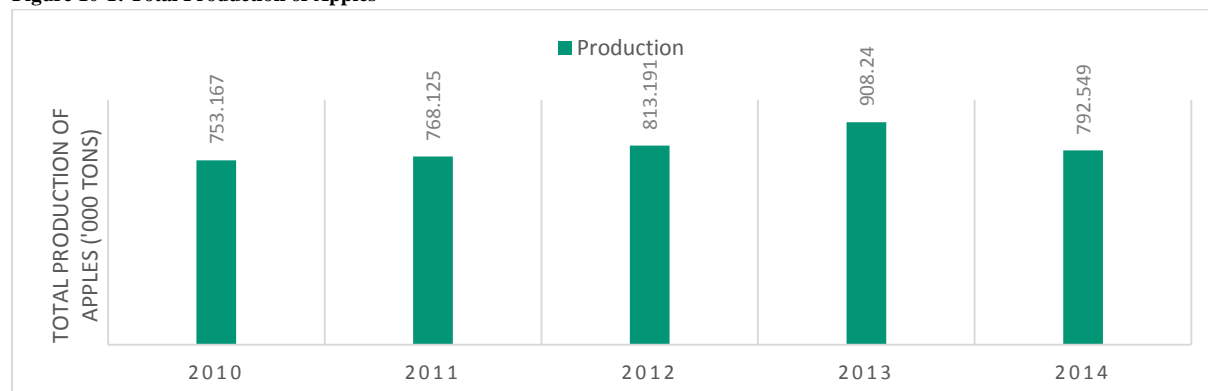


From Table 10-5 above, it can be stated that the main apple producing areas in South Africa are Ceres, Groenland, Langkloof East and Villiersdorp.

Groenland, Ceres, and Villiersdorp are all located in the Eastern Cape province, while Langkloof East is located in the Western Cape province. thus, the Western Cape Province accounts for the majority of apples produced in South Africa. The Free State has the fifth largest number of apple trees and hectares of land dedicated to apple cultivation. The most commonly produced apples are: Golden Delicious, Granny Smith, Royal Gala, Starkling, and Pink Lady apples (HortGro, 2014).

Figure 10-1 below, illustrates the total production of apples over a five-year period.

Figure 10-1: Total Production of Apples



Adapted from HortGro, 2014.

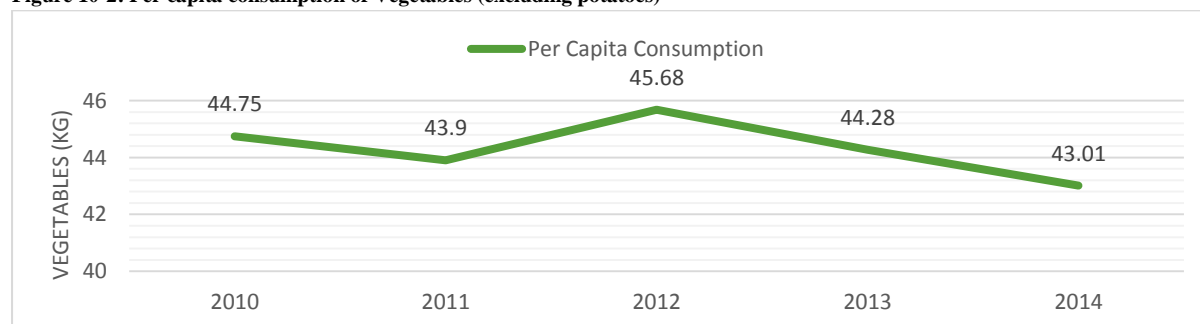
From Figure 10-1 above, the total production of apples in South Africa has, over the years shown an increasing trend; however, in 2014 production began to decline. Nevertheless, overall, production increased by approximately 5.2% over the five-year period.

10.1.2 Consumption of Vegetables and Apples

10.1.2.1 Vegetables

Vegetables are an important part of a healthy diet. The South African RDA of vegetables is approximately two-and-a-half cups or 400 grams of vegetables per day for a referenced 2 000-calorie diet, with higher or lower recommended amounts, depending on the diet's calorie level (Naude, 2013). Figure 10-2 below, illustrates the per capita consumption of vegetables (excluding potatoes) in South Africa between 2010 and 2014.

Figure 10-2: Per capita consumption of Vegetables (excluding potatoes)



Adapted from Abstract of Agricultural Statistics, 2015



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From Figure 10-2 above, in 2014, the per capita consumption of fresh vegetables was approximately 43.01kg which was approximately 2.8% lower than the 2013 per capita consumption that was approximately 44.28kg. Over the five-year period, the average per capita consumption of vegetables was approximately 44.32kgs. The overall consumption per capita declined by approximately 4% from 2010 to 2014. The fluctuations in per capita consumption may vary due to population figures as well as production figures for the year in question.

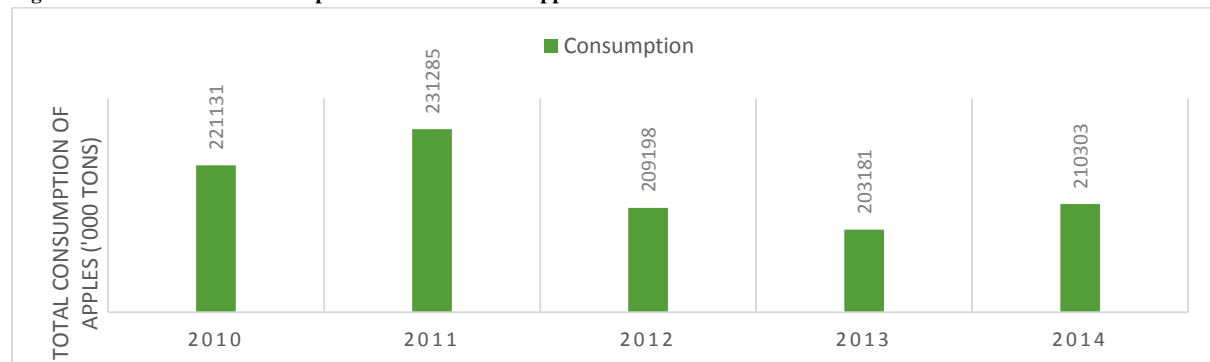


10.1.2.2 Apples

The South African RDA of fruits, similar to vegetables, is approximately two-and-a-half cups or 400 grams of fruits per day for a referenced 2 000-calorie diet (Naude, 2013).

Figure 10-3 below, illustrates total consumption of South African grown apples in South Africa between 2010 and 2014.

Figure 10-3: Total Local Consumption of South African Apples



Adapted from HortGro, 2014.

Consumption of apples in South Africa has fluctuated over the years, as can be seen in Figure 10-3 above. Apple consumption peaked at 231 285 thousand tons of apples consumed in 2011; however, declined to a minimum of 203 181 thousand tons in 2013. The consumption of apples overall, has decreased by approximately 5% over the five-year period.

10.2 Market assessment: Vegetables and Apples

The following market assessment provides an analysis of the local markets, global markets, and commodity markets for the vegetable and apple industries within a South African context.

10.2.1 Local markets

10.2.1.1 Vegetables

The majority of commercial producers consider only one or two of the major national markets as marketing outlets, to the exclusion of all other possibilities. The larger producers will supply even some of the far-distant national markets, provided that better prices prevail there. Nationally; however, linked information networks (such as *Beanex*) can supply daily prices to producers. These national markets, in all the big centres, must remain the



major outlets for many of the large vegetable growers because of the scale of their operations, but even these growers should investigate other possibilities. Smaller producers may possibly be able to dispose of the bulk of their produce more profitably through outlets other than the national markets. Outlets to consider are:

- Farm stalls. Savings as above, but require suitable reliable staff.
- Exports.
- Direct sales to wholesalers, retailers, consumer groups, or individual consumers. Delivery costs may be disproportionately high for small consignments.
- Direct sales to hawkers or consumers on the farm. Savings may be made on packaging, agents' fees, market commission and transport and so on.
- Small municipal markets or farmers' markets. Usually not very different to the national markets, more easily glutted, and lower throughput.

Vegetables in South Africa, are sold through various different marketing channels such as, the National Fresh Produce Markets (NFPM), via wholesalers such as Freshmark, direct sales to retailers (in both the formal and informal sectors (for example: hawkers, farm gate sales, supermarkets, greengrocers, to processors; and surplus produce is also exported. It was estimated, that in 2014, approximately 46% of vegetables were sold via the NFPMs while direct sales, exports and processing made up the balance.

Given the above indicated dominant role of the NFPMs (as the largest and preferred marketing and sales channel of vegetables in South Africa), the NFPM prices are subsequently used as the benchmark for all national vegetable sales. Figure 10-4 below, indicates the volume of vegetables that are traded through various distribution channels that are available to farmers.

Figure 10-4: Vegetable Distribution Channels

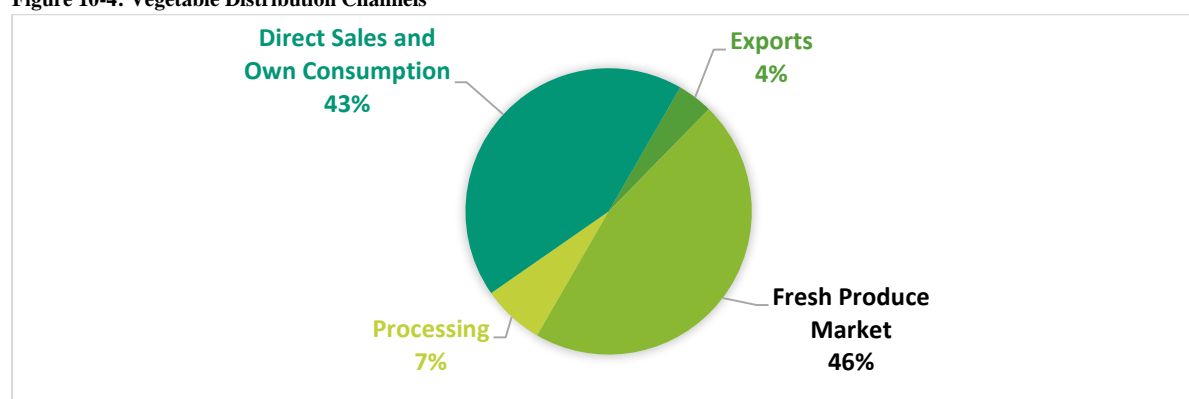


Figure 10-4 above, indicates that approximately 46% of the volume of vegetables produced is traded on the major fresh produce markets. The total volume of vegetables sold on these markets during 2014 amounted to 2 293.6 thousand tons, compared to the 2 107.8 thousand tons that were sold during 2010; an increase of approximately 9%.

10.2.1.2 Apples

In South Africa, apple production is aimed primarily at both the export and local markets as well as processing. the export market for South African Apples largely represents a very significant distribution channel, as the channel generates a huge amount of revenue for the South African economy.

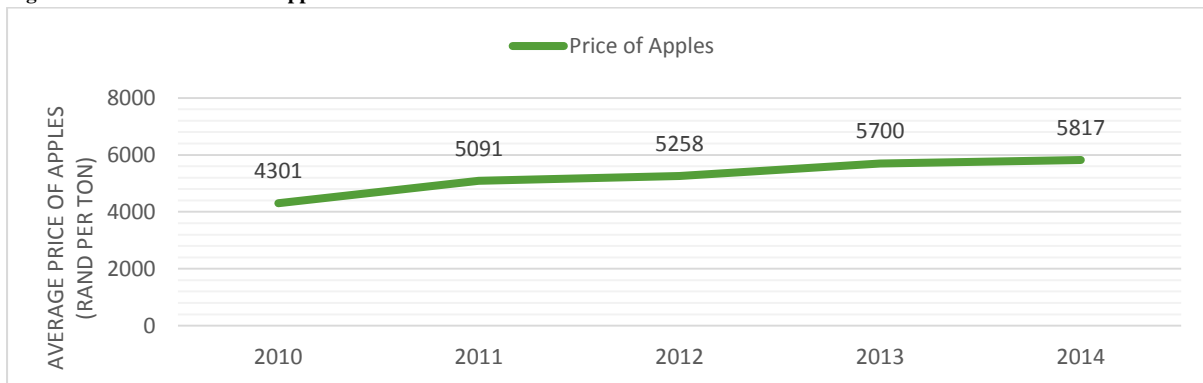
The prices in the domestic fresh produce markets, serve as base prices in other markets, particularly the processing and drying markets. Figure 10-5 below, illustrates the change in the average price of apples over a five-year period.



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Figure 10-5: Price Trend for Apples



Adapted from Abstract of Agricultural Statistics, 2015.

From Figure 10-5 above, it can be seen that the price per ton of apples increased at a moderately steady rate over the five years. The average price of a ton of apples in 2014, was approximately R5 817, which is approximately 35.2% higher than the price paid for a ton of apples in 2011. The local prices are largely influenced by seasonality in production, the availability of apples on the local market, and perishability of produce. The impact of seasonality, however, can be reduced due to old storage facilities, thus ensuring regular apple supplies to the local markets. Prices can also be influenced by demand factors such as, substitution between products, consumer habits, and per capita income.

Farmers have a choice of marketing channels to which they are able to sell apples directly to, as indicated in Table 10-6 below.

Table 10-6: Apple Industry Marketing Channels

Channel	Advantages	Challenges
Large retail chains	<ul style="list-style-type: none"> Large and stable demand. Attractive for larger, well established farmers who can produce on a consistent basis. Some retail chains do have special programs to buy from smaller farmers. 	<ul style="list-style-type: none"> Profit per unit is low. Strict quality, quantity and administrative requirements. Not suitable if farmer is unable to supply large good quality volumes consistently. Most large retailers do not buy directly from farmers, but from packhouses or other buying entities which they in some cases may own.
National Fresh Produce Markets	<ul style="list-style-type: none"> Well established marketing system. Require little involvement from farmers because the agents handle the sales and administrative tasks. 	<ul style="list-style-type: none"> Reliability in terms of quantity and quality is important. Not suitable for small individual farmers, especially farmers who can only deliver small, fluctuating quantities and/or produce of varying or low quality. A group of small-scale farmers may participate as a marketing cooperative to coordinate supply to this market.

Channel	Advantages	Challenges
		<ul style="list-style-type: none"> • There has to be a strong trusting relationship between the farmer and the agent because the farmer has to rely on the agent to make an effort to sell the produce at the highest price possible, and to be honest. • Unsold produce may have to be discarded after some time because it might not be worth recovering it. • Not ideal for farmers that are able to negotiate better deals using other more lucrative marketing channels or who produce at superior levels of quality or niche market products. • Channel is characterised by long distances (since the markets are only found in cities and a few large towns), strong price fluctuations and very low prices during the peak of harvest season, stringent quality, packaging and presentation criteria, require grading, delays in payment or even non-payment in case a farmer's delivery could not be sold, high marketing costs (5% to market management and 5-7% to agents), and poor bargaining position of the farmer. • Buyers pay relatively high prices (higher than what they could have paid if they bought directly from farmers) and the marketing channel is relatively long therefore it increases handling while reducing quality of produce and reduces convenience.
Packhouses or fruit and vegetable packers	<ul style="list-style-type: none"> • Usually perform valuable services, e.g. grading, sorting, packaging and marketing on behalf of the farmer. • A steady market with strong demand. 	<ul style="list-style-type: none"> • Prefer to buy only or mainly from large farmers, however, small-scale farmers arranged in associations or cooperatives are becoming more important as suppliers. • Farmers usually have to arrange for transport to the packer.
Fruit processors	<ul style="list-style-type: none"> • Strong and secure demand, very well-linked to export markets, and favourable prices could sometimes 	<ul style="list-style-type: none"> • Far from the apple producing areas of the District.

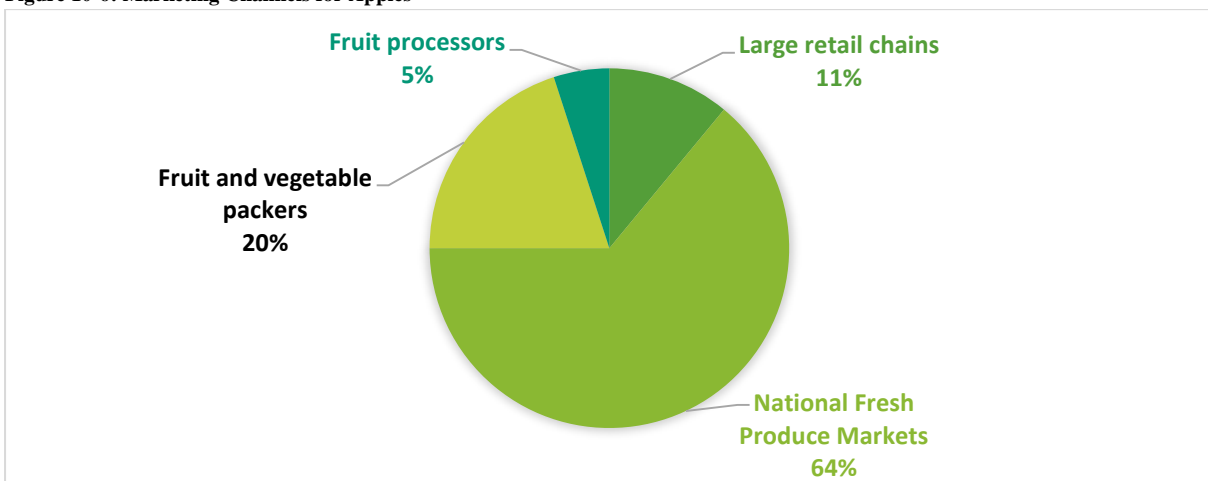
Channel	Advantages	Challenges
	(but certainly not always) be negotiated.	

From Table 10-6 above, there are four market channels that are available to apple producers, namely: large retail chains (such as, Pick'n Pay and Checkers, among others), national fresh produce markets (such as, for example Asian markets), packaging companies or fruit and vegetable packers, and lastly fruit processors (which process the apples into items such as, for example, juices and apple sauces, among others). Each channel has advantages and disadvantages associated with them, for example, large retail chains have the advantage of supplying a stable market for farmers produce (as there is a stable stream of demand), however, the profits earned from this channel are relatively low. The advantage of the national fresh produce market channel is that it is a well-established market channel where large quantities of a wide variety of fruit and vegetables are sold daily; however, reliability in terms of quantity and quality is important and the channel is not suited for small individual farmers.

Packhouses or fruit and vegetable packers form another marketing channel for apple producers, the advantage of the channel, mentioned in Table 10-6 above, is that it provides a steady market with strong demand, however the market has the disadvantage of not providing collection services for farmers, thus, excluding farmers that do not own vehicles. The last marketing channel available for apple farmers is the channel to fruit processors, the advantage of the channel is that it provides strong and secure demand, however, the disadvantage of the channel is that it is relatively far from the apple producing areas of the District.

Figure 10-6 below, illustrates the level of usage of the various marketing channels among apple producers.

Figure 10-6: Marketing Channels for Apples



From Figure 10-6 above, it can be seen that the most commonly used marketing channel is the national fresh produce market, as approximately 64% of apple producers utilise this marketing channel. Fruit and vegetable packers are the second most utilised channel, as approximately 20% of apple producers utilise the channel.

10.2.2 Global markets

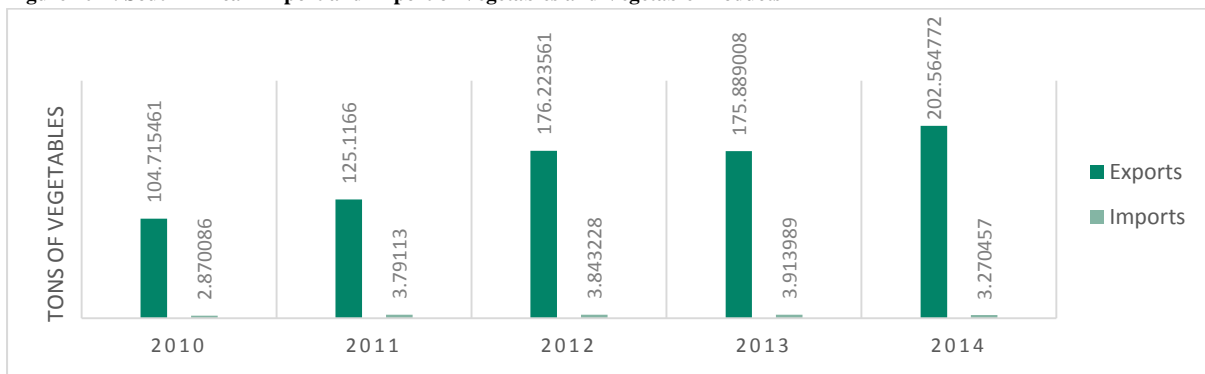
Imports and exports are an indicator of South Africa's competitiveness on a global scale, while also contributing to trade balance. The trade balance indicates whether South Africa is a net exporter, or net importer. Exports, in general, indicate that South Africa produces a surplus of goods (has a competitive advantage in that specific good) that can be distributed to international markets.

Imports are generally required to fill a consumption deficit (local production does not meet local consumption) and add to food security. In addition, importing products introduces competition to the local market, requiring that local producers remain efficient. South Africa has historically been a net exporter of agricultural products, importing only deficits in certain commodities, or niche products.

10.2.2.1 Vegetables

Figure 10-7 below, indicates the quantity of vegetable products imported and exported by South Africa between 2010 and 2014.

Figure 10-7: South African Import and Export of Vegetables and Vegetable Products

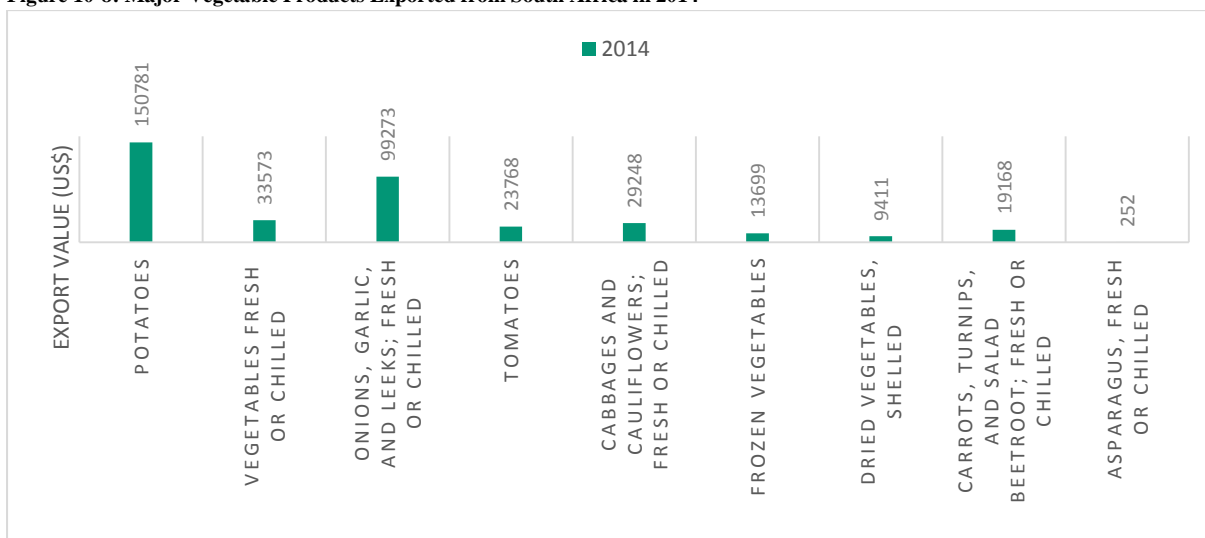


Adapted from Abstract of Agricultural Statistics, 2015.

Figure 10-7 above, illustrates that south Africa is a net exporter, as the exports of vegetables and vegetable products are significantly higher than imports of vegetables and vegetable products in the time period. South Africa imports have fluctuated over the five-year period, however, on average there was an overall increase of approximately 14% in the amount of vegetables imported over the five-year period.

Figure 10-8 below, illustrates the export quantities of the major vegetable products from South Africa in 2014.

Figure 10-8: Major Vegetable Products Exported from South Africa in 2014



Adapted from UN COMTRADE, 2015.

From Figure 10-8 above, it is clear that potatoes and onions are the major export commodities from South Africa, especially since they are easily stored and transported. South Africa represents approximately 0.02% of the world's asparagus exports. The major export destinations for the commodities are South African Development Community (SADC) countries including Namibia, Botswana, Angola and Mozambique.

10.2.2.2 Apples

Apples which are sold in the export markets, generate a greater price per unit than that achieved on the local market. In terms of global hectares, South Africa is a relatively small apple grower. However, the country is a major exporter of apples in global terms, as the country exports a significantly large volume of apples.

Figure 10-9 below, illustrates South Africa's imports and exports of apples over a five-year period (from 2009 to 2013).

Figure 10-9: South Africa's Imports and Exports of Apples



Adapted from Department of Agriculture, Forestry, and Fisheries, 2015.

From Figure 10-9 above, it can be seen that South Africa is a net exporter of apples. Exports and imports of apples had a fluctuating trend over the past five-years, however, overall exportation increased by approximately 33%, while imports decreased by approximately 37% over the same period.

10.3 Value chain assessment

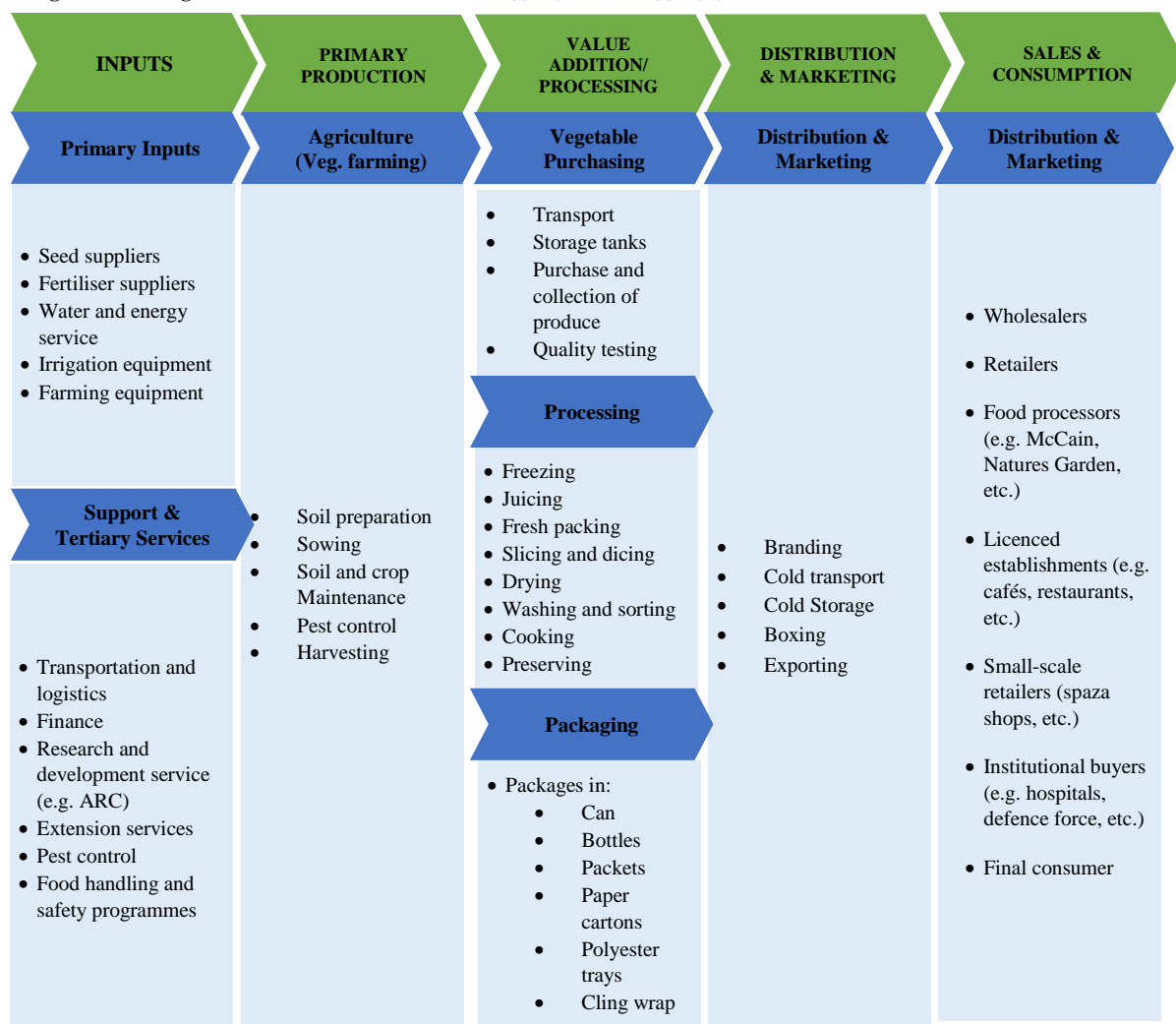
Vegetable crop and apple production are well suited for the Thabo Mofutsanyana District. however, there are several factors that play a role in impacting the productivity and growth of the two sectors, namely: growth in the SA economy, rising consumer demand, international trade and trade agreements, the global recession, and a rise in food prices, among other factors. The value chains for vegetables and apples will be illustrated and discussed within this section of the report

10.3.1 Vegetables

Vegetables are amongst the most important crops produced within South Africa, and production is particularly prominent in the Thabo Mofutsanyana District. Climatic conditions, soil capabilities, and other natural resources such as availability of water, are well suited for vegetable production in the region.

Figure 10-10 below, illustrates the value chain for the vegetable industry.

Figure 10-10: Vegetable Value Chain



The value chain of the vegetable industry, illustrated in Figure 10-10 above, begins with primary inputs (for example, fertilisers and seed) and services (among which include research and development services). The next step in the value chain is primary production in which the vegetables are grown, thereafter value-adding (such as quality testing), processing (for example dicing and preserving), and then packed. Finally, the vegetables are distributed and marketed to the end-consumer.

10.3.1.1 Upstream Activities and Primary Production Activities

Vegetable production is classified as primary production; as such, the upstream activities relevant to the value chain are primary input suppliers used in the production system. The major inputs for vegetable production are seedlings, fertilisers and other chemicals for pest, and weed and disease control. Most of these inputs are supplied by agricultural organisations that are present in the respective areas. The main industry role-players in the vegetable industry, include the likes of:

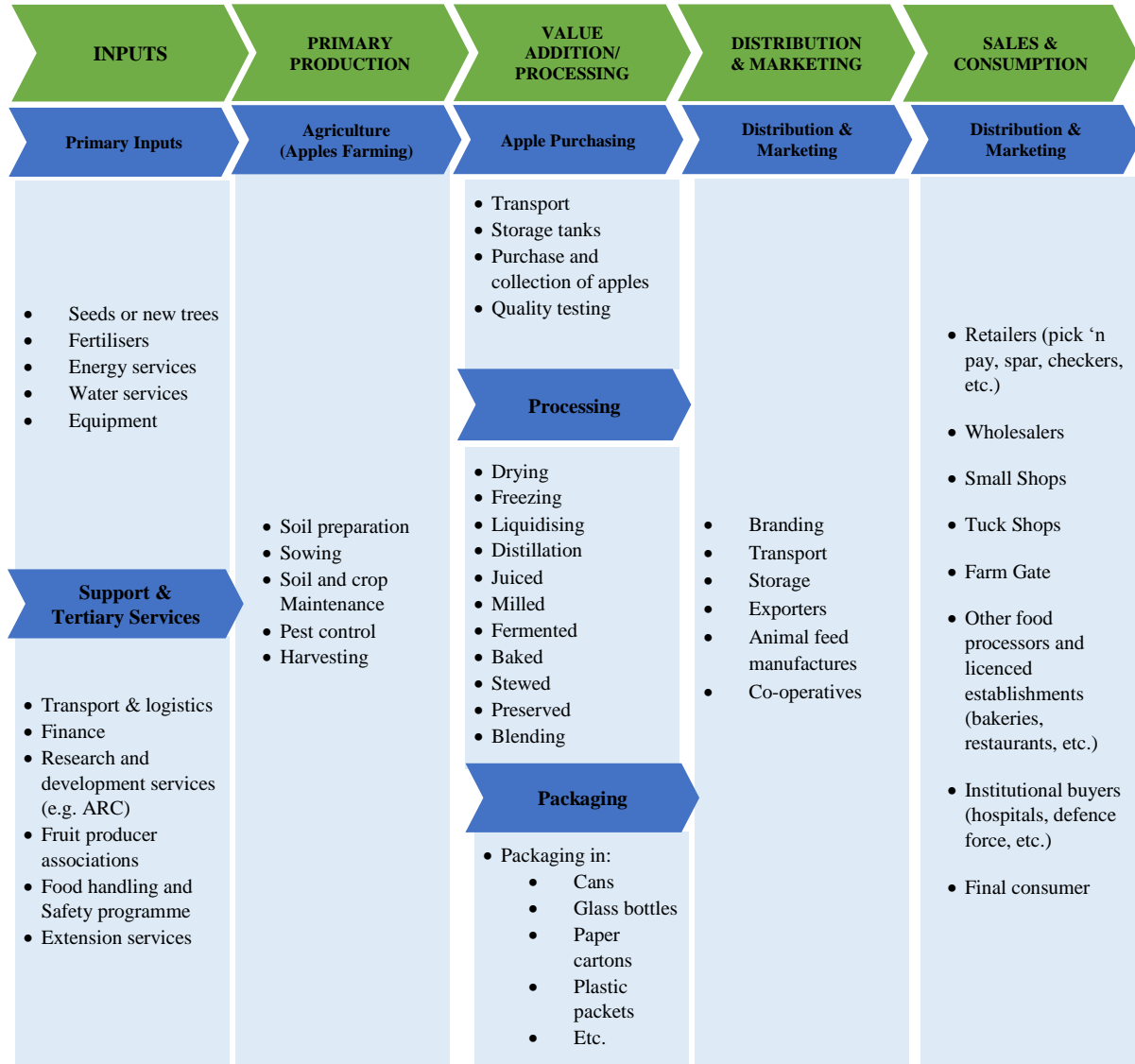
- African Grain,
- Plant Forum, and
- Dicla Farm and Seed.

10.3.2 Apples

An entire apple (including the skin) is suitable for human consumption and are often consumed raw. The fruit can also be used to produce a variety of products such as cool drinks, apple cider vinegar, and alcoholic beverages, among others.

Below, Figure 10-11, is the visual representation of the apple industry value chain

Figure 10-11: Apple Industry Value Chain



The value chain of the apple industry, illustrated in Figure 10-11 above, illustrated the various steps within the apple industry, from the initial step, which involves primary inputs, such as, for example, fertilisers and seed; to the final step of distributing and marketing to the end consumer.



10.3.2.1 Upstream Activities and Primary Production Activities

Irrigation, fertilisation, weeding, mulching, intercropping, and pruning are among the various activities included in the cultivation of apples. Apple production is classified as primary production, as such the upstream activities relevant to the value chain are primary input suppliers used in the production system. The major inputs for apple production are seedlings or new apple trees, fertilisers, and other chemicals for pest, and weed, and disease control. Most of these inputs are supplied by agricultural organisations that are present in the respective areas. The main industry role-players in the vegetable industry, include the likes of:

- Akfa Foods
- Afralia flora
- Obaro

10.4 Downstream and Agro-Processing Activities

10.4.1 Vegetables

Harvesting, washing, trimming, grading, handling, packing, packaging, labelling, and transporting are all important practices required for preserving and presenting the quality of the produce until the product reaches the final consumer. Prices achieved (and thus, the income obtained by producers), can be greatly affected by the emphasis placed on these practices. They must, therefore, be considered as important elements in the agro-processing and marketing strategies. Table 10-7 below, mentions a few of the products that can be developed through agro-processing.

Table 10-7: Agro-Processing opportunities for Vegetables

Primary Vegetable	Processing Opportunity	Final Product
1. Cabbages	<ul style="list-style-type: none"> • Washing and sorting • Trimming and grading • Canning, • Pickling and/or • Fermentation • Freezing 	<ul style="list-style-type: none"> • Fresh packing (smaller varieties or where relevant) and branding • sauerkraut • Chutney production • Preserve, jam or jelly production
2. Carrots	<ul style="list-style-type: none"> • Washing and sorting • Fresh packing and branding • Pickling (usually with other vegetables) • Freezing 	<ul style="list-style-type: none"> • Mixed frozen veg • Baby carrots • Carrot balls • Julienne slices • Sweet jam or conserve
3. Potatoes	<ul style="list-style-type: none"> • Washing and sorting • Fresh packing and branding • Slicing and dicing • Drying • Baking (crisps) • Canning 	<ul style="list-style-type: none"> • Crisps • Frozen fries • Fresh fries • Canned veg • Mixed frozen veg • Baby potato's • Powdered • Baby food
4. Tomatoes	<ul style="list-style-type: none"> • Storage, ripening, washing and sorting • Fresh packing and branding • Freezing • Slicing and dicing 	<ul style="list-style-type: none"> • Tomato puree: Canned or frozen • Tomato soup: Canned or frozen • Tomato paste



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Primary Vegetable	Processing Opportunity	Final Product
	<ul style="list-style-type: none"> • Cooking • Drying • Canning/bottling of tomatoes • Tomato jam or preserve 	<ul style="list-style-type: none"> • Dried tomatoes, possibly stored in oil • Tomato powder • Tomato cooking sauce or pizza/pasta sauce base (frozen or canned) • Ketchup style tomato sauce • Pickled tomatoes • Ripe tomato chutney • Green tomato chutney • Baby tomato's
5. Onion	<ul style="list-style-type: none"> • Drying • Slicing and dicing • Freezing • Pickling • Stringing 	<ul style="list-style-type: none"> • Onion powder • Frozen onions
6. Other	<ul style="list-style-type: none"> • Canning • Slicing and dicing • Extraction • Drying • Juicing 	<ul style="list-style-type: none"> • Frozen mixed vegetables • Readymade salads • Vegetable fats and oils • Vegetable juices • Homogenised vegetables

Processing companies cannot compete with the premium prices paid for out-of-season produce, but are usually highly competitive with prices in peak season. Some processing, or value-added practices, such as pre-packing of certain crops (Mentioned in Table 10-7, above), could be done on the farm. Special markets might need to be developed for such products.

Critical points for agro-processing are the generally high quality specifications, chemical residue tolerances, possible pre-chilling or cooling requirements, specific packaging requirements, high transport costs (particularly air transport), the prevailing demand for the product and expected prices, specific market needs, and sales agents.

10.4.2 Apples

Harvesting, precooling, grading, packaging, labelling, and transporting are all important practices required in order to preserve the quality of the produce until the product reaches the final consumer. There are three methods to harvesting apples, namely:

- Hand harvesting,
- Mechanical harvesting (using a tractor), and
- Harvesting by ladder.

Table 10-8 below, illustrates the various agro-processing opportunities that are available for the apple industry.

Table 10-8: Agro-Processing opportunities for Apples

Processing Opportunity	Product	By-Product and Further Processed Products
• Washing, packaging, and branding.	• Raw apples in packets	• N/A
• Preservation.	<ul style="list-style-type: none"> • Apple juice • Concentrated apple juice 	<ul style="list-style-type: none"> • Cattle cakes (from pomace) • Pulp

Processing Opportunity	Product	By-Product and Further Processed Products
	<ul style="list-style-type: none"> Jam Jelly Butter Puree Apple chutney 	
<ul style="list-style-type: none"> Evaporation, and cooling. 	<ul style="list-style-type: none"> Apple syrup 	<ul style="list-style-type: none"> Candy Drinks (alcoholic and non-alcoholic)
<ul style="list-style-type: none"> Dehydration. 	<ul style="list-style-type: none"> Apple powder Dried fruit 	<ul style="list-style-type: none"> Candy Cakes Etc.

From Table 10-8 above, it can be noted that there are various products that can be produced from apples. Apples can be sold raw in packets or boxes; or the apples can be processed to make products such as juices, jams, dried slices of apples, and syrups, among other products.

10.5 Main suppliers for the Vegetables and Apples Industries

The main suppliers, including NWK, Dicla and Obaro, to the vegetable and apple industry within South Africa are summarised in Table 10-9 below.

Table 10-9: Main Input Suppliers for the Vegetable Industry

Input Supplier	Services
<ul style="list-style-type: none"> Starke Ayres AB Gani Wholesale Produce Advance Grain CC African Grain Akfa Foods Goldkeys Prepacks Kimberley Grain Commodities S & K Packaging 	<ul style="list-style-type: none"> Vegetable and apple seeds
<ul style="list-style-type: none"> NWK 	<ul style="list-style-type: none"> Irrigation Hardware Animal health and nutrition Seeds Spare parts Chemicals & fertiliser
<ul style="list-style-type: none"> SENWES 	<ul style="list-style-type: none"> Agronomy, Soil surveys and mapping, Developing agriculture and GIS & cartography
<ul style="list-style-type: none"> Plant Forum 	<ul style="list-style-type: none"> Vegetable seedlings
<ul style="list-style-type: none"> TopFruit Afralia flora Kuffel Creek Rosenhof Nursery Witzenberg Range Nurseries Caledon Nursery 	<ul style="list-style-type: none"> Apple and vegetable nurseries

Input Supplier	Services
<ul style="list-style-type: none"> Obaro 	<ul style="list-style-type: none"> Irrigation Hardware Animal health and nutrition Seeds Spare parts Chemicals & fertiliser
<ul style="list-style-type: none"> Monsanto 	<ul style="list-style-type: none"> Agricultural seed
<ul style="list-style-type: none"> Omnia BulkFertilizer Kynoch Fertilizer Premier Seeds Triomf South Africa AgriworldSA 	<ul style="list-style-type: none"> Fertiliser
<ul style="list-style-type: none"> Dicla Farm and Seed 	<ul style="list-style-type: none"> Seed Tunnels Poultry Supplies Irrigation Equipment Tractors and Implements

The main suppliers to the vegetable industry, in general, have the capacity to supply most inputs required for vegetable production, including vegetable seedlings, fertilisers, chemicals, irrigation equipment and machinery, as suggested in Table 10-9.

10.6 Competitors

10.6.1.1 Vegetables

The development needed for a sustainable supply and a value chains in the vegetable sector from primary production to marketing, where there are unequal power relationships between large retailers/wholesalers and agro processors, and primary vegetable producers, is a constraint. Producers are thus, vulnerable to the volatility of demand and price fluctuations; and are "price takers" because of the buyers' market power.

The major vegetable processing players in South Africa are mentioned in Table 10-10 below.

Table 10-10: Competitors Within the Vegetable Processing Industry

Type of processing activity	Competitor
Fresh Produce	<ul style="list-style-type: none"> Fresh produce markets
Canning and Pickling	<ul style="list-style-type: none"> Rhodes Langeberg Food Processors Ltd Giants Canning - Everyday Koo All Gold SA Fruit & Vegetable Canners' Association (SAFVCA)
Frozen	<ul style="list-style-type: none"> McCain Foods SA Just Veggies Nature's Choice Products Lamberts Bay Foods Tender Harvest Findus Foods

Type of processing activity	Competitor
Slice and Dice	<ul style="list-style-type: none"> • Retailers own products
Drying and Dehydration	<ul style="list-style-type: none"> • Just Veggies • Robertsons Spices • Carbocraft (Pty)Ltd

Amongst the competitors listed in Table 10-10 above, are other competitors that are involved in vegetable agro-processing activities, including farmers who have the capacity to process their products.

10.6.2 Apples

Table 10-11 below, mentions the various competitors within the apple processing industry.

Table 10-11: Competitors Within the Apple Processing Industry

Type of processing activity	Competitor
Fresh Produce	<ul style="list-style-type: none"> • Oak Valley • Tru-Cape • Delecta fruit • Fruits (Unlimited Group Company) • Betko • Dutoit
Canning and preserving	<ul style="list-style-type: none"> • Koo • Colman's • De Nigris Fruttati • Olli baby food • Purity baby food
Drying and Dehydration	<ul style="list-style-type: none"> • Safari • Martin's Family Fruit Farm • Montagu dried fruit • Cape Dried Fruit Packers • Thalman Estate • Jab fruit
Juicing and beverages (concentrates, vinegar, etc.)	<ul style="list-style-type: none"> • Ceres Fruit Processors • Safari • Sir Juice • Pure (Juice) • Coca-cola • Liqui-fruit • Minute Maid • Kedem • Krush (Clover) • Infacare • Cape Table • Granor Passi • Cool-ee • Cool sun • Elgin Dew



Type of processing activity	Competitor
	<ul style="list-style-type: none"> • Dairybelle • Fruitree • Fru-tal • Ella's Kitchen

From Table 10-11 above, there are numerous competitors within the apple processing industry, particularly with regard to juicing and beverage making.

10.7 Stakeholders: Apples and Vegetables

South Africa has several organisations and associations that serve to represent the interests of the vegetable and apple industries. The associations aim at providing support for producers and consumers of within South Africa as well as strive to promote the sustainability and profitability of the industry.

Table 10-12 below, summarises the stakeholders that are likely to be involved in the apple and vegetable industry

Table 10-12: Vegetable and Apple Industry Stakeholders

Stakeholder	Services
<ul style="list-style-type: none"> • OVK (Arlington) • OVK (Clocolan) • OVK (Ficksburg) • OVK (Fouriesburg) • OVK (Paul Roux) • OVK (Rosendal) 	<ul style="list-style-type: none"> • Supply and marketing of agricultural requisites and services. • Acquisition and marketing of agricultural products. • Processing of agricultural products. • Advisory service. • Support units. • Insurance.
<ul style="list-style-type: none"> • Bethlehem Department of Agriculture • Ficksburg Department of Agriculture • Reitz Department of Agriculture • Senekal Department of Agriculture • Vrede Department of Agriculture • Witsieshoek Department of Agriculture • Hortgro Services • Deciduous Fruit Development Chamber (DFDC) • South African Apple and Pear Producers Association • Optimal Agricultural Business Systems (OABS) 	<ul style="list-style-type: none"> • Advisory service providers • Support units • Training • Research
• Plantovita	• Tests vegetable and apple seeds
• Cropcell	• Conducts research
• Patricks Fruit and Veg Market	• Purchases and markets fruits and vegetables locally
<ul style="list-style-type: none"> • A La Dairy • Die Suiwelhoekie • Mountain View Dairy 	<ul style="list-style-type: none"> • Purchases fruits for juice and yogurt production



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From Table 10-12, there are various stakeholders associated with the vegetable and apple industries, OVK, various agricultural departments, and associations all offer support and advisory services. Plantovita and Cropcell ensure that the seeds used are of good, disease free quality and also provide market research.

10.8 Technology

Technology is important for economic growth as it promotes education, improves economic development, as well as addresses society issues such as gender (for example woman participation). The agricultural industry has changed significantly through the use of technology. This section of the report will evaluate the various technologies available for the apple and vegetable industries.

10.8.1 Apples

Table 10-13 below, mentions the various technologies that are related to the Apple industry.

Table 10-13: Apple Related Technology

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
Precision farming, integrated farm management systems, and software				
Precision farming: Gaining real-time or exact information within particular parts of a single field.	<ul style="list-style-type: none"> Optimising production levels, Yield is maximised, and Inputs are minimised. 	<ul style="list-style-type: none"> Very taxing in terms of capital, equipment, and skills; Not well tailored to small-scale farming conditions yet. 	High	High
Plan-A-Head Packhouse System Software Program	<ul style="list-style-type: none"> Ability to facilitate traceability. Can be applied to vegetable packers 	<ul style="list-style-type: none"> - 	Free trial	Moderate
Integrated farm management software: Information and management system which coordinates farming activities.	<ul style="list-style-type: none"> Maximise profitability, Maximise efficiency, and Coordinate and simplify management processes. 	<ul style="list-style-type: none"> Applications for small-scale farmers is currently still limited. Some software and systems are not tailored for South Africa yet. 	Medium to high	High
SimJunior: financial management and accounting software.	<ul style="list-style-type: none"> Easy to use, Ideal for the small-scale farmer. 	<ul style="list-style-type: none"> - 	Free	Low
Accord: Human resource management system.	<ul style="list-style-type: none"> Simplicity, Coverage of basic employment legislation. 	<ul style="list-style-type: none"> - 	Low (R 4 560 to download plus annual fee of R 2 890)	Moderate
Duet: Fruit and vegetable marketing and distribution software	<ul style="list-style-type: none"> Integrated with Technofresh (a market price information provider). 	<ul style="list-style-type: none"> - 	Low (R 3 990 to download plus annual fee of R 2 890)	Moderate
Farm energy				
Wind energy	<ul style="list-style-type: none"> Less vulnerable to theft compared to solar panels. 	<ul style="list-style-type: none"> Only a few areas in South Africa do have sufficient wind profiles to justify 	Medium to high.	High

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
	<ul style="list-style-type: none"> Wind is a renewable form of energy. 	<ul style="list-style-type: none"> investment in small wind turbines. Larger battery storage capacity compared to solar energy are required. 		
Solar technology	<ul style="list-style-type: none"> Solar is a renewable form of energy. 	<ul style="list-style-type: none"> Large battery storage capacity is required in case of photovoltaic panels. Highly vulnerable to theft. 	Medium	Low
Irrigation systems (water delivery)				
Microtube drip irrigation: micro tubes transport water right to the roots of the plant.	<ul style="list-style-type: none"> Low water pressure requirement, Suitable to irrigate orchards, row crops and other high value crops. Use 30 -70% less water compared to conventional irrigation. 	<ul style="list-style-type: none"> Flat land only. Keeping the tubes free from blockage may require significant effort. 	Moderate	High
Soil improvement and prevention of soil erosion				
In-field rainwater harvesting: Small capture rainwater.	<ul style="list-style-type: none"> Increases soil's water absorption. Increase in yield (certain crops). 	<ul style="list-style-type: none"> Labour intensive, Require regular maintenance. 	Low	Low
Apps for mobile phones and tablets				
AgriSuite Online	<ul style="list-style-type: none"> Can be accessed in the office or on the farm. Contains useful and concise information Simple and user-friendly format. 	<ul style="list-style-type: none"> Not publicly available yet 	-	Low

From Table 10-13 above, it can be seen that there are a number of technologies that are available for the apple industry. The array of technologies varies from applications for mobile phones and tablets (such as AgriSuite Online), to precision farming, integrated farm management systems, and software technologies (such as SimJunior, among others).

10.8.2 Vegetables

Table 10-14 below, illustrates the various technologies available for the vegetable industry.

Table 10-14: Vegetable Related Technologies

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
Precision farming, integrated farm management systems, and software				

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
Precision farming: Gaining real-time or exact information within particular parts of a single field.	<ul style="list-style-type: none"> Optimising production levels, Yield is maximised, and Inputs are minimised. 	<ul style="list-style-type: none"> Very taxing in terms of capital, equipment, and skills; Not well tailored to small-scale farming conditions yet. 	High	High
Plan-A-Head Packhouse System Software Program	<ul style="list-style-type: none"> Ability to facilitate traceability. Can be applied to vegetable packers 	<ul style="list-style-type: none"> - 	Free trial	Moderate
Integrated farm management software: Information and management system which coordinates farming activities.	<ul style="list-style-type: none"> Maximise profitability, Maximise efficiency, and Coordinate and simplify management processes. 	<ul style="list-style-type: none"> Applications for small-scale farmers is currently still limited. Some software and systems are not tailored for South Africa yet. 	Medium to high	High
SimJunior: financial management and accounting software.	<ul style="list-style-type: none"> Easy to use, Ideal for the small-scale farmer. 	<ul style="list-style-type: none"> - 	Free	Low
Accord: Human resource management system.	<ul style="list-style-type: none"> Simplicity, Coverage of basic employment legislation. 	<ul style="list-style-type: none"> - 	Low (R 4 560 to download plus annual fee of R 2 890)	Moderate
Duet: Fruit and vegetable marketing and distribution software	<ul style="list-style-type: none"> Integrated with Technofresh (a market price information provider). 	<ul style="list-style-type: none"> - 	Low (R 3 990 to download plus annual fee of R 2 890)	Moderate
Mechanisation				
New generation small hand tools	<ul style="list-style-type: none"> Many farming activities, Speeding up production, Reduce health and safety risk. 	<ul style="list-style-type: none"> Mainly limited to small-scale farming. 	Low	Low
Farm energy				
Wind energy	<ul style="list-style-type: none"> Less vulnerable to theft compared to solar panels. Wind is a renewable form of energy. 	<ul style="list-style-type: none"> Only a few areas in South Africa do have sufficient wind profiles to justify investment in small wind turbines. Larger battery storage capacity compared to solar energy are required. 	Medium to high.	High
Solar technology	<ul style="list-style-type: none"> Solar is a renewable form of energy. 	<ul style="list-style-type: none"> Large battery storage capacity is required in case of photovoltaic panels. Highly vulnerable to theft. 	Medium	Low
Water pumping/lifting				
Treadle pump: human-powered	<ul style="list-style-type: none"> Small-Scale irrigation, 	<ul style="list-style-type: none"> Groundwater depth must be 7 meter or less. 	Low	Low

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
(stepping on pedals) suction water pump.	<ul style="list-style-type: none"> • Larger-Scale animal watering, • Low cost. 	<ul style="list-style-type: none"> • Limited to small-scale irrigation. 		
Rope pumps: human-powered (usually by hand crank) water pump.	<ul style="list-style-type: none"> • Small-Scale irrigation and larger scale animal watering at a very low cost in areas with a deep water table. 	<ul style="list-style-type: none"> • Labour intensive. • Groundwater depth must generally be lower than 20 meters and maximum 35 meters. • Limited to small-scale irrigation. 	Low to medium	Low
Hand piston pump: pump water from depths up to 35 meter.	<ul style="list-style-type: none"> • Relatively low cost option to pump small quantities of water from a groundwater depth of up to 35 meter. 	<ul style="list-style-type: none"> • Water quantities so small that it is more suitable for household consumption rather than irrigation. • Unsuitable for water depths more than 35 meter. 	Medium	Low
Bulk and long-term water storage (in-ground storage)				
Pond lining fabric: Ponds and earth dams may lose large quantities of water through seepage	<ul style="list-style-type: none"> • Can store very large quantity of water. • Low cost. 	<ul style="list-style-type: none"> • Requires relative large space. 	Low to very low	Moderate
Ferro-cement -lined tank: In-ground storage tanks made of cement and iron wire mesh.	<ul style="list-style-type: none"> • Can store fairly large quantity of water. • Fairly low cost. 	<ul style="list-style-type: none"> • Limited water storage capacity. 	Moderate to low	Moderate
Conventional plastic tank	<ul style="list-style-type: none"> • Can store fairly large quantity of water. 	<ul style="list-style-type: none"> • Fairly high cost. • Limited water storage capacity. 	Moderate	Low
Conventional cement in-ground tank	<ul style="list-style-type: none"> • Can store fairly to very large quantity of water. 	<ul style="list-style-type: none"> • High cost. 	High	Low
Header tanks for soon-to-be-used irrigation water				
Header bag: large open plastic bag suspended above the field on a frame that can be produced from local materials.	<ul style="list-style-type: none"> • Provide water for a drip irrigation system. • Half the cost compared to conventional in-field tanks. • Can store a very small quantity of water. • Low cost. 	<ul style="list-style-type: none"> • Very low storage capacity. • Can provide drip irrigation for a field of only up to 200m². 	Very low	Moderate
Earth mound bag	<ul style="list-style-type: none"> • Provide water for a drip irrigation system. • Half the cost compared to conventional in-field tanks. 	<ul style="list-style-type: none"> • Moderate storage capacity. • Occupy significant space. • Needs to be handled with care. 	Very low	Moderate to low

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
	<ul style="list-style-type: none"> Can store a moderate quantity of water. Low cost. Can supply a fairly large field of 200m². Robust and easy to maintain. 			
Jumbo Thai Jar	<ul style="list-style-type: none"> Can store a small quantity of water. Moderate cost. Can be build and maintained by farmers themselves using locally available material. Requires only a small space. Ideal closely spaced farms or urban agriculture. 	<ul style="list-style-type: none"> Low storage capacity. 	Moderate	Low
Soil improvement and prevention of soil erosion				
In-field rainwater harvesting: Small capture rainwater.	<ul style="list-style-type: none"> Increases soil's water absorption. Increase in yield (certain crops). 	<ul style="list-style-type: none"> Labour intensive, Require regular maintenance. 	Low	Low
Mulching technology: A variety of new and efficient mulching materials are developed.	<ul style="list-style-type: none"> Mulching material minimise or eliminate weed growth and water losses through evaporation. Control various pests and diseases as well. 	<ul style="list-style-type: none"> May deter some soil biological processes that may be important for some crops. May encourage some diseases and pests in wet climates. Difficult to work with on sloping soils. May complicate management of the crop and harvesting. 	Low to moderate	Low
Biochar: Activated carbon ground into a course powder, then worked into the soil.	<ul style="list-style-type: none"> Increase yield by assisting with water and nutrient retention and improving soil structure. Can be produced on-farm or at farmer community level using fairly simple techniques. Almost any plant or organic biomass can be turned into biochar. Lasts for thousands of years. 	<ul style="list-style-type: none"> Large volumes of biochar are needed. Not suitable for all soil types. 	Moderate to high	Low to moderate

Technology	Benefit to farmer	Disadvantages or limits	Cost (to acquire and use)	Skills level (required to use)
Apps for mobile phones and tablets				
AgriSuite Online	<ul style="list-style-type: none"> Can be accessed in the office or on the farm. Contains useful and concise information Simple and user-friendly format. 	<ul style="list-style-type: none"> Not publicly available yet 	-	Low

Table 10-14 above mentions the various technologies that can be used by vegetable industry participants. The technologies range from soil improvement technologies (such as mulching technology and biochar technologies), to water pumping or lifting technologies (such as treadle pump and rope pump technologies).

10.9 Demand and Needs Analysis Apples and Vegetables

10.9.1 Apples

Currently, the most viable marketing channel for the apple industry within the District is the national fresh produce markets. the Johannesburg market as main outlet of the national fresh produce markets due to the isolated nature of potential apple producing areas in the District. there is a lack of infrastructure, within the Thabo Mofutsanyana District at present, for marketing and processing apples. Thus, there is a gap in the market for apple processing facilities within the District.

Without the necessary infrastructure (equipment and machinery), apple processing will be limited to fresh packaging, other processing options will not be viable. However, simple home industry level techniques e.g. making chutney may be viable but will have little impact on job creation.

10.9.2 Vegetables

With the average per capita consumption of vegetables at 43kg and potatoes at 35kg, there is a clear demand for vegetables in South Africa. Demand for potatoes and vegetable (excluding potatoes), on a national level, is approximately 1.9 million tons and 2.3 million tons respectively. Furthermore, vegetables and potatoes are commonly produced by numerous farmers within the Thabo Mofutsanyana District, indicating an availability of stable supply within the market for the Agri-Hub.

10.10 Socio-Economic: Job Creation

South Africa's consumption preferences have changed due to the increase in urbanisation, wealth and the fast-growing middle class. More consumers prefer high-protein and processed foods, which are more water and land-intensive than grain, fruits, and vegetable crops. Changing land reform policies are among the challenges that the agricultural sector faces. Most of South Africa's food is produced by large commercial farmers (95% of food production), while small subsistence farmers struggle to survive in the agricultural sector. Subsequently the small subsistence farmers stop engaging in farming practices and move to the city (Kotze & Rose, 2015).



South Africa has approximately 705 apple producers which have a cumulative 26 823 labourers (HortGro, 2014), the increase in apple farmers within the District will thus, increase the number of jobs available and required for apple cultivation.

The free state already has an abundance of vegetable farmers, particularly small-scale female farmers, the Agri-Hub, will thus serve to increase the jobs through further processing vegetable products within the hub.

10.11 Contribution to food security

South Africa has a population of over 53 million people. “The challenges of feeding South Africa’s growing population in a climate-altered, resource-constrained future are significant” (WWF, 2015). However, South Africa does not have to become a victim of an inevitable crisis. South Africa can feed its growing population while supporting a vibrant food economy through better current production as opposed to, “just increasing production” (WWF, 2015).

Ghana, for example, improved its vegetable production sector and not only increased the availability of food in the country, but also, significantly increased its GDP (\$3 Million per year) (CNN, 2015; Saavedra et al., 2015). South Africa can improve current production by making informed food choices, managing current food waste, and supporting South African farmers that implement sound farming practices.

10.12 Regulatory Requirements

The legislations mentioned in this section are all those that have implications on the production of apples and vegetables within the Thabo Mofutsanyana District. It is critical that the management of the Agri-Parks programme is aware of these legislations and comply accordingly through best management practices.

10.12.1 Apples

Table 10-15 below, mentions the various regulatory requirements for the apple industry.

Table 10-15: Regulatory Requirements for the Apple Industry

Regulation	Description
Marketing Act, 1968 (Act No. 59 of 1968)	The Act provides for the introduction of a <ul style="list-style-type: none"> • System of control over the marketing of agricultural products and • Regulates the quantitative control over the import or export of these products.
Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970)	The Act regulates the subdivision of <ul style="list-style-type: none"> • Agricultural land and • Its use for purposes other than agriculture.
Co-Operatives Act, 1981 (Act No. 91 of 1981)	The Act regulates the <ul style="list-style-type: none"> • Formation, registration, management and functioning of various types of cooperatives and • Winding-up and dissolution of co-operatives.
Perishable Products Export Control Act, 1983 (Act No. 9 of 1983)	This Act provides for the control of <ul style="list-style-type: none"> • Perishable products intended for export from the Republic of South Africa and • For the continued existence of a statutory board to bring about the orderly and efficient export of perishable products from the Republic.
Government Notice, 1999 (No. R198 of 1999)	The regulation administers hygiene requirements for food premises and the transportation and packaging of apples.



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Regulation	Description
Agricultural Product Standards Act, 1990 (Act No. 119 of 1990)	This Act provides for <ul style="list-style-type: none"> Control over the sale and export of certain agricultural products and other related products, with a view to the maintenance of certain standards regarding the quality of products, and The packing, marking and labelling thereof.
Agricultural Produce Agents Act, 1992 (Act No. 12 of 1992)	This Act provides for the establishment of <ul style="list-style-type: none"> An Agricultural Produce Agents Council (AAC) and Fidelity funds in respect of agricultural produce agents, and For the control of certain activities of agricultural produce agents. <p>This Act has not been brought into operation in its entirety, but will eventually replace the Commission for Fresh Produce Markets Act, 1970 (Act No. 82 of 1970), and the Agricultural Produce Agency Sales Act, 1975 (Act No. 12 of 1975).</p>
Consumer Protection Act, 2008 (Act No. 68 of 2008)	This Act mainly protects consumers' rights in terms of products and services for the purpose of promoting a conducive and sustainable marketplace.
Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No 54 of 1972)	In terms of this Act <ul style="list-style-type: none"> The department governs the regulations relating to hygiene requirements for the sale, manufacture, control, and importation of apples (R961 of 2012; No R1555 of 1997).

From Table 10-15 above, it can be seen that the apple industry is governed by an exhaustive list of legislation, thus it is imperative that the Agri-Park's management embarks on establishing a compliance committee that implements best management practices, while also evaluating and monitoring the effective implementation of the best practices.

It is further vital that the development application requirements for the Agri-Parks is explored and properly addressed as they are mandatory. In accordance with SPLUMA – which governs land use nationally - it is crucial that a development application to be submitted to the Local Municipality before any development can be considered. SDF alignment is of optimal importance while the IDP and Local Municipality Land Use Planning By-law should also guide implementation. Failure to comply with the specific planning and development policies and legislation may cause stunting delays to the process. As such, alignment with each of these documents is of optimal importance before any development of the Agri-Hubs or FPSUs commence. The following pertinent legislation is applicable to a development application:

- Spatial Planning and Land Use Management Act, 16 of 2013
- Mangaung Spatial Development Framework
- Mangaung Integrated Development Plan
- Mangaung Metropolitan Municipality Land Use Planning By-laws

In addition to these the environmental guidelines for sustainable development as outlined within the **National Environmental Management Act 107 of 1998 and it subsequent by-laws** will also need to be adhered to. Once again neglecting this vital pre-development application(s) could halt development in its tracks. As such an environmental practitioner will need to be contacted on a site-to-site basis and based on that findings and relevant processes development will need to be directed accordingly.



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10.12.2 Vegetables

Table 10-16 below mentions the various regulatory requirements for the vegetable industry.

Table 10-16: Regulatory Requirements for the Vegetables Industry

Regulation	Description
Marketing Act, 1968 (Act No. 59 of 1968)	The Act provides for the introduction of a <ul style="list-style-type: none"> • System of control over the marketing of agricultural products and • Regulates the quantitative control over the import or export of these products.
Plant Breeders' Right Act, 1976 (Act No. 15 of 1976)	The Act regulates the granting of certain rights relating to <ul style="list-style-type: none"> • New varieties of certain kinds of plants, • The protection of such rights and the issue of licences in respect of the exercising of the rights.
Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970)	The Act regulates the subdivision of <ul style="list-style-type: none"> • Agricultural land and • Its use for purposes other than agriculture
Control of Markets in Rural Areas Ordinance, 1965 (Ord. No. 38 of 1965)	The Act encompasses the <ul style="list-style-type: none"> • Regional Support Service and • Agricultural Economics components
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	This Act provides for control over <ul style="list-style-type: none"> • The utilisation of natural agricultural resources in order to: <ul style="list-style-type: none"> ✓ promote the conservation of soil, water sources and vegetation, and ✓ The combatting of weeds and invader plants.
Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)	The Act regulates the <ul style="list-style-type: none"> • Registration of fertilizers, stock feeds, agricultural remedies, stock remedies, sterilising plants and pest control operators. • Provision is also made for control over the acquisition, disposal, sale and use of fertilizers, farm feeds, agricultural remedies and stock remedies.
Co-Operatives Act, 1981 (Act No. 91 of 1981)	The Act regulates the <ul style="list-style-type: none"> • Formation, registration, management and functioning of various types of cooperatives and • Winding-up and dissolution of co-operatives.
Perishable Products Export Control Act, 1983 (Act No. 9 of 1983)	This Act provides for the control of <ul style="list-style-type: none"> • Perishable products intended for export from the Republic of South Africa and • For the continued existence of a statutory board to bring about the orderly and efficient export of perishable products from the Republic.
Agricultural Product Standards Act, 1990 (Act No. 119 of 1990)	This Act provides for <ul style="list-style-type: none"> • Control over the sale and export of certain agricultural products and other related products, as well as the maintenance of certain standards regarding the quality of products and • The packing, marking and labelling thereof.
Agricultural Produce Agents Act, 1992 (Act No. 12 of 1992)	This Act provides for the establishment of <ul style="list-style-type: none"> • An Agricultural Produce Agents Council (AAC), and • Fidelity funds in respect of agricultural produce agents, and • For the control of certain activities of agricultural produce agents. <p>This Act has not been brought into operation in its entirety but will eventually replace the Commission for Fresh Produce Markets Act, 1970 (Act No. 82 of 1970), and the Agricultural Produce Agency Sales Act, 1975 (Act No. 12 of 1975).</p>
Agricultural Credit Act, 1966 (Act No. 28 of 1966)	The Act provides for a <ul style="list-style-type: none"> • System of assistance to persons carrying on or undertaking to carry on farming operations, and



Regulation	Description
	<ul style="list-style-type: none"> Control in respect of assistance rendered.
Agricultural Development Fund Act, 1993 (Act No. 175 of 1993)	This Act provides for the establishment of and control over <ul style="list-style-type: none"> An agricultural development fund for the handling of money received for development.
Consumer Protection Act, 2008 (Act No. 68 of 2008)	This Act mainly protects consumers' rights in terms of products and services for the purpose of promoting a conducive and sustainable marketplace.

From Table 10-16 above, it can be noted that the vegetable industry is governed by a wide array of regulatory requirements. The Agri-Park should, as stated before, establish a compliance committee, which will strive to implement the best management practices in compliance to the various legislations.

It is further vital that the development application requirements for the Agri-Parks is explored and properly addressed as they are mandatory. In accordance with SPLUMA – which governs land use nationally - it is crucial that a development application to be submitted to the Local Municipality before any development can be considered. SDF alignment is of optimal importance while the IDP and Local Municipality Land Use Planning By-law should also guide implementation. Failure to comply with the specific planning and development policies and legislation may cause stunting delays to the process. As such, alignment with each of these documents is of optimal importance before any development of the Agri-Hubs or FPSUs commence. The following pertinent legislation is applicable to a development application:

- Spatial Planning and Land Use Management Act, 16 of 2013
- Mangaung Spatial Development Framework
- Mangaung Integrated Development Plan
- Mangaung Metropolitan Municipality Land Use Planning By-laws

In addition to these the environmental guidelines for sustainable development as outlined within the **National Environmental Management Act 107 of 1998 and it subsequent by-laws** will also need to be adhered to. Once again neglecting this vital pre-development application(s) could halt development in its tracks. As such an environmental practitioner will need to be contacted on a site-to-site basis and based on that findings and relevant processes development will need to be directed accordingly.

10.13 Substitute Products and Services

Substitute products are products that may replace each other in consumption or use, as a result of changing conditions, such as, for example increase in prices, or a change in consumer tastes. This section of the report will focus on substitute products for apples and vegetables.

10.13.1 Apples

The substitute products for apples are cherries and peaches, which will be discussed below.

10.13.1.1 Cherries

Cherries are fruit that generally have the ability to extend the harvest season; cherries are harvested in December, thus, allowing producers to utilise packing houses more efficiently. South Africa produces between 600 and 700



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tons of cherries per annum. In 2014, South Africa produced approximately 676 000 kg of cherries (National Agricultural Market Council, 2015; Fresh Fruit Portal, 2014).

The Free State is one of the largest cherry producers in South Africa; the province produced approximately 90% of the country's cherries. Ficksburg is the largest cherry producing area in the province, and the town is also known for its cherry festivals.



Cherries are a viable alternative product for the Thabo Mofutsanyana District.

10.13.1.2 Peaches

The peach industry contributed approximately 6.5% (R0.8 billion) to South Africa's total gross value of deciduous fruits (R12.7 billion). The peach industry in South Africa relies largely on the processing sector as approximately 67% of the total peaches produced in 2013, were absorbed by the processing market (Department of Agriculture, Forestry, and Fisheries, 2014). In South Africa in 2013, the per capita consumption of deciduous and subtropical fruits was approximately 22.87 kilograms per year.

There are two types of peaches commonly produced in South Africa, namely, cling peaches and dessert peaches. The stone of a cling peach generally clings to the flesh inside of the peach, thus making it difficult to remove without damaging the flesh of the peach. Cling peaches are most often utilised for canning, jams, and jellies. The Free State province does not produce cling peaches. Dessert peaches conversely, have free stones (the stone does not stick to the flesh) and tend to be larger than cling peaches. Dessert peaches are often found in the grocery store, and they can also be utilised for canning purposes, as well as for baking. The Free State (the Xhariep District) produces approximately 10% of the country's dessert peaches.

Peaches can be considered as an alternative product for apples.

10.13.2 Vegetables

The substitute products for vegetables are other vegetables which will be discussed below.

10.13.2.1 Other Vegetables

in general, the consumption of vegetables, is of a routine nature as most consumers tend to consume vegetables as a complement to meat, or fish dishes. However, some vegetables are considered to be staple food items and are thus, consumed by habit.

There is no real substitute for vegetables other than alternative types of vegetables due to the broad availability. A consumer, for example, may substitute potatoes with sweet potatoes within the vegetable category. The impact that substitutes for vegetables might have on the Agri-Park is expected to be minor, particularly due to the relative non-availability of substitutes for vegetables. The Agri-Park model should maintain a diverse vegetable product offering in order to compete with other vegetables available on the market. In addition, producing and processing of staple food vegetables will be a key undertaking in competing against potential substitutes.

10.14 New Entrants and Potential Entrepreneurs



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The Agri-Park project serves to support the growth of small-scale farmers, while also allowing for the participation and inclusion (within the market) of emerging farmers.

Emerging apple and vegetable farmers in the Thabo Mofutsanyana District are mentioned in Table 10-17 below.

Table 10-17: Emerging Apple And Vegetable farmers in the Thabo Mofutsanyana District

#	Farmer	Farm Name	Local Municipality	Apples or Veg.
1	Makholobane Farmers Trust	Zoopjesfontein	Setsoto	Apples and Veg.
2	Mr. Jan Zim	Kyalami	Maluti-A-Phofung	Veg.
3	Mr. Mike Mokoena	Rainfall	Maluti-A-Phofung	Veg.
4	Mr. SM Moloi	Fouriesburg Town lands	Dihlabeng	Veg.
5	Mr. Nyambose and Motsima	Lorelei/Kaallagte	Dihlabeng	Veg.
6	Mr David Khumari	Xaxony	Mantsopa	Veg.
7	S Mbele	Danielsrus	Maluti-A-Phofung	Veg.
8	Diyatalawa	Diyatalawa	Maluti-A-Phofung	Apples and Veg
9	ZNZ Trust	Middlekraal	Mantsopa	Veg.
10	Mr. Lucas Msiza	Gasvrij	Phumelela	Veg.

From Table 10-17 above, it can be seen that there are approximately 10 emerging farmers within the Thabo Mofutsanyana District. two of which will produce apples in addition to other agricultural activities such as beef farming and vegetable farming.

10.15 Societal and Cultural Trends

Societal and cultural trends are movements that communicate to the social and cultural principles and practices within a society, or culture. This section will evaluate the various societal and cultural trends with regard to apples and vegetables in South Africa.

10.15.1.1 Apples

Table 10-18 below, illustrates the societal and cultural trends with regard to the apple industry in South Africa.

Table 10-18: Societal and Cultural Trends, Apples

	Societal Trends	Cultural Trends
Apples	<ul style="list-style-type: none"> Societal movement towards healthy living, Thus, apples are important as they are rich in fibre and vitamin C. Convenient to use as a snack. Largely consumed fruit as they are affordable. Can be used to make alternate products like apple cider vinegar, apple juice etc. Used as a fibre supplement or to help fight natural ageing process. Used to make various South African desserts. 	<ul style="list-style-type: none"> Apples have mythological and religious significance in many cultures, including Indian, Greek and Christian traditions.



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From Table 10-18 above, it can be seen that apples have a pivotal role within various societal trends in South Africa. Apples are considered to be a relatively nutritional fruit and is thus, it forms part of the diet for many individuals which are health conscience. Apples also have a role within cultural trends, as they have mythological and religious value in various cultures.

10.15.1.2 Vegetables

Table 10-19 below, mentions the various societal and cultural trends with regard to the vegetable industry in South Africa.

Table 10-19: Societal and Cultural Trends, Vegetables

	Societal Trends	Cultural Trends
Vegetables	<ul style="list-style-type: none"> • Societal movement towards healthy living; thus, vegetables play a pivotal role in this movement. • Pure and organic food are an ever increasing demand; thus, making vegetables socially popular. • Main source of food for the vegan and vegetarian population. • Convenience in the vegetable industry makes vegetables desirable. • Vegetables are now processed in ways that make it easier for consumers to purchase and prepare such as, chopped, washed, canned, pre-cooked, frozen etc. 	<ul style="list-style-type: none"> • Preparation of many traditional foods and drinks require vegetables such as Zulu traditional beer, “biryani”, and “Ugali” (starchy dish). • A variety of vegetables are used in making traditional chutney and foods indigenous to the various cultures in South Africa. • Traditional medical use of vegetables is a popular trend in South Africa. 80% of people in both Urban and Rural areas consult traditional healers for medical services.

From Table 10-19 above, it can be seen that vegetables have an essential role within various societal trends in South Africa. In a societal context, vegetables play an important role among individuals that are vegetarian, vegan, and health conscious. In a cultural context, vegetables are used to make traditional meals such as “biryani” and “Ugali”.

10.16 SWOT analysis

The major challenges and weaknesses facing the apple and vegetable industries, as well as potential opportunities for development and strengths are summarised in the section below.

10.16.1.1 Vegetables

Table 10-20 below, is the SWOT analysis for the vegetable industry.

Table 10-20: SWOT Analysis of the vegetable Industry

<u>Strengths</u>	<u>Weaknesses</u>
<ul style="list-style-type: none"> • Wide variety of vegetables can be grown • Major economic advantages • Contributor to food security • Highly nutritive products • Availability of natural resources 	<ul style="list-style-type: none"> • Poor farming practices • Non-Standard of product • Limited irrigation resources/capacity • Shortage of skilled workers • Short marketing window (perishable product)



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<ul style="list-style-type: none"> • Proximity to major market • Maximal soil usage 	<ul style="list-style-type: none"> • Small-scale production not competitive • Lack of access to market • Lack of Good Agricultural Practice (GAP) principles • High level of post-harvest losses • Inadequate working capital • Ageing farmer population
Opportunities <ul style="list-style-type: none"> • Intensive production • Employment opportunities • Change in consumer preference (healthy living) • Local labelling (food labelling) • Growing preference for convenience • Employment for women and youth • Increasing demand for fresh produce globally (export market) • Organic production • Cooperative farming (alliances – economy of scale) • Technological advancement 	Threats <ul style="list-style-type: none"> • Increasing input costs • Competition • Extreme weather conditions (drought, hail, frost) • Market limitations • Disease and Pest problems • Barriers to entry • Food safety issues • Consumer habit • Regional competition • Retailer consolidation (preference toward particular producers)

From Table 10-20 above, it can be seen that there are many strengths with regard to the vegetable industry among which include: contribution to food security and proximity to major markets such as Johannesburg and Durban. The weaknesses, however, are, among others, poor farming practices and high level of post-harvest losses.

The opportunities of the vegetable industry, mentioned in Table 10-20 above, are the growing preference for organic and convenience foods such as microwave vegetables and pre-cut soup packs. The threats to the industry however, include, but are not limited to, diseases and pest problems that reduce profits, and the increasing cost of inputs.

10.16.1.2 Apples

Table 10-21 below, is the SWOT analysis for the apple industry.

Table 10-21: SWOT Analysis of the Apple Industry

Strengths <ul style="list-style-type: none"> • Industry's export market is well established • Good reputation in major international markets • High level of investment in technology • Well established traceability systems • Increase in food security • Job creation 	Weaknesses <ul style="list-style-type: none"> • Climatic conditions • Saturation of export market • High input and capital costs • Low level of skills and knowledge of the new entrants
Opportunities <ul style="list-style-type: none"> • New export markets • Increasing demand in Africa and locally 	Threats <ul style="list-style-type: none"> • Increased competition from counterparts in the Southern Hemisphere

	<ul style="list-style-type: none"> • Cost and availability of irrigation water • Increase in input costs • Price (exchange rate) volatility
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From Table 10-21 above, it can be seen that there are many strengths with regard to the apple industry among which include, but which are not limited to an increase in food security and job creation. The weaknesses, however, are, among others, production has a high dependence on climatic conditions and export markets are becoming relatively saturated.

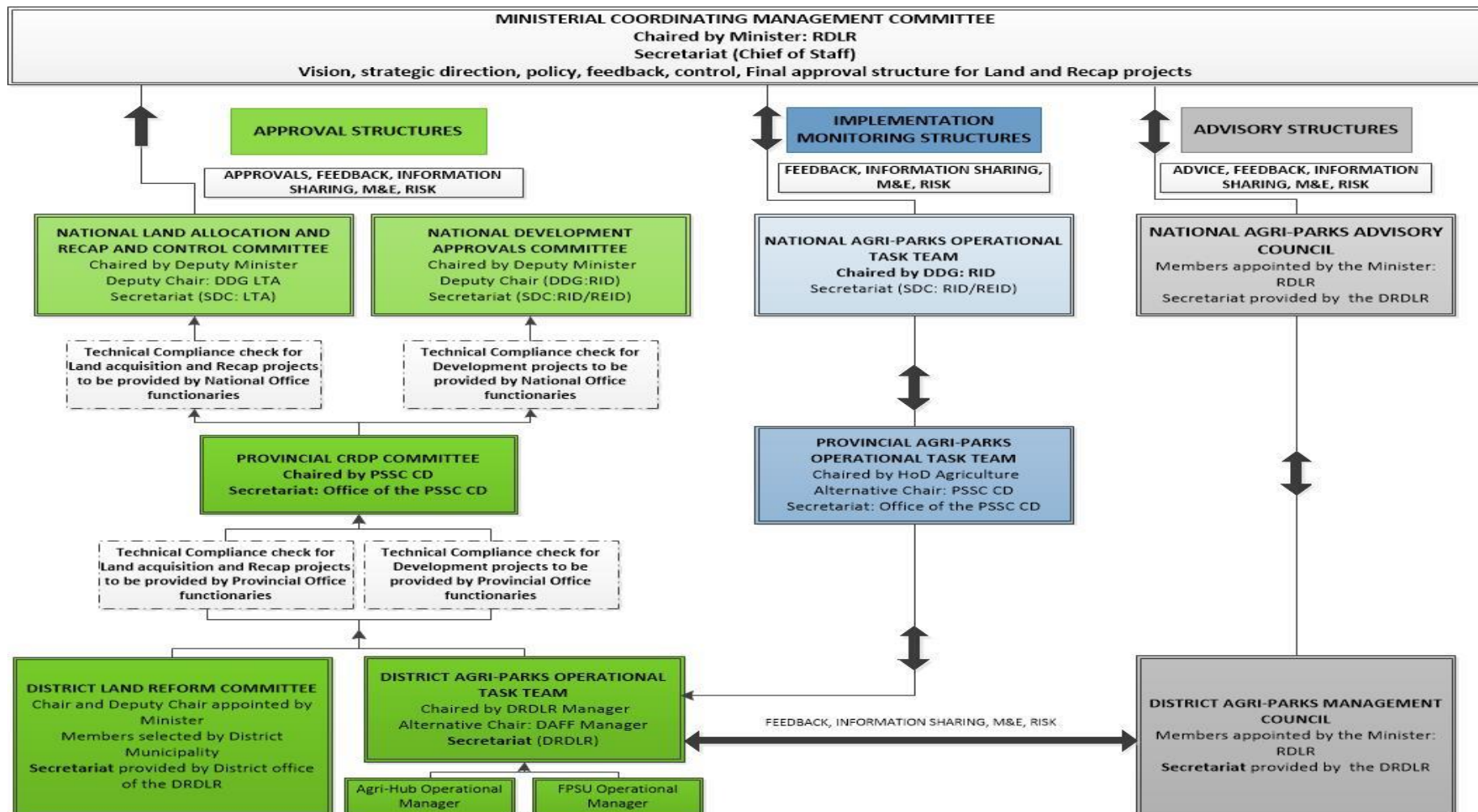
The main opportunity of the apple industry, mentioned in Table 10-21 above, is the increase in access to new export markets such as India, China, and Indonesia, among other countries. The threats to the industry however, include, but are not limited to, an increasing cost of inputs and fluctuations in the South African exchange rate (particularly important since the industry is export orientated).

11 AGRI-PARKS ORGANISATIONAL STRUCTURE

11.1 Introduction

This section describes the proposed organisational structure of the Agri-Park. It shows details of how activities such as task allocation, coordination and supervision are directed towards the successful implementation of the Agri-Park in the TMDM and across South Africa.

Figure 11-1: Organisational Structure



In explaining the organisational structure, the following three sub structures will be considered:

1. The Advisory Structures,
2. The Approval Structures, and
3. The Implementation monitoring structures.

11.2 The Advisory Structures

The main functions of the advisory structures within the Agri-Parks organisational structure are to give advice to the approval structures. The advisory structures that are currently identified are the National Agri-Parks Advisory Council (NAAC) and District Agri-Parks Management Council (DAMC). It is important to note that members of these advisory structures primarily comprise of stakeholders and interested party.

11.3 The National Agri-Parks Advisory Council (NAAC)

The National Agri-Parks Advisory Council (NAAC) reports directly to the minister, and consists of elected representatives of various organisations. Functions of the NAAC may include (as stipulated in *Circular 9 of 2016*):

- To solicit, co-ordinate and advise the Executive, on issues and concerns of the implementation of the Agri-parks Programme;
- To encourage public awareness and education of the Agri-parks Programme;
- To review studies, plans and proposals as may be referred by the Executive and District Agri-parks Management Councils (DAMCs) and the National Agri-parks Operational Task Team, and to provide comments and advice thereon;
- To provide advice on policies, legislation and programmes from the Department of Rural Development and Land Reform (DRDLR) that impact on the Agri-parks Programme;
- To initiate advice on the Agri-parks Programme and implementation of the business plans as referred to by the DAMCs;
- To liaise with the Executive, the Management of the DRDLR, the DAMCs and any other stakeholder involved in the Agri-parks Programme as required; and
- To mediate disputes arising from the DAMCs concerning its operation and/or advice provided to the Department or other bodies that are implementing the Agri-parks programme in a district.

11.3.1 The District Agri-Parks Management Council (DAMC)

The District Agri-Parks Management Council, also referred to as the “voice” of the stakeholders/interested parties in Agri-Parks. The DAMCs like the NAAC consist of representatives from various organisations. The DAMCs main function is to communicate advice from the council members to the NAAC as well as DAPOTT (District Agri-Parks Operational Task Team). Further functions of the DAMC include, but are not limited to the following:

- Assist in identifying new business opportunities within an Agri-park;
- Provide advice on the implementation of the business plans;
- To advise on regulatory compliance with applicable policies and legislation;
- To advise on the alignment with the National Development Plan, Agricultural Policy Action Plan, Provincial Growth and Development Strategies and other development frameworks; and
- To assist in the identification, evaluation and monitoring of risks related to projects.

11.4 The Approval structures

These structures are responsible for approvals, feedback, information sharing, monitoring and evaluation regarding land reform activities and Agri-Park project approval. To explain the functioning of the approval structure it essential to understand that in terms of the Agri-Parks organisation the project approval process is started on the district level.

The approval structures that form part of the Agri-Parks include the DAPOTT, District Land Reform Committee, Provincial CRDP (Comprehensive Rural Development Programme) Committee, National Development Approvals Committee (NDAC), and the National Land Allocation and Recapitalisation Control Committee (NLARCC).



Note: It is understood that both the DLRCs and DAMCs can recommend projects/producers to be considered to be part of Agri-Parks.

11.4.1 The District Agri-Parks Operations Task Team (DAPOTT)

The DAPOTT as part of the Agri-Parks Approval Structure receives advice from the DAMC as well as information from PAPOTT and NAPOTT. DAPOTT appears to have the role to interpret all the information and acting as a monitoring agent to advise on projects and land reform beneficiaries to be included in the Agri-Parks. Some of the functions of the DAPOTT include but are not limited to:

- To provide technical support and guidance for implementation;
- To provide oversight of the implementation of the district Agri-parks business plan;
- To monitor expenditure against the district Agri-parks business plan;
- To identify all district projects that contribute to the district Agri-parks business plan and to compile a district project register (all DRDLR branches);
- To monitor project implementation against the approved project plan and district Agri-parks business plan;
- To participate in the identification and packaging of local development projects in support of the mandate of the Department of Rural Development and Land Reform;
- To advise on proposals that should be submitted to the Provincial CRDP Committee; and
- To provide an oversight function and monitor the implementation of the Government's Rural Development Programmes.

11.4.2 The District Land Reform Committees (DLRC)

The District Land Reform Committees (DLRCs), are primarily concerned with land reform in general. However, the DLRCs have additional functions linked to Agri-Parks:

- To identify the district projects contributing to Agri-Parks business plans; and
- To align projects and beneficiaries with the identified sites for Agri-Parks.

The abovementioned functions are however secondary to the following main functions:

- Identify farms suitable for acquisition by Government (the target is 20% of agricultural land per district);
- Identify and interview potential candidates for farm allocation;
- Advise the Minister on the strategic support needs of identified farms and support needs of recommended candidates; and
- Advise the Minister on resolving land rights conflicts, as might be referred to a DLRC by him/her.

Note: Projects and or beneficiaries identified by the DLRCs and DAPOTT, are subjected to technical compliance checks before being passed onto the PCRDP

11.4.3 The Provincial Comprehensive Rural Development Programme Committee

The PCRDP functions as the provincial approval structure that passes projects/beneficiaries identified by the DLRCs and DAPOTTs onto the National Government structures. Regarding this specific structure within the Agri-Parks organisational structure the name of this structure may have changed to the PJSC (unknown) as suggested in a different schematic (see below). The projects/beneficiaries identified are then catalogued into a Provincial Project Register that contributes to the formulation of a provincial spatial target plan. The functions of the PCRDP include:

- To provide inputs to assist in the compilation of the provincial spatial targeting plan, as provided by the districts;
- To recommend all development, land acquisition and tenure projects in line with a Delegation of Authority Framework to the NLARCC and NDAC through its technical committees; and



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- To provide an oversight function in relation to the work of the Provincial Technical Committees and District CRDP Committees, to eliminate disjuncture and to ensure alignment of projects and funding at a provincial level.

The PCRDP can also include specialists if specialist skills are required to inform decisions to be made regarding project selection.

Projects and or beneficiaries chosen by the PCRDP are subjected to technical compliance checks before being passed onto the NLARCC and the NDAC.

11.4.4 The National Land Allocation and Recapitalisation Control Committee NLARCC

The function of the NLARCC is to recommend land acquisition and recapitalisation projects to the MCM (Ministerial Coordinating Management committee). The full list of functions of the NLARCC is as follows:

- To provide inputs to assist in the compilation of the national spatial targeting plan as provided by the provinces;
- To identify all national projects as per operational plans and compile a national project register
- To approve land acquisition, tenure and recapitalisation and development projects in line with a delegation of authority framework; and
- To provide an oversight function in relation to the work of the National Technical Committee and Provincial Committees, to eliminate disjuncture and to ensure alignment of projects and funding at a national level.

Looking at the above function, the NLARCC and PCRDP have the same functions but only on different levels within the government.

11.5 The National Development Approvals Committee (NDAC)

The main function of the NDAC is to approve all the national development projects and to give oversight to the PCRDP committees and the National Technical Committees (NTCs part of the land reform approval process). The functions of the NDAC are almost the same as the functions of the NLARCC, but the NDAC does not play a role in the identification of projects or the approval of land acquisition, tenure recapitalisation and development projects.

11.6 The Agri-Hub Operational Manager

The main function of the Agri-Hub Operational Manager is to oversee the implementation of the Agri-Hub. Such person is to be appointed at the district level and should report directly to the district operational task team.

11.7 The FPSU Operational Manager

The main function of the FPSU Operational Manager is to oversee the implementation of the FPSU. Such person is to be appointed at the district level and should report directly to the district operational task team.

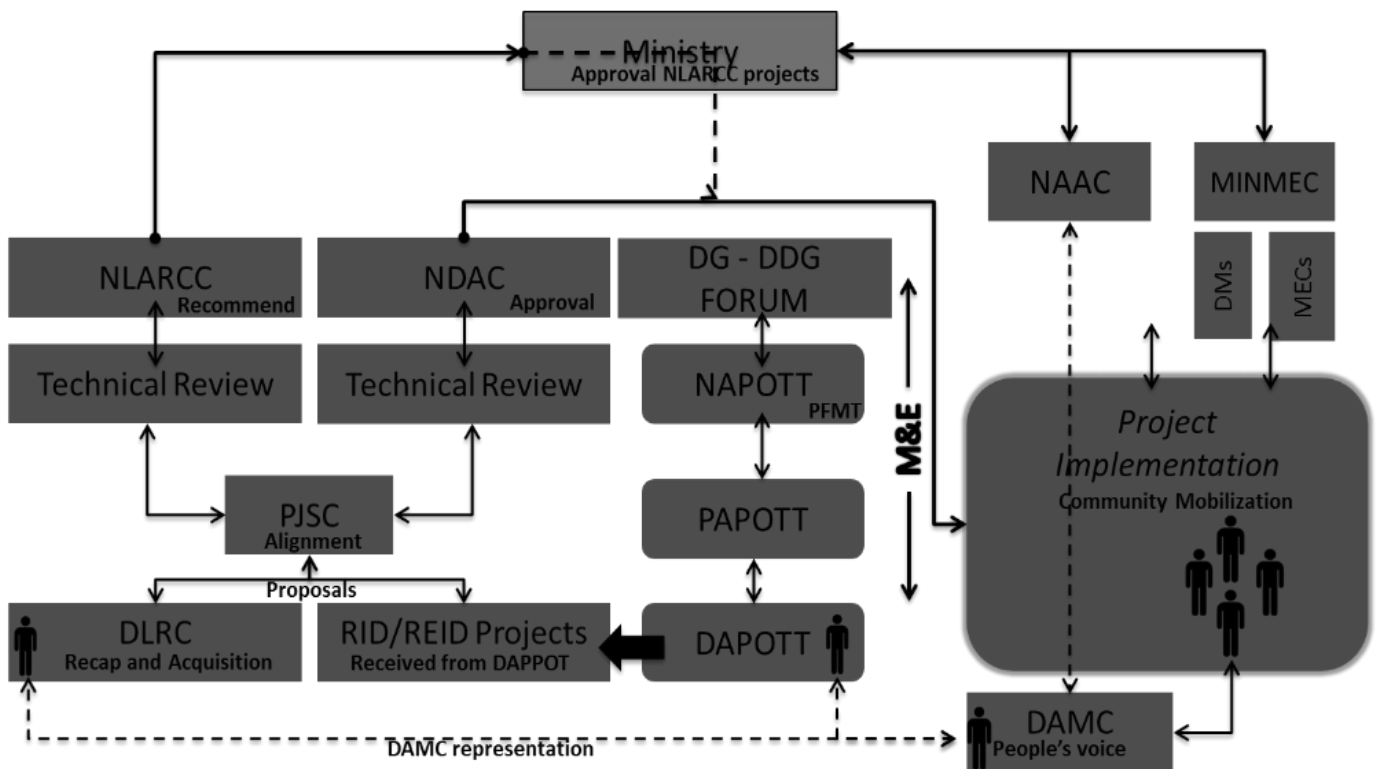
11.8 Implementation and Monitoring Structures

Currently there are only two structures within the Agri-Parks organisational structure that are solely dedicated to implementation and monitoring, the PAPOTT (provincial Agri-Parks Operation Task Team). PAPOTT and NAPOTT are however not exclusively dedicated to Agri-Parks, these two structures also play a role in the monitoring and implementation of other programmes that can influence the Agri-Parks programme.

Figure 11-2: The Agri-Park Implementation and Monitoring Structures



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11.8.1 The National Agri-Parks Operations Task Team (NAPOTT)

The NAPOTT has various functions that are focussed towards on the operation of Agri-Parks both in terms of implementation and on-going operation. These functions include but are not limited to:

- Developing the National Agri-Parks Plan;
- Contributing to the development guidelines of Agri-Parks;
- Monitoring provincial business plans against the abovementioned guidelines;
- Monitoring budget alignment as set out in the business plans;
- Giving inputs to assist in the compilations of provincial Agri-Park business plans; and
- Managing project roll out of Agri-Parks in line with approved project plans nationwide.

11.8.2 The Provincial Agri-Parks Operations Task team (PAPOTT)

The main functions of the PAPOTT is to coordinate and facilitate integrated implementation of Agri-Parks by providing technical support regarding planning and implementation, giving inputs to the compilations of Agri-Parks Business plans etc.

Note: PAPOTT will only remain operational until the Agri-Parks programme has reached a sustainable level, then PAPOTT will be integrated with the PCRDP.



12 AGRI-PARK CONCEPT DEVELOPMENT

Investment strategies for the development of Agri-Parks generally imply the use of a wide range of partnerships, approaches, and tools. In developing and emerging economies, the concept of Agri-Parks has gained momentum as innovative attempts aimed at applying spatial planning principles in these countries have begun to yield good results. In order to boost economic activities such as agriculture and agro-processing in specific spatial areas, the use of “economic corridors” are important. An “economic corridor” is defined as a conceptual and programmatic model used for structuring socio-economic and physical responses to develop an area that builds upon a collection of economic activities and people in co-operation with transport infrastructure (Nogales, 2014). The Agri-Park concept makes use of economic corridors, and in this section the Agri-Park concept will be evaluated along with the Agri-Parks alignment to economic corridors. The section will also cover the proposed number of Agri-Hubs, RUMCs, and FPSUs for the Thabo Mofutsanyana District and the product flows for each of the selected commodities.

12.1 Introduction the Agri-Park Concept

The Agri-Park concept consists of four elements, namely: primary production (which consists of small-scale/emerging farmers and commercial farmers), Farmer Production Support Units (FPSUs), the Agri-Hub, and the Rural-Urban Marketing Centre.

In order to state how many FPSUs, and Agri-Hubs are required per District, it is important to discover whether or not a particular District is considered an area of low or high population density. An area that has more than 42 individuals per km² is considered to be a high density area, while an area that has less than 42 individuals per km² is considered to be a low density area. Thabo Mofutsanyana is an area of low population density as there are only 22 individuals per km². Thus, the proposed catchment area for the FPSUs and Agri-Hubs in areas of low population density are as follows (refer to Table 2-1 in Chapter 2 for more information):

- FPSUs catchment area: 30km
- Agri-Hubs catchment area: 120km

The Thabo Mofutsanyana District has an area of approximately 33 269 km², taking into consideration the proposed catchment areas, it can be seen that, as a suggestion, the Thabo Mofutsanyana District will need approximately:

- 12 FPSUs,
- one Agri-Hub, and
- one RUMC, located in Bloemfontein (there will only be one RUMC for the Free State Province).

Thus, each commodity will have approximately four FPSUs which will serve as storage, training, extension services, etc.; however, each commodity will have one main FPSU that will conduct any first-line processing. The core focus of their support should be on small-scale/emerging farmers. The FPSUs will have limited sorting, packaging, storage, and processing for local markets with through-put of excess products to Agri-hubs. The proposed development concepts for each of the selected commodities are discussed in the flowing section.

12.2 Proposed Development Concept for Dairy

The proposed development concept for dairy will be discussed in this section of the report. Table 12-1 below, illustrated the product flow for dairy through small-scale/emerging farmers and commercial farmers, FPSUs, the Agri-Hub, and RUMCs.



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Table 12-1: Development Concept for Dairy

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
Key Role & Function	<p>Primary production of raw milk.</p> <p>Commercial farmers can either utilise the processing capabilities of the Agri-Hub at a specified fee, or the farmers can sell their produce to the Agri-Hub. Furthermore, the commercial farmers can also utilise the market access of the RUMC.</p>	<p>The FPSU will serve the following services:</p> <ul style="list-style-type: none"> • Provide input supplies, • Training and extension support, • Mechanisation support, • Local logistics support, • Primary processing of the milk, • Packaging, • Storage, • and Processing for local markets, excess products will be transferred to the Agri-Hub. 	<p>The Agri-hub will provide the play a role in the following functions:</p> <ul style="list-style-type: none"> • Some training (if required), • logistics, • Agro-Processing, • Storage/warehousing facilities, • packaging facilities, • branding (optional). 	<p>The RUMC will provide the following services:</p> <ul style="list-style-type: none"> • Market intelligence, • Assistance to small-scale farmers and processors in managing a nexus of contracts, • Large warehousing and cold storage facilities.
Location	<p>All small-scale and emerging farmers involved in dairy production within the Thabo Mofutsanyana District may participate in the primary production.</p>	<p>Dairy farmers will be supported by all the FPSU(s) that would be situated in the Thabo Mofutsanyana District; however, the main FPSU for dairy production should be located within the Maluti-A-Phofung Local Municipality, since the majority of the emerging dairy farmers are concentrated in this area. the Agri-Hub is also located in the Maluti-A-Phofung Local Municipality.</p> <p>The FPSUs will have catchment areas of approximately 30km in low population density areas, and 10km in high population density areas.</p>	<p>As proposed by the province, the Agri-Hub is to be located in Tshiame in the Maluti-A-Phofung Local Municipality.</p> <p>The Agri-Hub will have catchment areas of approximately 120km in low population density areas and 60km in high population density areas.</p>	<p>It is proposed that the RUMC be located in Bloemfontein since this is the main economic hub of the Province.</p> <p>However, in later phases of the Agri-Park, another RUMC can be established in either Harrismith or Phuthaditjhaba.</p>
Human Resources	<p>Small-Scale and emerging farmers will have on-site workers that will participate in farming practices and filling milk canisters.</p> <p>The number of jobs created can vary depending on the capacity and level of farming practiced. Using a labour multiplier ratio of 1:0.0286, it can be estimated that</p>	<p>The FPSU will provide the following HR/HR facilities;</p> <ul style="list-style-type: none"> • Agricultural extension officer / support office; • Health and safety officers, • Machine operators / Local mechanisation centre and • Workshops. 	<p>The Agri-Hub will provide the following HR:</p> <ul style="list-style-type: none"> • Administrative manager, • Quality control personnel, • Staffs to manage the Agro-Processing facilities, • Health and safety personnel, • Research and Development personnel, and • Training personnel. 	<p>The RUMC will provide the following HR:</p> <ul style="list-style-type: none"> • I.T. expert / personnel, • Administrative manager, • Training personnel, • Marketing agents. <p>The marketing agents will serve to facilitate market linkages, facilitate contracts with wholesalers and major retail outlets,</p>

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	<p>approximately 1 job will be created for every 40 hectares of land.</p>	<p>At the FPSU level, various jobs can be created such as (in the initial phase):</p> <ul style="list-style-type: none"> Administrative Managers, Assistant administrative manager, Quality-control technician, Mechanical superintendent, Skilled workers for processing operations, Skilled workers (drivers, mechanical and electrical maintenance), Unskilled workers for processing, Unskilled workers for maintenance and transportation, and Indirect labour. <p>Thus, roughly a minimum of between 14 and 20 jobs will be created by the main dairy FPSU in the initial phase, excluding the indirect jobs.</p>	<p>The Agri-Hub has the potential of creating various jobs. At the initial level it is estimated that the following jobs will be created:</p> <ul style="list-style-type: none"> Administrative Managers, Assistant administrative manager, Quality-control technician, Mechanical superintendent, Skilled workers for processing operations, Unskilled workers for processing, Unskilled workers for maintenance and transportation, Office clerks, Indirect labour. <p>The Agri-Hub can thus, create a minimum of between 17 and 25 jobs in the initial phase, excluding indirect labour.</p>	<p>and also to gather information on prices at fresh produce market that would be communicated to the Agri-Hub and FPSU).</p> <p>The RUMCs will create more jobs such as:</p> <ul style="list-style-type: none"> Administrative Managers, Assistant administrative manager, Quality-control technician, Foremen for maintenance and transport, Office Clerk, Indirect labour.
Training	<p>Small-Scale and emerging farmers would require training on:</p> <ul style="list-style-type: none"> best farm practices, The use of tools and equipment, Training on how to interpret market information and ICT. <p>The extension officers that are familiar with dairy production are well positioned to render this type of training.</p> <p>Also, training can be provided by well-established commercial dairy farmers through a mentorship programme.</p> <p>Extension officers through the DAFF can also organise agricultural expos where farmers can express</p>	<p>The workers in the FPSUs will require training on:</p> <ul style="list-style-type: none"> Primary processing of milk. Quality management, Training on market information and ICT. Training on safety practices. 	<p>Specific Agri-Park workers will need various forms of training. Further processing staff will require some of the following training on:</p> <ul style="list-style-type: none"> Operating various machinery, Safety measures, and Quality control. 	<p>The RUMCs staff will need training on the following aspects:</p> <ul style="list-style-type: none"> Market analysis, Supply chain logistics, Trading (locally and internationally), Use of various market programmes.

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	their concerns and receive training (for example, one-day workshops).			
Key Products/ Services	<p>Small-Scale and emerging farmers will participate in the following activities:</p> <ul style="list-style-type: none"> • Purchase or breeding of dairy cows (with the assistance of the FPSUs). • Feeding of cows • Milking: <ul style="list-style-type: none"> ✓ Dairy farmers have to supply a minimum of 1000 litres of milk every two days to be economically feasible, if this minimum is not met, it is suggested that the farmers form a collective group in order to meet the minimum requirement. • Fill milk canisters that will be collected every two days. <p>The key product that will be produced by the smallholder farmers is:</p> <ul style="list-style-type: none"> • Raw milk 	<p>The FPSUs will participate in the following activities:</p> <ul style="list-style-type: none"> • Purchasing or breeding of dairy cows for smallholder farmers. • Delivery of cows and inputs (such as feed, canisters, etc.) to smallholder farmers. • Veterinary services. • Collection of raw milk. • Transportation to FPSUs that will process (primary processing) the milk. • Some quality control. • Some packaging of mainly fresh milk for the local market and small retail outlets. • Package canisters that will be transported to the Agri-Hub for further processing. <p>The key product that will be produced by the FPSU is:</p> <ul style="list-style-type: none"> • UHT milk and/or pasteurised milk 	<p>The Agri-hub will participate in the following activities:</p> <ul style="list-style-type: none"> • Further processing. • Further quality control. • Packaging of the various dairy goods. • Storage of products. • Some marketing. • Transportation of products to the RUMC. <p>The key products that will be produced by the Agri-Hub include:</p> <ul style="list-style-type: none"> • yoghurt, • cheese, • butter, • maas, • flavoured milk, • etc. 	<p>The RUMCs will participate in the following activities:</p> <ul style="list-style-type: none"> • Collection of final products from the Agri-Hub. • Marketing and distribution of final products to different wholesalers and major retail outlets. • Exporting of final products. • Bulk storage of final products.
Infrastructure & Equipment	<p>The equipment that will be required (unless stated as optional) by all small-scale and emerging farmers that meet the minimum requirement or the collective groups of farmers, are as follows:</p> <ul style="list-style-type: none"> • Buckets, • Canisters, • Portable milking machine (optional), • Feed Grinder (optional), • Ropes, • Tagging equipment (optional), • Chains, • Water pipes, etc. 	<p>The equipment and infrastructure that will be required by the FPSUs are as follows:</p> <ul style="list-style-type: none"> • Transport (e.g. Bakkie or pick-up vehicles), • Trolley/trailer/ attachment for tractor. • Tractor. • Milk receiving tank/unit, • Processing equipment such as milk pasteuriser and homogenisers will be required for primary processing. • Generators (storage facilities). • Cold storage facilities. • Mist Cooling System, 	<p>The Agri-Hub will require the following equipment and infrastructure:</p> <ul style="list-style-type: none"> • Administrative facilities, • Agro-Processing facilities, • Packaging facilities, • Quality control facilities, • Agricultural input distribution and sales centre, • Training centre, • Logistics and transport facility, • Milk receiving tank/unit, • Deaerator System, • Mist Cooling System, • Milk separator 	<p>The RUMC will require the following infrastructure and equipment:</p> <ul style="list-style-type: none"> • Large warehouses/ holding facilities. • Cold storage facilities. • Administrative facilities/ information centre. • Forklift, • General Packaging materials, • Vehicles with cool storage capability.

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
		<ul style="list-style-type: none"> Pressure washer. 	<ul style="list-style-type: none"> Fermenters (sour dairy products), Automated cheese and curd vats, Pre-Presses, and other presses (cheese), Culture fermenters, Clean-In-Place units, Brining equipment, Cooling devices (e.g. ice battery, air cooler, etc.), Automatic filling machines, Packaging equipment (cartons, boxes, etc.) 	
Logistics	<p>Small-Scale and emerging dairy farmers that do not meet the minimum requirement should be organised into groups. Each group should have a group head that will take the role of communicating information from the farmers to the FPSU with regard to milk production.</p> <p>This group heads should also have small offices that would serve as collection centres. A certain time of the day, for every two days, should be assigned for collection of raw milk.</p> <p>These collection centres will also serve as an input collection centres (FPSUs can supply inputs to the centre) which farmers can utilise.</p> <p>Commercial farmers can also utilise the logistic services of the FPSUs at a specified fee.</p>	<p>The FPSUs should organise primary collection centres. Transport should be arranged to collect milk from various farms or a collection centre (in the case of collective groups).</p> <p>The transportation will also assist in the distribution of milk to the small retail outlets and Agri-Hub.</p>	<p>The same transport will be used to collect milk from the FPSUs to the Agri-Hub for further processing.</p>	<p>The same cold storage transport will be used for distribution of final products to wholesales and major retail outlets.</p>
Technology/ ICT	<p>Small-Scale and emerging farmers can use various modern tools and mobile devices/applications in order to receive information from the RUMC on weather</p>	<p>FPSUs can utilise a number of technologies to enhance communication between farmers, FPSUs, and the Agri-Hub.</p>	<p>The Agri-Hub can use various technologies to maintain communication between the FPSUs and the RUMCs.</p>	<p>The RUMCs can utilise modern technology to ensure communication between the Agri-Hub and the RUMCs.</p>



Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	<p>forecast, disease control, price changes, etc.</p> <p>Some of the technologies available to the small-scale and emerging farmers are:</p> <ul style="list-style-type: none"> • SimJunior, • Rolling molasses lick, • Solar technology • Agrimilk, • Auto-refill watering troughs, • Cattle breeds App. 	<p>Some of the technologies that are available to the FPSUs are:</p> <ul style="list-style-type: none"> • Agrimilk, • Accord, • Artificial insemination, • Solar technology, • Plan-A-Head Dairy Management Software and System, • AgriSuite Online. 	<p>Some of the technologies that the Agri-Hub can utilise are as follows:</p> <ul style="list-style-type: none"> • Solar technology, • Mobile devices, • Accord, • Plan-A-Head Dairy Management Software and System. 	<p>Some technologies that can be utilised by the RUMCs are:</p> <ul style="list-style-type: none"> • Information Data base. • Solar technology. • Mobile devices.

From Table 12-1 above, it can be seen that each of the four key elements (small-scale/emerging farmers and commercial farmers, FPSUs, the Agri-Hub, and the RUMCs) play different roles in the product flow of dairy products. Small-Scale/emerging farmers and commercial farmer's key role is the primary production of milk. The key role and function of FPSUs is to provide support and services to small-scale and emerging farmers, while the role and function of the Agri-Hub is to provide processing, storage, and packaging facilities for farmers. The RUMC's key role will be to provide market intelligence and large-scale storage of goods that will be sold locally and abroad.

Each of the four elements will have key activities and products; the small-scale/emerging farmers and commercial farmers will participate in the care and grooming of dairy cows to ensure the cows are healthy and free of illness and disease. The main product that will be provided by the farmers is raw milk. The FPSU will provide help to the farmers such as, but not limited to, engaging in the purchase or breeding of dairy cows, providing veterinary services, and the collection of milk canisters from farmers. The main dairy FPSU will conduct first-line processing of milk such as heat treatment for milk that will be sold to local retailers. The Agri-Hub will participate in various agro-processing activities and will ultimately produce goods such as, for example, flavoured milk, cheese, and butter. The RUMC's key activity will be to provide market related information to farmers, FPSUs, and the Agri-Hub.

Table 12-1 above, also mentions the various locations, Human Resources, infrastructure and equipment, training, logistics, and technologies/ICT's related to each of the four elements throughout the product flow.

12.3 Proposed Development Concept for Dry Beans

Table 12-2 below illustrates the proposed development concept for dry beans. The product flow for dry beans through small-scale/emerging farmers and commercial farmers, FPSUs, the Agri-Hub, and RUMCs are mentioned as well.



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Table 12-2: Development Concept for Dry Beans

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
Key Role & Function	<p>Primary production of dry beans.</p> <p>Commercial farmers can either utilise the processing capabilities of the Agri-Hub at a specified fee, or the farmers can sell their produce to the Agri-Hub. Furthermore, the commercial farmers can also utilise the market access of the RUMC.</p>	<p>The FPSU will serve the following services:</p> <ul style="list-style-type: none"> • Provide input supplies, • Help with planting seeds and the harvesting of beans. • Training and extension support, • Mechanisation support, • Local logistics support, • Washing and destoning, • Drying, • Packaging, • Storage, • and Processing for local markets, excess products will be transferred to the Agri-Hub. 	<p>The Agri-hub will provide the play a role in the following functions:</p> <ul style="list-style-type: none"> • Some training (if required), • logistics, • Agro-Processing, • Storage/warehousing facilities, • Packaging facilities, • Branding (optional). 	<p>The RUMC will provide the following services:</p> <ul style="list-style-type: none"> • Market intelligence, • Assistance to small-scale farmers and processors in managing a nexus of contracts, • Large warehousing and cold storage facilities.
Location	<p>All small-scale and emerging farmers involved in dry bean production within the Thabo Mofutsanyana District may participate in the primary production.</p>	<p>All the FPSUs situated in the Thabo Mofutsanyana District will provide support to the dry bean farmers however the main FPSU for dry bean production should be located in Bethlehem as it is the central point of the majority of dry bean production.</p> <p>The main dry bean producing areas in the Free State are Bethlehem, Harrismith, Kroonstad, and Fouriesburg).</p> <p>The FPSUs will have catchment areas of approximately 30km in low population density areas, and 10km in high population density areas.</p>	<p>The Agri-Hub is to be located in Tshiame in the Maluti-A-Phofung Local Municipality, as by proposed the province.</p> <p>The Agri-Hub will have catchment areas of approximately 120km in low population density areas, and 60km in high population density areas.</p>	<p>It is proposed that the RUMC be located in Bloemfontein since this is the main economic hub of the Province.</p> <p>However, in later phases of the Agri-Park, another RUMC can be established in either Harrismith or Phuthaditjhaba.</p>
Human Resources	<p>Small-Scale and emerging farmers will have on-site workers, which will participate in farming practices.</p> <p>The number of jobs created can vary depending on the capacity and level of farming practiced. Using a labour multiplier ratio of 1:0.01</p>	<p>The FPSU will provide the following HR/HR facilities;</p> <ul style="list-style-type: none"> • Health and safety officers, • Agricultural extension officer / support office; • Machine operators/Local mechanisation centre and • Workshops. 	<p>The Agri-Hub will provide the following HR:</p> <ul style="list-style-type: none"> • Health and safety personnel, • Administrative manager, • Quality control personnel, • Staffs to manage the Agro-Processing facilities, 	<p>The RUMC will provide the following HR:</p> <ul style="list-style-type: none"> • I.T. expert / personnel, • Administrative manager, • Training personnel, • Marketing agents. <p>The RUMCs will create more jobs such as:</p> <ul style="list-style-type: none"> • Administrative Managers,



Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	<p>thus, it can be estimated that approximately 1 job will be created for every 100 hectares of land.</p>	<p>At the FPSU level, various jobs can be created such as (in the initial phase):</p> <ul style="list-style-type: none"> • Administrative Managers, • Assistant administrative manager, • Mechanical superintendent, • Quality-control technician, • Skilled workers for machinery operation, • Skilled workers (drivers, mechanical and electrical maintenance), • Unskilled workers for maintenance and transportation, and • Indirect labour. <p>Thus, roughly a minimum of between 12 and 25 jobs will be created by the main dry bean FPSU in the initial phase, excluding the indirect jobs.</p>	<ul style="list-style-type: none"> • Research and Development personnel, and • Training personnel. <p>The Agri-Hub has the potential of creating various jobs. At the initial level, it is estimated that the following jobs will be created:</p> <ul style="list-style-type: none"> • Administrative Managers, • Assistant administrative manager, • Quality-control technician, • Mechanical superintendent, • Skilled workers for processing operations, • Unskilled workers for processing, • Unskilled workers for transportation, • Office clerks, • Indirect labour. <p>The Agri-Hub can thus, create a minimum of between 12 and 25 jobs in the initial phase, excluding indirect labour.</p>	<ul style="list-style-type: none"> • Assistant administrative manager, • Quality-control technician, • Foremen for maintenance and transport, • Office Clerk, • Indirect labour.
Training	<p>Small-Scale and emerging farmers would require training on:</p> <ul style="list-style-type: none"> • Best farm practices, • The use of tools and equipment, • Fertiliser application, • Irrigation application, • Training on how to interpret market information and ICT. <p>The extension officers (from organisations) that are familiar with dry bean production are well positioned to render this type of training.</p> <p>Training can also be provided by well-established commercial dry bean farmers through a mentorship programme.</p>	<p>The workers in the FPSUs will require training on:</p> <ul style="list-style-type: none"> • Quality management, • Training on market information and ICT. • Training on the operation of machinery. • Training on safety practices. 	<p>Specific Agri-Park workers will need various forms of training. Further processing staff will require some of the following training on:</p> <ul style="list-style-type: none"> • Operating various machinery, • Safety measures, and • Quality control. 	<p>The RUMCs staff will need training on the following aspects:</p> <ul style="list-style-type: none"> • Market analysis, • Supply chain logistics, • Trading (locally and internationally), • Use of various market programmes.



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Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
Key Products/ Services	<p>Small-Scale and emerging farmers will participate in the following activities:</p> <ul style="list-style-type: none"> • Soil preparation. • Monitoring the growth of the dry beans, • Pest control, • General care of soil and crops (fertiliser, turning soil, etc.) <p>Minimum requirements: small-scale and emerging farmers have less than 8 hectares¹⁷ of land should either acquire more land or join a collective group of farmers in order to be economically sustainable.</p> <p>The key product that will be produced by the smallholder farmers is:</p> <ul style="list-style-type: none"> • Raw dry beans 	<p>The FPSUs will participate in the following activities:</p> <ul style="list-style-type: none"> • Purchasing of good quality seeds for smallholder farmers. • Delivery of seeds and inputs (such as tools, fertiliser, etc.) to smallholder farmers. • Sowing of seeds for farmers. • Harvesting of dry beans once grown. • Transportation to FPSUs that will process (primary processing) the dry beans. • Some quality control. • Some packaging for the local market and small retail outlets. • Package the rest of the dry beans into crates that will be transported to the Agri-Hub for further processing. <p>The key products that will be produced by the FPSU are:</p> <ul style="list-style-type: none"> • Washed and destoned dry beans ready for consumption or further processing. 	<p>The Agri-hub will participate in the following activities:</p> <ul style="list-style-type: none"> • Further processing. • Further quality control. • Packaging of dry beans into cans, packets, jars, etc. • Storage of products. • Some marketing. • Transportation of products to the RUMC. <p>The key products that will be produced by the Agri-Hub include:</p> <ul style="list-style-type: none"> • Canned beans • Frozen beans • Bean flour, • Liquidised beans • etc. 	<p>The RUMCs will participate in the following activities:</p> <ul style="list-style-type: none"> • Collection of final products from the Agri-Hub. • Marketing and distribution of final products to different wholesalers and major retail outlets. • Exporting of final products. • Bulk storage of final products.
Infrastructure & Equipment	<p>The equipment that will be required (unless stated as optional) by all small-scale and emerging farmers that meet the minimum requirement or the collective groups of farmers, are as follows:</p> <ul style="list-style-type: none"> • Farming tools such as a spade, rake, hoe, etc. • Fertiliser, • Weed control, • Pest control equipment, 	<p>The equipment and infrastructure that will be required by the FPSUs are as follows:</p> <ul style="list-style-type: none"> • Transport (e.g. Bakkie or pick-up vehicles), • Trolley/trailer/ attachment for tractor. • Tractor. • Harvester, • Planter, • Conditioning (remove foreign objects) 	<p>The Agri-Hub will require the following equipment and infrastructure:</p> <ul style="list-style-type: none"> • Administrative facilities, • Agro-Processing facilities, • Packaging facilities, • Quality control facilities, • Agricultural input distribution and sales centre, • Training centre, 	<p>The RUMC will require the following infrastructure and equipment:</p> <ul style="list-style-type: none"> • Large warehouses/ holding facilities. • Storage facilities. • Administrative facilities/ information centre. • Forklift, • General Packaging materials, • Vehicles.

¹⁷ Reasoning for a minimum of 8 hectares of land: approximately a minimum of 2.5 tons of dry beans can be produced on a hectare of land, a ton of dry beans costs R12 000. Thus, a farmer with one hectare of land may only make a profit of R4 000 (after taking into account the costs such as water, electricity, fertiliser, etc.). The maximum that can be earned on a hectare of land, excluding costs, are R30 000; thus, if a farmer has 8 hectares of land and makes R4 000 profit per hectare, the total profit will be R32 000. Therefore, the minimum hectares of land are 8 hectares.

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	<ul style="list-style-type: none"> Water pipes, etc. 	<ul style="list-style-type: none"> Dry bean cleaning equipment (such as a flotation/destoning washer or vibro cleaner destoner), Silo storage facilities. Pressure washer. 	<ul style="list-style-type: none"> Logistics and transport facility, Destoning washer, Blanching of beans Brine or sauce tanks, Oven (to heat cooked/ blanched beans), Grinder (to make bean flour) Automatic filling machines, Canning machine, Packaging equipment (cartons, boxes, etc.) 	
Logistics	<p>Small-Scale and emerging farmers which do not meet the minimum requirement should be organised into groups. Each group should have a group head that will take the role of communicating information from the farmers to the FPSU with regard to dry bean production.</p> <p>These group heads should also have small offices that would serve as collection centres. A certain time of the day during the harvest season should be assigned for collection of dry beans.</p> <p>This collection centres will also serve as an input collection centres (FPSUs can supply inputs to the centre) which farmers can utilise.</p> <p>Commercial farmers can also utilise the logistic services of the FPSUs at a specified fee.</p>	<p>The FPSUs should organise a primary logistics collection centre. Transport should be arranged to collect dry beans from various farms or a collection centre (in the case of collective groups).</p> <p>The transportation will also assist in the distribution of dry beans to the small retail outlets and Agri-Hub.</p>	<p>The same transport will be used to collect dry beans from the FPSUs to the Agri-Hub for further processing.</p>	<p>The same transport will be used for distribution of final products to wholesales and major retail outlets.</p>
Technology/ ICT	<p>Small-Scale and emerging farmers can use various modern tools and mobile devices/applications in order to receive information from the RUMC on weather</p>	<p>FPSUs can utilise a number of technologies to enhance communication between farmers, FPSUs, and the Agri-Hub.</p>	<p>The Agri-Hub can use various technologies to maintain communication between the FPSUs and the RUMCs.</p>	<p>The RUMCs can utilise modern technology to ensure communication between the Agri-Hub and the RUMCs.</p>



Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	<p>forecast, disease control, price changes, etc.</p> <p>Some of the technologies available to the small-scale and emerging farmers are:</p> <ul style="list-style-type: none"> • SimJunior, • In-Field rainwater harvesting, • Beanex, • AgriSuite Online. 	<p>Some of the technologies that are available to the FPSUs are:</p> <ul style="list-style-type: none"> • Beanex, • Accord, • Solar technology, • AgriSuite Online. 	<p>Some of the technologies that the Agri-Hub can utilise are as follows:</p> <ul style="list-style-type: none"> • Solar technology, • Mobile devices, • Accord, • Beanex. 	<p>Some technologies that can be utilised by the RUMCs are:</p> <ul style="list-style-type: none"> • Information Data base. • Solar technology. • Mobile devices.

12.4 Proposed Development Concept of Vegetables and Apples

Table 12-3 below, illustrates the product flow for vegetables and apples through small-scale/emerging farmers and commercial farmers, FPSUs, the Agri-Hub, and RUMCs.

Table 12-3: Development Concept for Vegetables and Apples

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
Key Role & Function	<p>Primary production of vegetables and apples.</p> <p>Commercial farmers can either utilise the processing capabilities of the Agri-Hub at a specified fee, or the farmers can sell their produce to the Agri-Hub. Furthermore, the commercial farmers can also utilise the market access of the RUMC.</p>	<p>The FPSU will serve the following services:</p> <ul style="list-style-type: none"> • Training and extension support, • Provide input supplies to farmers, • Help with the planting and harvesting of apples and vegetables. • Local logistics support, • Mechanisation support, • Grading, • Sorting, • Washing, • Packaging, • Storage, • and Processing for local markets, excess products will be transferred to the Agri-Hub. 	<p>The Agri-Hub will play a role in the following functions:</p> <ul style="list-style-type: none"> • Logistics, • Agro-Processing, • Some training (if required), • Storage/warehousing facilities, • Packaging facilities, • Branding (optional). 	<p>The RUMC will provide the following services:</p> <ul style="list-style-type: none"> • Market intelligence, • Assistance to small-scale farmers and processors in managing a nexus of contracts, • Large warehousing and cold storage facilities.
Location	<p>All small-scale and emerging farmers involved in vegetable and apple production within the Thabo Mofutsanyana District may participate in the primary production.</p>	<p>Vegetable and apple farmers will be supported by all the FPSU(s) that would be situated in the Thabo Mofutsanyana District; however, the main FPSU for vegetable and apple production should be located within Harrismith, as it will be in close proximity to the</p>	<p>The Agri-Hub, as proposed by the province, is to be located in Tshame in the Maluti-A-Phofung Local Municipality.</p> <p>The Agri-Hub will have catchment areas of approximately 120km in low population density</p>	<p>It is proposed that the RUMC be located in Bloemfontein since this is the main economic hub of the Province.</p> <p>However, in later phases of the Agri-Park, another RUMC can be established in either Harrismith or Phuthaditjhaba.</p>



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Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
		<p>Agri-Hub and various transport routes (which is important for supplying vegetables and apples to local markets).</p> <p>The FPSUs will have catchment areas of approximately 30km in low population density areas, and 10km in high population density areas.</p>	<p>areas, and 60km in high population density areas.</p>	
Human Resources	<p>Small-Scale and emerging farmers will have on-site workers that will participate in farming practices.</p> <p>The number of jobs created can vary depending on the capacity and level of farming practiced. It is estimated that vegetable production will create 1.9 direct jobs for every hectare that is brought into production.</p>	<p>The FPSU will provide the following HR/HR facilities;</p> <ul style="list-style-type: none"> • Agricultural extension officer / support office, • Health and safety officers, • Machine operators / Local mechanisation centre and • Workshops. <p>At the FPSU level, various jobs can be created such as (in the initial phase):</p> <ul style="list-style-type: none"> • Administrative Managers, • Assistant administrative manager, • Quality-control technician, • Mechanical superintendent, • Agronomist, • Researchers, • Skilled workers for processing operations, • Skilled workers (drivers, mechanical and electrical maintenance), • Unskilled workers for processing, • Unskilled workers for maintenance and transportation, and • Indirect labour. <p>Thus, roughly a minimum of between 17 and 25 jobs will be created by the main vegetable and apple FPSU in the initial phase,</p>	<p>The Agri-Hub will provide the following HR:</p> <ul style="list-style-type: none"> • Administrative manager, • Quality control personnel, • Staffs to manage the Agro-Processing facilities, • Health and safety personnel, • Research and Development personnel, and • Training personnel. <p>The Agri-Hub has the potential of creating various jobs. At the initial level it is estimated that the following jobs will be created:</p> <ul style="list-style-type: none"> • Administrative Managers, • Assistant administrative manager, • Quality-control technician, • Mechanical superintendent, • Skilled workers for processing operations, • Unskilled workers for processing, • Unskilled workers for maintenance and transportation, • Office clerks, • Indirect labour. <p>The Agri-Hub can thus, create a minimum of between 17 and 25 jobs in the initial phase, excluding indirect labour.</p>	<p>The RUMC will provide the following HR:</p> <ul style="list-style-type: none"> • I.T. expert / personnel, • Administrative manager, • Training personnel, • Marketing agents. <p>The marketing agents will serve to facilitate market linkages, facilitate contracts with wholesalers and major retail outlets, and also to gather information on prices at fresh produce market that would be communicated to the Agri-Hub and FPSU.</p> <p>The RUMCs will create more jobs such as:</p> <ul style="list-style-type: none"> • Administrative Managers, • Assistant administrative manager, • Quality-control technician, • Foremen for maintenance and transport, • Office Clerk, • Indirect labour.

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
		excluding the indirect jobs.		
Training	<p>Small-Scale and emerging farmers would require training on:</p> <ul style="list-style-type: none"> • Best farm practices, • The use of tools and equipment, • Fertiliser application, • Irrigation application, • Training on how to interpret market information and ICT. <p>The extension officers that are familiar with vegetable and apple production are well positioned to render this type of training.</p> <p>Training can also be provided by well-established commercial farmers through a mentorship programme.</p>	<p>The workers in the FPSUs will require training on:</p> <ul style="list-style-type: none"> • Primary processing of vegetables and apples. • Quality management, • Training on market information and ICT. • Training on safety practices. 	<p>Specific Agri-Park workers will need various forms of training. Further processing staff will require some of the following training on:</p> <ul style="list-style-type: none"> • Operating various machinery, • Training on new innovations as they surface. • Safety measures, and • Quality control. 	<p>The RUMCs staff will need training on the following aspects:</p> <ul style="list-style-type: none"> • Market analysis, • Supply chain logistics, • Trading (locally and internationally), • Use of various market programmes.
Key Products/ Services	<p>Small-Scale and emerging farmers will participate in the following activities:</p> <ul style="list-style-type: none"> • Soil preparation, • General soil and crop/ tree care. • Pest control, • Weed control. <p>The key products that will be produced by the smallholder farmers are:</p> <ul style="list-style-type: none"> • Fresh vegetables and apples 	<p>The FPSUs will participate in the following activities:</p> <ul style="list-style-type: none"> • Purchasing of good quality seeds or trees (two-year-old apple trees from a nursery) for smallholder farmers. • Delivery of seeds/trees and inputs (such as fertiliser, tools, etc.) to smallholder farmers. • Grading and sorting, • Planting, • Harvesting of fresh produce. • Transportation to FPSUs that will process (primary processing) the produce. • Some quality control. • Some packaging for the local market and small retail outlets. 	<p>The Agri-hub will participate in the following activities:</p> <ul style="list-style-type: none"> • Grading and sorting, • Further processing. • Further quality control. • Packaging of the goods. • Storage of products. • Some marketing. • Transportation of products to the RUMC. <p>The key products that will be produced by the Agri-Hub include:</p> <p>Apples:</p> <ul style="list-style-type: none"> • Apple juice, • Dried fruit, • Apple sauce, • Canned apples, • Etc. <p>Vegetables:</p> <ul style="list-style-type: none"> • Frozen vegetables, 	<p>The RUMCs will participate in the following activities:</p> <ul style="list-style-type: none"> • Collection of final products from the Agri-Hub. • Marketing and distribution of final products to different wholesalers and major retail outlets. • Exporting of final products. • Bulk storage of final products.

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
		<ul style="list-style-type: none"> Package vegetables and apples into crates that will be transported to the Agri-Hub for further processing. <p>The key products that will be produced by the FPSU are:</p> <ul style="list-style-type: none"> Fresh apples and vegetables. 	<ul style="list-style-type: none"> Soup packs, Fresh cut vegetables, Steaming packs, Etc. 	
Infrastructure & Equipment	<p>The equipment that will be required (unless stated as optional) by all small-scale and emerging farmers are as follows:</p> <ul style="list-style-type: none"> Farming tools, Irrigation equipment, Pest control equipment, Weed control equipment, Water pipes, etc. 	<p>The equipment and infrastructure that will be required by the FPSUs are as follows:</p> <ul style="list-style-type: none"> Transport (e.g. Bakkie or pick-up vehicles), Trolley/trailer/attachment for tractor. Tractor. Weighing and packaging equipment, Simple processing technologies. Generators (storage facilities). Cold storage facilities. Pressure washer. 	<p>The Agri-Hub will require the following equipment and infrastructure:</p> <ul style="list-style-type: none"> Administrative facilities, Agro-Processing facilities, Packaging facilities, Quality control facilities, Agricultural input distribution and sales centre, Training centre, Logistics and transport facility, Processing equipment, Cold storage facilities, Automatic filling machines, Packaging equipment (cartons, boxes, etc.) 	<p>The RUMC will require the following infrastructure and equipment:</p> <ul style="list-style-type: none"> Large warehouses/holding facilities. Cold storage facilities. Administrative facilities/ information centre. Forklift, General Packaging materials, Vehicles with cool storage capability.
Logistics	<p>A logistics plan will be necessary for the transport of input and harvested products. Small-Scale and emerging dairy farmers will need to be grouped and scheduled into the production plan accordingly.</p> <p>Pick up and drop off points will need to be demarcated for each group accordingly in order to streamline the logistical process.</p> <p>Commercial farmers can also utilise the logistic services of the</p>	<p>The FPSUs should organise a primary logistics collection centre. Transport should be arranged to collect produce from various farms or a collection centre.</p> <p>The transportation will also assist in the distribution of produce to the small retail outlets and Agri-Hub.</p>	<p>The same transport will be used to collect produce from the FPSUs to the Agri-Hub for further processing.</p>	<p>The same cold storage transport will be used for distribution of final products to wholesales and major retail outlets.</p>

Production Flow	Small-Scale/Emerging and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	FPSUs at a specified fee.			
Technology/ICT	<p>Small-Scale and emerging farmers can use various modern tools and mobile devices/applications in order to receive information from the RUMC on weather forecast, disease control, price changes, etc.</p> <p>Some of the technologies available to the small-scale and emerging farmers are:</p> <ul style="list-style-type: none"> • SimJunior, • Duet: Fruit and vegetable marketing and distribution software, • Microtube drip irrigation, • In-field rainwater harvesting, • Treadle pump, • AgriSuite Online. 	<p>FPSUs can utilise a number of technologies to enhance communication between farmers, FPSUs, and the Agri-Hub.</p> <p>Some of the technologies that are available to the FPSUs are:</p> <ul style="list-style-type: none"> • Accord, • Solar technology, • AgriSuite Online. 	<p>The Agri-Hub can use various technologies to maintain communication between the FPSUs and the RUMCs.</p> <p>Some of the technologies that the Agri-Hub can utilise are as follows:</p> <ul style="list-style-type: none"> • Solar technology, • Mobile devices, • Accord, • Management Software and System. 	<p>The RUMCs can utilise modern technology to ensure communication between the Agri-Hub and the RUMCs.</p> <p>Some technologies that can be utilised by the RUMCs are:</p> <ul style="list-style-type: none"> • Information Data base. • Solar technology. • Mobile devices.

12.5 Combined Agri-Park Concept for Thabo Mofutsanyana District

The following section evaluates the proposed combined Agri-Park concept for the District. The concept illustrates the key roles and functions, location, Human Resources, training, key products and activities, infrastructure and equipment, and technologies and ICT that each of the four elements (small-scale/emerging farmers and commercial farmers, FPSUs, the Agri-Hub, and the RUMC) will cover.

The combined Agri-Park concept will focus on the main activities and functions of each of the four elements, as opposed to the commodity specific focuses that were discussed in previous sub-sections. Furthermore, the combined concept evaluates the logistics plan for the Agri-Park in more detail. Table 12-4 below, depicts the collective Agri-Park concept for the Thabo Mofutsanyana District Municipality.



Table 12-4: Combined Agri-Park Concept for Thabo Mofutsanyana

Production Flow	Small-Scale/Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
Key Role & Function	The key role of all the farmers will be the primary production of the three (3) identified commodities i.e. dairy, dry beans, and vegetables and apples.	<p>The FPSU will serve the following function:</p> <ul style="list-style-type: none"> • Input supplies • Training and extension support; • Mechanisation support; • Local logistics support; • Sorting and grading; • Some packaging and storage; <p>In most cases, the commercial farmers will not be supported by the FPSU. They will be encouraged to use all the basic units of the Agri-Park, but due to their existing experience and product volumes they may choose to enter the Agri-Parks process at the Agri-Hub, or even go directly to the market.</p>	<p>The Agri-Hub will serve the following functions:</p> <ul style="list-style-type: none"> • Some training • Logistic • Agro-Processing • Storage/warehousing facilities • Packaging facilities; • Branding (optional) 	<p>The RUMC will serve the following function:</p> <ul style="list-style-type: none"> • Market intelligence • Assist farmers, and processors in managing a nexus of contracts • Large warehousing and cold storage facilities (where necessary).
Location	All the farmers involved in the primary production of the three identified commodities for the Agri-Park, in the Thabo Mofutsanyana District.	<p>All the farmers will be supported by all the FPSU(s) that would be situated in the District. Farmers will be encouraged to make use of the FPSU that is closest to them.</p> <p>However, some of the FPSUs will major in one commodity even though they would still provide support services to farmers involved in the other two commodities. It is proposed, based on the catchment area depicted in the Agri-Park model, that there should be 12 FPSUs at the initial phase of the project.</p> <p>It is suggested that each commodity have four FPSUs, and out of the four, there should be one that will conduct first-line processing (if applicable). These FPSU(s) should be centrally located in areas</p>	<p>There would be only one Agri-Hub in the District at the initial phase of the project.</p> <p>It was proposed by the province that the Agri-Hub should be located in Tshiame.</p> <p>The other Agri-Hubs that will be located in the Free State Province are as follows:</p> <ul style="list-style-type: none"> • Thaba Nchu in Mangaung DM, and • Springfontein in Xhariep DM. 	<p>It is proposed that the RUMC be located in Bloemfontein since this is the main economic hub of the Province.</p> <p>However, in later phases of the Agri-Park, another RUMC can be established in either Harrismith or Phuthaditjhaba.</p>





Production Flow	Small-Scale/Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
		<p>where the farmers are most concentrated.</p> <p>The proposed locations for the FPSUs are:</p> <ul style="list-style-type: none"> • Memel • Vrede • Phuthaditjhaba • Reitz • Paul Roux • Eenzaamheid • Marquard • Clocolan • Rosendal • Bethlehem • Clarens • Warden 		
Human Resources	<p>Small-Scale and emerging farmers will have on-site workers that will participate in farming practices.</p> <p>Furthermore, some HR personnel will be made available to the farmers by the FPSU. These include, but are not limited to the following:</p> <ul style="list-style-type: none"> • Extension officers, • Agronomist, • Researchers, • Veterinary doctors, • Etc. 	<p>The FPSU will provide the following HR roles and/ HR facilities:</p> <ul style="list-style-type: none"> • Agricultural extension officers/support offices • Machine operators / Local mechanisation centre and workshops • Agronomist (for soil testing etc.), • Researchers, • Administrative Managers, • Assistant administrative manager • Quality-control technician • Mechanical superintendent • Skilled workers for local processing and packaging • Skilled workers (drivers, mechanical and electrical maintenance) • Unskilled workers for local processing and packaging • Unskilled workers for maintenance and transportation • Indirect labour (numerous). • Animal health expert/ Veterinary doctor • Animal nutritionist • Established commercial farmers 	<p>The AH will provide the following HR;</p> <ul style="list-style-type: none"> • Administrative manager • Quality control personnel • Staffs to manage the Agro-Processing facilities • Research and Demonstration personnel • Training personnel • Mechanical superintendent • Skilled/unskilled workers for processing operations • Unskilled workers for maintenance and transportation • Office clerks • Foremen for processing shifts • Foremen for maintenance and transport • Cleaning staffs • Indirect labour (numerous). <p>Although the exact number of jobs cannot be determined at this stage, it is estimated that the each FPSU will have the potential to create between 17 – 25 direct job opportunities.</p>	<p>The RUMC will provide the following HR;</p> <ul style="list-style-type: none"> • IT expert/personnel • Administrative manager • Assistant administrative manager • Training personnel • Marketing agents (to facilitate market linkages, facilitate contracts with wholesalers and major retail outlets and also to gather information on prices at fresh produce market that would be communicated to the AH and FPSU).



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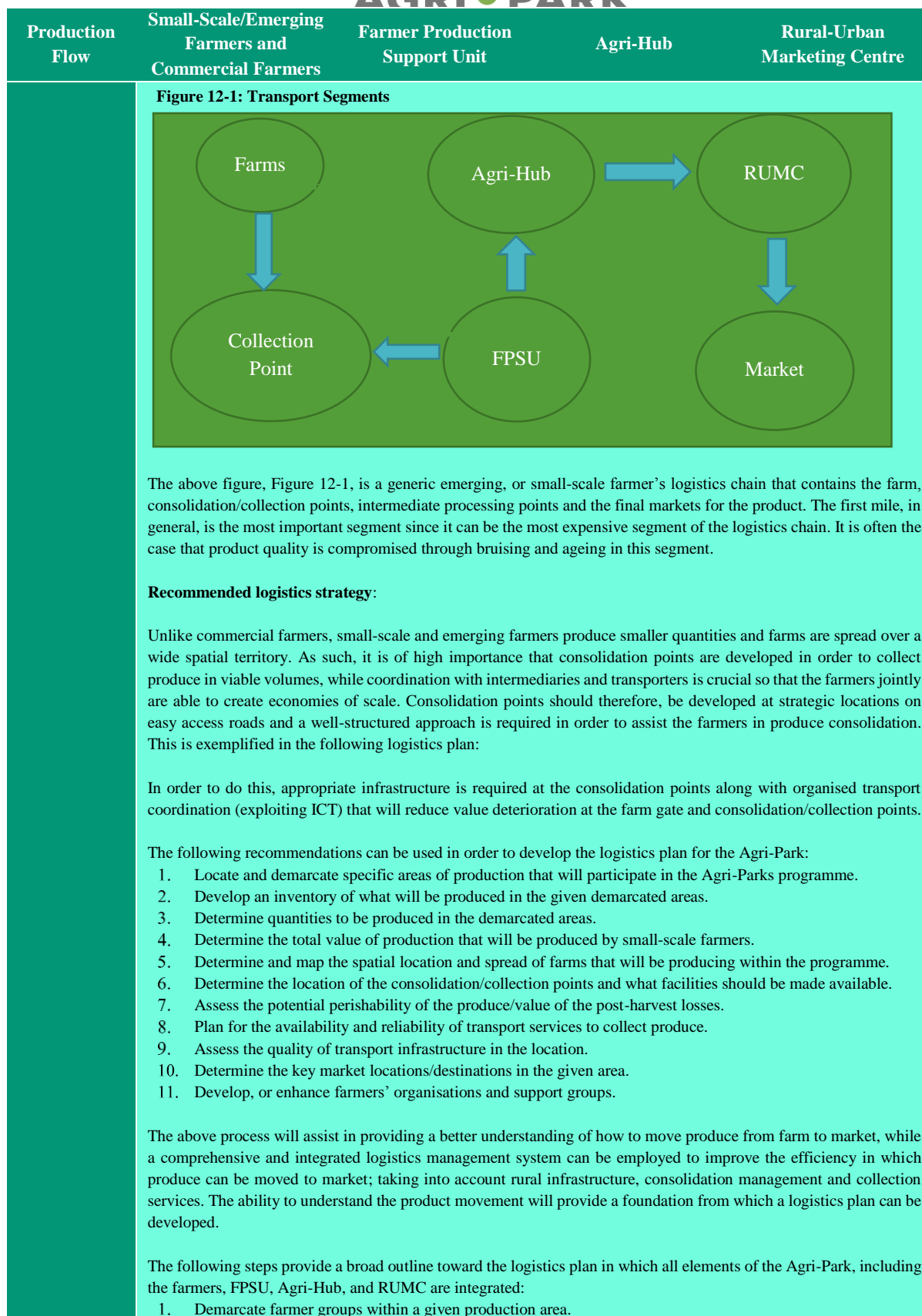
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Production Flow	Small-Scale/Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
		<p>who are willing to form partnership with the FPSU in mentoring the small scale farmers (as many as possible).</p> <p>Although the exact number of jobs cannot be determined at this stage, it is estimated that the each FPSU will have the potential to create between 15 – 20 direct job opportunities and numerous indirect job opportunities.</p>		
Training	<p>Small holder/emerging farmers would require training on:</p> <ul style="list-style-type: none"> • Best farm practices, • Use of tools and equipment, • Training on how to interpret market information and ICT. <p>The extension officers can provide this type of training. Training can also be provided by the well-established commercial farmers through a mentorship programme.</p>	<p>The following training opportunities can be made available:</p> <ul style="list-style-type: none"> • Extension services training, • Regulatory standards and requirements training, • Health and safety training, • Management skills, • Training for emerging farmers, • Agriculture computer programme skills, and • Computer literacy. 	<p>Some training would also be required by workers in the Agri-Hub, such as:</p> <ul style="list-style-type: none"> • Training of processing staffs on how to handle and operate various processing equipment. • Training on best practices, based on changing demand and supply. • Training on new innovations as they surface. • Processing skills. • Health and safety training. • Management skills. 	<p>The following training opportunities can be made available at the RUMC:</p> <ul style="list-style-type: none"> • Training of training personnel on how to disseminate information to the farmers, Agri-Hub, and the FPSU. • Market analysis skills. • Supply chain and logistics skills. • Trading (local and international). • Agriculture computer programme training.
Key Product/Activities	<p>The core activities of the farmers are:</p> <ul style="list-style-type: none"> • Land preparation (land clearing, bed making etc.) • Farming (planting, fertilisation, disease control, irrigation etc.) • Preparation of fresh produce for transportation. <p>Small scale/ emerging will be supported by the FPSU in carrying out these core activities.</p>	<p>The core activities of the FPSU are:</p> <ul style="list-style-type: none"> • Supply of inputs, • Planting and harvesting, • Collection/ transportation of fresh produce from the farms. • Some quality control. • Drying, cleaning, sorting, and grading where application. • Packaging of products for the local market, small retail outlets and the fresh produce markets. • Transportation of produce destined for processing directly 	<p>The core activities of the Agri-Hub are:</p> <ul style="list-style-type: none"> • Receiving of farm produce from the FPSUs or directly from the farms. • Cleaning, sorting, and grading where applicable • Further Quality control; • Processing and value- adding, • Packaging, • Branding (if applicable), • Storage of products, • Marketing and distribution; • Transportation of products to the RUMC where and when necessary. 	<p>The core activities of the RUMC are:</p> <ul style="list-style-type: none"> • Collection of final products from the Agri-Hub, • Marketing and distribution of final products to different wholesalers and major retail outlets, • Exporting of final products, and • Bulk storage of final products.



Production Flow	Small-Scale/Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
		<p>from the farm to the Agri-Hub.</p> <ul style="list-style-type: none"> Some marketing and distribution. 		
Infrastructure/ Equipment	<p>The smallholder/emerging farmers, as well as some commercial farmers that are willing to participate in the programme, would be able to hire some equipment from the FPSU.</p> <p>Some of these major equipment will be:</p> <ul style="list-style-type: none"> Bed former, Trailers and bins, Solid set irrigation equipment, Planter/fertiliser applicator, Fertiliser equipment (spreader), Spray equipment, Digger/harvester, Windrower, Field trucks (used to transport facilities), and Animal handling equipment. 	<p>The FPSU would require to put in place the following equipment/ infrastructure:</p> <ul style="list-style-type: none"> Transport facilities (e.g. Bakkie or pick-up vehicles), Sorting tables Cleaning, sorting, grading, and drying machines. Weighing and packaging machines. Local pack house, Small-scale processing facilities for local market. Produce sorting facility. Storage facility. Farming/ mechanisation equipment required for farming activities. 	<p>The Agri-Hub would require to put in place the following equipment/ infrastructure:</p> <ul style="list-style-type: none"> Administrative facilities, Rental facilities, Agro-Processing facilities, Packaging facilities, Quality control facilities, Agricultural input distribution and sales centre, Retail facility, Training centre, Student and staff housing (optional), Logistics and transport facility. 	<p>The RUMC would require to put in place the following equipment/ infrastructure:</p> <ul style="list-style-type: none"> Large warehouses/ holding facilities, Cold storage facilities, Administrative facilities/ information centre, Customer service desks.
Logistics	<p>The focus of the logistics plan is to develop a strategy to move farm produce to market as smallholder and emerging farmers seek to become important players in the emerging food supply chain in South Africa. The logistics plan draws on challenges and opportunities faced by the farmers that are likely to participate within the Agri-Parks programme, while the focus remains on recognising the importance that transport plays in the emerging farmer value chains.</p> <p>Understanding the logistics chain</p> <p>It is important that the transport segments in the emerging agricultural sector are understood. The segments include the primary, intermediate, and final transport route segments, described in further detail below:</p> <ol style="list-style-type: none"> The primary transport segment, also known figuratively as the first mile, is the segment in which the product moves from farm to a consolidation/collection point that are found on primary roads where collection is typically easier. The key role-players in this segment are the farmers who move the produce from their farm to the consolidation/collection point. The intermediate transport segment realises the movement of produce from the primary consolidation, or collection point to an intermediate point, or in this case an Agri-Hub. The key role-players at this point are larger, commercial farmers, or transporters. The final transport segment will move product from the intermediate point to the final market, or destination. <p>These segments are exemplified in Figure 12-1 below:</p>			





Production Flow	Small-Scale/Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	<ol style="list-style-type: none"> Determine a central location of the consolidation/collection point for the produce in each of the demarcated areas. Implement a logistics management system and programme through the FPSU and RUMC that will assist in moving farmers produce to the consolidation points. Implement a logistics management system and programme through the FPSU and RUMC that will move products from the consolidation points to the Agri-Hub. The Agri-Hub should have its own set of vehicles to aid in the logistic system. Implement a logistics management system and programme through the RUMC that will move product from the Agri-Hub to the market/final product destination. <p>The specific roles of the FPSUs, Agri-Hub, and RUMC are specified as follows:</p> <ul style="list-style-type: none"> The FPSU will be responsible for the movement/transportation of the product. The Agri-Hub should have vehicles that will be used either to assist the collection of products from the FPSUs or assist in the delivery of products to the RUMC. The RUMC will provide the market intelligence and therefore, the timing of the movement of the product. 			
Technology/ ICT	<p>In order to boost their production efficiency, the small scale/emerging farmers would require:</p> <ul style="list-style-type: none"> Modern tools, Mobile devices for subscription to various Apps., to enable them receive information from the RUMC on weather forecast, price changes, disease control, etc. 	<p>Tracking devices should be installed on all vehicles to prevent hijack and also to monitor the movements and locations of the drivers.</p> <p>Also, the FPSU would require subscription to certain Apps. from the RUMC to remain acquainted with the current prices fetched on the global, national, and local market, so as to be able to strategically supply or purchase inputs from the markets. It should be noted the same transport facilities would be used to service all the basic units of the Agri-Park; therefore, all the transportation facilities would have these tracking devices.</p>	<p>In order to remain familiar with the current prices fetched on the global, national, and local market so as to be able to strategically supply products to the markets, the Agri-Hub would also require subscription to certain Apps. from the RUMC. This will enable the Agri-Hub to remain informed.</p>	<p>The RUMC will/should provide Information Data bases that will be accessible to all basic units of the Agri-Park can subscribe to.</p>

12.6 Estimated Capital Expenditure

This section of the report provides a high –level costing of the key equipment and infrastructures that would be put in place in the two (2) basic units of the Agri-Park, i.e. the FPSU and AH. However, it should be noted that the figures provided are estimates based on “green field” construction and are thus, not the exact figures, therefore they could be subject to changes during the actual implantation process.

Table 12-5 below, sets out the estimated building costs for the implementation of the initial phase of the Agri-Park project.



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Table 12-5: Estimated Building Costs

Building Cost Rates		Unit	Inflation	6,5%
	Item		2013	2016
	Offices - Low Rise	m ²	R6 450	R7 791
	Training Center	m ²	R6 500	R7 852
	Retail - Regional	m ²	R9 000	R10 872
	Steel frame, steel cladding and roof sheeting	m ²	R3 500	R4 228
Warehousing	Steel frame, brickwork to ceiling, steel cladding above and roof sheeting	m ²	R4 050	R4 892
	Administration offices, ablution and change room block	m ²	R6 100	R7 368
Cold Storage	Cold storage facilities	m ²	R12 150	R14 677
	Perimeter Fencing - ClearVu + Installation	m	R1 635	R1 975
	Electrical Installation	m ²	R625	R755
	Roads/Paving	km		R3 500 000
	Bulk Water			R65 000
Parking	Parking - integral grading	m ²	R450	R544

(adapted from Rode, 2015; ClearVu, 2016; & Water Policy, 2002)

As can be seen from Table 12-5 above, the cost per square meter has been acquired using the inflation rate of 6.5% and the cost from 2013 as a base year.

Table 12-6 below, illustrates the estimated cost of the equipment that would be required by the three main FPSU's in the District.

Table 12-6: Estimated Costs for the Three Main FPSU Equipment

Commodity	Items	Cost
Equipment Dairy	Farm Vehicles	R708 226
	Transport Vehicles	R3 410 800
	Implements	R200 000
	Processing Equipment	R498 451
	Milking Equipment	R 190 000
Equipment Vegetables	Farm Vehicles	R708 226
	Transport Vehicles	R3 410 800
	Implements	R818 158
	Processing Equipment	R601 845
Equipment Orchard Crops	Farm Vehicles	R354 113
	Transport Vehicles	R3 410 800
	Implements	R145 165
	Processing Equipment	R625 105

Commodity	Items	Cost
Equipment Dry Beans	Farm Vehicles	R6 116 792
	Transport Vehicles	R6 910 800
	Implements	R3 304 204
	Processing Equipment	R75 000

Table 12-7 below, illustrates the cost of the equipment required by the Agri-Hub. The costs for the equipment stated in Table 12-6 and Table 12-7 were estimated based on the market prices of various equipment items and brands. The actual price may differ depending on market fluctuations, economic fluctuations, and overall quantity requirements.

Table 12-7: Estimated Cost of Equipment for the Agri-Hub

Equipment	Cost
Transport Vehicles	R5 000 000
Processing Equipment:	
Dairy	R15 000 000
Vegetables	R5 000 000
Orchard Crops	R10 000 000
Dry Beans	R7 000 000

12.7 Conclusion

The above concepts address the conceptual roles of each of the actors within the Agri-Park with the categories key role and function, location, human resources, training, key products and services, infrastructure and equipment, logistics and technology, being addressed for each one. The concepts indicate the level of interaction between the role-players, which illustrates a holistic and integrated development approach that is required to bring to the Agri-Park efficiencies. It is important that functions are complementary and coordination between the role-players is harmonised in a fashion that streamlines product flow. The ability to do this will ensure that a quality product is moved from the farm to the final market and then the consumer. Integration of the system will further allow one role-player to understand the function of the previous, or next role-player and as a result, the ability to meet the expectations, or demands of that role-player. Most important are the management systems that are implemented in the programme in order to ensure that coordination between role-players is done effectively and timeously. The logistics functions and technology/ICT that is used are therefore, integral to the success s of the system.



13 IMPLEMENTATION GUIDELINES

The following section of the report will evaluate the implementation guidelines of the Thabo Mofutsanyana District's Agri-Park.

13.1 Introduction

The implementation guidelines describe the processes that will be applied in executing the Agri-Park project. The purpose of the implementation guidelines is to provide the relevant stakeholders with a practicable document that will ensure that the project is implemented in an efficient and agreed manner, based on the concept spelt-out in the previous chapters. The implementation guidelines cover the areas such as: the phased approach to implementation, involvement of role-players, the alignment to current and existing incentives, specific recommendations, as well as the roll-out plan.

13.2 Implementation Process

The Agri-Park's implementation process is illustrated Figure 12 1 in below.

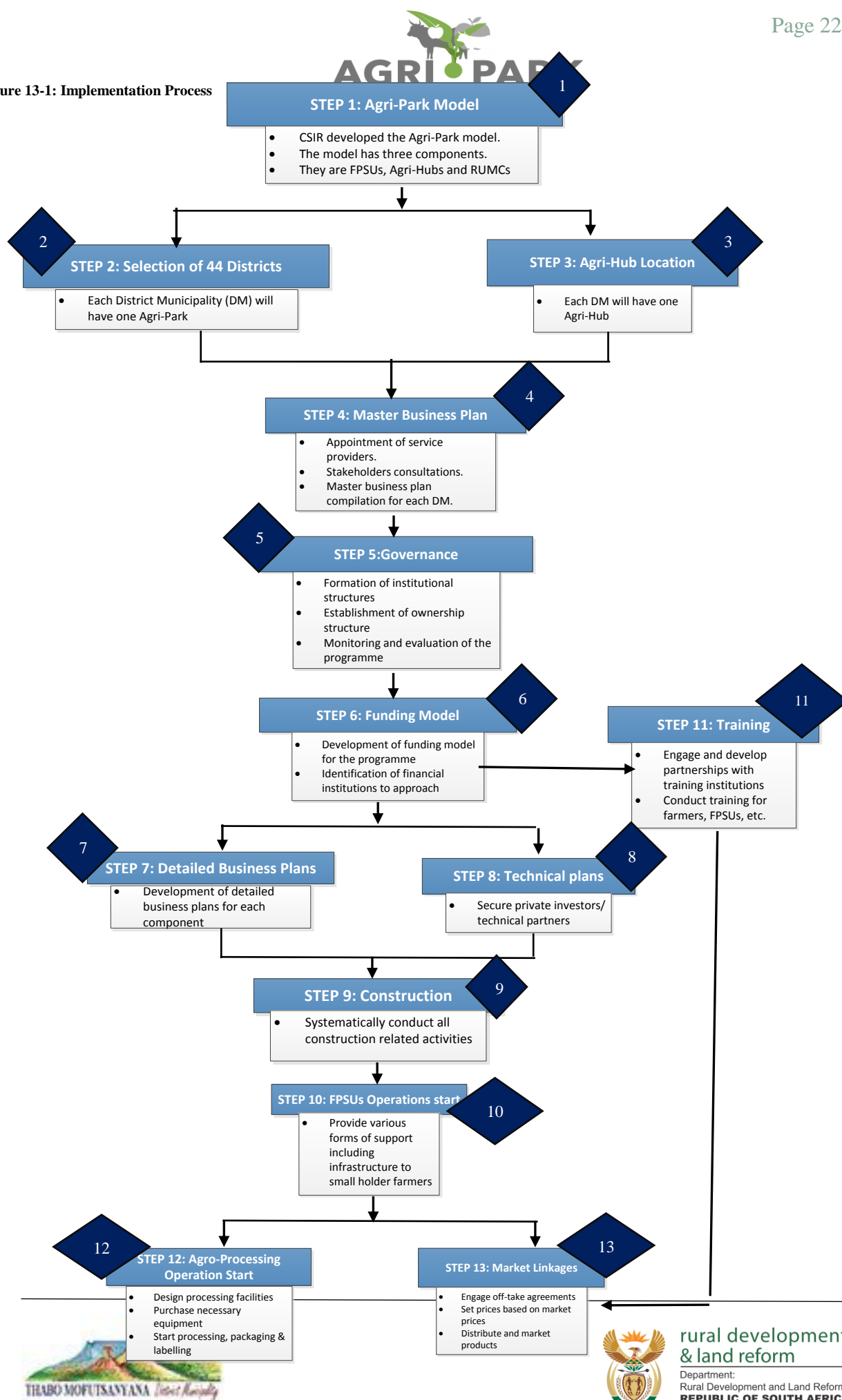
- **STEP 1: Agri-Park Model:** During the first step of the Agri-Park programme, the DRDLR developed the Agri-Park model.
- **STEP 2: Selection of the 44 Districts Municipalities:** After the model was developed, the DRDLR selected 44 district municipalities across South Africa where the model will be implemented over a 10-year period.
- **STEP 3: Agri-Hub Location Selection:** The locations of each Agri-hub were identified based on various criteria including, but are not limited to, road networks and market access.
- **STEP 4: Master Agri-Park Business Plan:** An Agri-Park Master Business Plan was developed for each of the 44 district municipalities. The district specific Master Business Plan outlined the top three commodities that should be invested in, as well as climatic conditions, and district demographics; among other aspects.
- **STEP 5: Governance:** Strategic bodies and plans will be formed including definitions of ownership and management structures.
- **STEP 6: Funding Model:** A financial gearing plan will be developed for each district's Agri-Park.
- **STEP 7: Technical Planning:** The technical aspect of the Agri-Park will entail planning, mainly, the physical construction of the Agri-Park along with related infrastructure and technologies.
- **STEP 8: Detailed Master Business Plans:** The different units of the Agri-Park (namely: FPSUs, Agri-Hub, and the RUMC) as well as the farmers will have specific detailed Master Business Plans developed.
- **STEP 9: Financial Close:** Funding will be sourced from various financial institutions, depending on the funding model.
- **STEP 10: Construction:** The construction of the Agri-Park's units, particularly the FPSUs, and other related infrastructure will start.
- **STEP 11: Farmer Production:** FPSUs will be set-up and run in order to make sure that assistance is available for farmers to start production of commodities that will be used throughout the Agri-Park.
- **STEP 12: Training Programmes Roll-Out:** Training programmes will commence through the FPSUs to all the individuals that require training.
- **STEP 13: Agro-Processing:** Once primary production has taken place, and products are ready to be harvested, milked, or slaughtered; agro-processing activities will commence through the Agri-Park's Agri-Hub.
- **STEP 14: Market:** The final products will be distributed and sold to relevant markets through assistance of the RUMC.



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Figure 13-1: Implementation Process





13.3 Alignment with Government Programmes and Projects

In this section of the report, the Agri-Park programme will be evaluated with regard to its alignment with government programmes and projects. Table 13-1 below, illustrates the various programmes and projects along with the Agri-Park's alignment to said programmes and projects.

Table 13-1: Agri-Park Alignment with Government Programmes and Projects

Implementing Department/ Development Agency	Programme/Project	Alignment
Department of Agriculture, Forestry and Fisheries (DAFF)	1. Agricultural Broad-Based Economic Empowerment (AgriBEE)	One of the key roles that the FPSUs will facilitate is to conduct workshops and training. To do so, close partnerships between commercial farmers and emerging/smallholders will have to be formed. This aligns to the <i>AgriBEE</i> 's drive of unlocking potential to grow the agriculture sector in the form of providing support to smallholder farmers and agro-processing entrepreneurial potential that exists in small industries.
	The implementation of AgriBEE is based on the commodity value chain approach. This approach is fundamental to creating partnerships, linkages, and networks for balanced, mutually benefiting results for all concerned. The AgriBEE is expected to ensure enhanced competitiveness and sustainable development with expansion of the existing businesses, the rehabilitation of agricultural businesses that are performing poorly and expanded entry for new businesses in the sector.	In expanding the sector, the Agri-Parks most of the primary production farmers will need to expand the production land, require farm implements support from the FPSUs. Therefore, synergies between the <i>LRAD programme</i> and Agri-Parks exist. Post the selection of potential farmer's participants in the Agri-Parks programme, the farmers can approach the department under this programme.
	2. Land Redistribution for Agricultural Development (LRAD)	As part of the implementation preparation, training will have to be continuously conducted at the farm level, at the FPSUs, the hubs and for professionals providing market intelligence at the RUMCs. The area of providing training support to the sector players is already pioneered by <i>CASP</i> , thus the recommended training aligns to <i>CASP</i> 's goals. Additionally, the Agri-Parks are expected to address food security issues, this will be achieved by selling some of the produce for the local markets. This will address food security shortfalls that maybe existing in the district.
Department of Agriculture, Forestry and Fisheries (DAFF)	3. Comprehensive Agriculture Support Programme (CASP)	In implementing the Agri-Parks projects, some of the technology that will be used will ensure that the farming activities optimise the productivity at the farm level. This will be aligning to the <i>LandCare programme</i> that encourages communities to ensure land usage sustainability.
	The Land Redistribution for Agricultural Development programme was designed to help previously disadvantaged citizens from African, Coloured, and Indian communities to buy land or agricultural implements specifically for agricultural purposes.	
	According to the DAFF, this programme grants funds available to successful applicants to help supplement what they already have for purchasing agricultural land. This will be done in the form of government grants.	
Department of Agriculture, Forestry and Fisheries (DAFF)	3. Comprehensive Agriculture Support Programme (CASP)	
	To date, the programme has provided agricultural support to land and agrarian reform projects, which contributes towards food security, job creation and poverty alleviation.	
	According to the department, a total of 84 agricultural farmer co-operatives have been established across the country. These cooperatives are fully registered and linked to financial services and businesses. The programme also facilitated the training and capacity building of all established	



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Implementing Department/ Development Agency	Programme/Project	Alignment
	<p>cooperatives through accredited training institutions and colleges of agriculture.</p> <p>4. Integrated Food Security and Nutrition Programme (IFSNP)</p> <p>This programme was initiated by the Food and Agricultural Organisation (FAO). The core goal of this initiative was to reduce hunger and food insecurity. To take further steps toward achieving this objective, the Special Programme for Food Security (SPFS) will be expanded to all nine provinces (DAFF, 2016). The SPFS and CASP have collaborated, as a result 10% of the total CASP budget will also be aligned to projects that contribute directly towards food security (DAFF, 2016).</p> <p>5. LandCare</p> <p>LandCare is a community based and government supported programme that seeks to ensure sustainable management and use of agricultural natural resources.</p> <p>The overall goal of LandCare is to optimise productivity and sustainability of natural resources so as to result in greater productivity, food security, job creation and better quality of life for all.</p>	
Free State Development Corporation	<p>The Tshiame Development in the Free State Province</p> <p>The Tshiame Special Economic Zone (SEZ) will serve in developing the Tshiame with an "Urban Design" over a 30-year period.</p> <p>The SEZ provides a number of opportunities to the development of the Free State province, some of the opportunities include: supporting government policies, providing and facilitating financial arrangements, and multi-phased opportunities among others.</p> <p>The intention of the SEZ is to identify ways and means of developing the town of Tshiame through the rejuvenation and progress of the area in terms of improving the existing ecological, social, and economic infrastructure of the town.</p>	<p>The SEZ provides a number of opportunities for the Agri-Park programme. The improvement of aspects such as water management, transport systems, energy conservation, air pollution, the recycling of waste, nature conservation, and many other interconnected issues will ultimately provide a sustainable environment for the development of the Agri-Park.</p> <p>The SEZ aligns with the Agri-Park's programme in terms of promoting the development of the region's economy. Furthermore, the Agri-Hub will form part of the SEZ's design, thus, the Agri-Park will serve as a complimentary asset to the SEZ programme.</p>
Department of Rural Development and Land Reforms	<p>Comprehensive Rural Development Programme (CRDP)</p> <p>The CRDP core objective is to mobilise and empower rural communities to take initiatives aimed at control of their own destiny, with the support of government. As a result, three phases for programme exists namely;</p> <ul style="list-style-type: none"> Promoting enterprise development. Establishment of village industries and creation of access to credit facilities. Meeting basic needs of rural citizens. 	<p>The Agri-Parks programme implementation process is aimed at creating self-sustaining agricultural activities in the district. The value addition activities such as processing will promote enterprise development that the CRDP seeks to achieve.</p> <p>The establishment of packhouses and processing facilities with the hubs will also meet the objectives of CRDP. This in return will create job opportunities for the locally skilled citizens and</p>

Implementing Department/ Development Agency	Programme/Project	Alignment
	<p>The DRDLR has several Programmes. For the purpose of this project, only one programme (programme 3) will be analysed.</p> <p>Programme 3: Rural Development</p> <p>The rural development has various programmes. The Rural Development programme aims to initiate, facilitate, coordinate and catalyse the implementation of a Comprehensive Rural Development programme (CRDP) that leads to sustainable, equitable and vibrant rural communities. The programmes core objectives seek to address the following:</p> <ul style="list-style-type: none"> • Rural Enterprise and Industry Development (REID) • National Rural Youth Service Corps (NARYSEC) • Rural Infrastructure Development (RID) <p>The NARYSEC seeks to enhance skills development by providing unemployed youth in the rural areas with opportunities to work in their communities and to be trained to provide the necessary services for local socio-economic development.</p>	<p>will meet the basic needs of many households residing in the rural villages within the district.</p>
Development of Economic Affairs	<p>1. Economic Planning and Coordination</p> <p>Economic planning has a number of various dimensions, such as industrial development, employment creation, investment patterns, and skills development. Within the programme, the work stream focus on economic development at sectoral level promotes rural economic activities. The purpose of economic development at sectoral level promotes rural economic development and the development of industrial policy frameworks for sectors, in order to support the Industrial Policy Action Plan.</p>	<p>The Agri-Parks programme is expected to be the rural industrial catalyst and will attract potential investors. The Agri-Park programme will also focus on training and capacity building in all spheres i.e. training for farmers. This aligns with the economic planning and coordination objectives which include inter alia supporting economic development at sectorial level, especially in rural communities.</p> <p>At the provincial level, the Agri-Parks programmes aligns to the province's economic development programme which seeks to support economic activities that will stimulate industry development and exportation of the processed products in the Agri-Hub for various commodities.</p>
DTI Incentives	<p>1. Export Marketing and Investment Assistance (EMIA)</p> <p>The EMIA scheme develops export markets for South African products and services and it also recruits new foreign direct investment into the country. Beneficiaries include inter alia, export councils, industry associations, etc.</p> <p>a. EMIA Benefits</p>	<p>As part of implementation process, farmers and agro-processors will have to apply for financial assistance. The financial support applications will be implementing the DTI's goal of supporting South Africa's products that are destined for exports. The agro-processing activities at the hub will also be aligning to the DTI's SSAS which also industrial sectors that plans to pursue export markets.</p> <p>To develop and implement the Agri-Parks programme, some core infrastructure resources will have to put in place. This will enable the</p>

Implementing Department/ Development Agency	Programme/Project	Alignment
	<p>The EMIA will assist the Agri-Parks products in international market exposures such as one of the available:</p> <p>Individual Exhibition Participation Assistance with costs of participation, including travel, accommodation and exhibition fees.</p> <p>2. Sector-Specific Assistance Scheme (SSAS)</p> <p>This is an export-focused incentive that encourages industrial sectors prioritised by the DTI to pursue export markets.</p> <p>a. SSAS Benefits</p> <p>Project Funding – 80:20 cost-sharing grant for projects to develop particular sectors, find new export markets and promote black SMMEs, women, youth and people with disabilities.</p> <p>Project Funding for Emerging Exporters – Travel & accommodation, exhibition costs, transport of samples and marketing materials, to a maximum of R1.5</p> <p>b. Critical Infrastructure Programme (CIP)</p> <p>The Critical Infrastructure Programme (CIP) objective is to leverage investment by supporting infrastructure that is deemed to be critical, thus lowering the cost of doing business.</p> <p>According to the DTI, infrastructure is deemed “critical” to the investment if such investment would not take place without the said infrastructure or the said investment would not operate optimally. The applicants will have to meet mandatory requirements as set out by the DTI.</p>	<p>movement of goods from the farm level up to final markets. The Agri-Parks infrastructure development is expected to stimulate investment growth in line with the CIP.</p>

Table 13-1 above, mentions the various programmes and projects that are currently implemented in South Africa, furthermore, the Agri-Park will align to many of these projects and programmes. The projects and programmes mentioned in Table 13-1 above, include the Export Marketing and Investment Assistance scheme, LandCare programme, and the Agricultural Broad-Based Economic Empowerment programme.

13.4 Recommendations for the Thabo Mofutsanyana District’s Agri-Park Development

Table 13-2 below provides a list of recommendations that should be considered for the development of the Agri-Park in the Thabo Mofutsanyana District. The recommendations are related to several aspects that may affect the Agri-Park, such as training and infrastructure, among others.



Table 13-2: Specific Recommendations for the Thabo Mofutsanyana District's Agri-Park

Key Areas	Recommendations
Infrastructure	<ul style="list-style-type: none"> It is recommended that all the dead and unsurfaced (gravel) roads around the proposed location of the Agri-Hub be upgraded and developed, to facilitate easy access to and from the FPSUs, Agri-Hub, and RUMCs. The road network that will link to the various market centres (e.g. the fresh produce market) must be carefully considered and upgraded where necessary. The district should look into the potentials of tapping into existing rail roads for the transportation of large and heavy agricultural produce to long distances. It is further recommended that the district should capitalise on all already existing initiatives and infrastructure for the establishment of the Agri-Park. There should be upgrading and revitalisation of any existing infrastructure that can be used to support the Agri-Park process. Also, it is recommended that the district should look into establishing infrastructure that will aid the recycling of water, such as, for example, utilising water that was used for aquaculture for irrigation purposes.
Natural Resources	<ul style="list-style-type: none"> Considering that the entire country is water scarce, more work should be done in determining water availability for agricultural production around the proposed location of the Agri-Hub, FPSU(s), and around all the major areas where primary production potentials are huge, as well as areas where the available water sources can be used to support primary production. The District should also look into water allocations and the existing irrigation schemes in the major production areas and maximise the use of these existing infrastructures. A further recommendation is that small-scale farmers should have rain harvesters which feed into collection tanks (e.g. Jojo Tanks) on their farms. This would serve as water reservoirs in the absence of rainfall.
Agri-Park Commodities	<ul style="list-style-type: none"> Efforts should be made in ensuring that a product's processing and packaging comply with international standards, to enhance products' suitability for the export markets. Although, the initial phase of the project will support the development of the value-chain of the three (3) pre-dominant commodities in the District, it is recommended that processing facilities should be expanded in subsequent phases to accommodate the production of crops that will be produced during the period of crop rotation. For example, maize will be produced as a rotational crop for dry bean production, subsequent phases of the project should support the production and processing of these two commodities. It is also recommended that apple producers engage in the production of vegetables or herbs, as it will take approximately four (4) years for the apple trees to produce fruit. Thus, the farmer will still be able to make a living while waiting for the apple trees to bear fruit. Some vegetables and herbs that can be planted with apple trees are, but not limited to, the following: <ul style="list-style-type: none"> ✓ Chives, ✓ Leeks, ✓ Kale, ✓ Lettuce, ✓ Celery, ✓ Etc.
Technology	<ul style="list-style-type: none"> It is recommended that telecommunication services be upgraded or improved (e.g. construction of cellular reception towers) in areas that are currently underserved, particularly in the rural areas, since most of the farmers that would be targeted are located in these Areas. It is also recommended that Government should subsidize telecommunication services (e.g. provision of free Wi-Fi) in some of these rural areas to enable them to overcome the cost barrier associated with their low levels of connection access. A further recommendation is that all the technologies that are to be adopted (particularly in the area of farm mechanisation) throughout the Agri-Park process should be those that will not lead to a decline in the number of job opportunities. The ICT to be adopted or introduced to the farmers should be user friendly and not be too complex, since some of the users may have little or no form of education.



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Key Areas	Recommendations
Training	<ul style="list-style-type: none"> It is recommended that the FPSU should establish partnership with certain research institutions for research and development, and also to facilitate training programmes. Partnership should also be established with commercial farmers in this regard. It is also recommended that practical manuals and information packages should be developed for the small scale and emerging farmers to assist them in their production processes. These manuals and information packages should cover aspects relating to: <ul style="list-style-type: none"> ✓ Regulatory requirements, ✓ Information on support programmes, ✓ Production guidelines, ✓ Etc. Where possible, manuals should be developed in the language of choice to enhance easy understanding. A further recommendation is that farmers should be provided with training that is specifically targeted at helping them change their perception about farming or agricultural production as a whole. Training should be provided to educate farmers on the business angle to agriculture for example, farmers with cattle should be educated on how to sell and buy cattle in order to make a profit rather than just seeing the cattle as a sign of wealth.
Agri-Park Units	<ul style="list-style-type: none"> It is recommended that the RUMC should be strategically situated close to the railways in Harrismith, this is to further position the district for market opportunities. The FPSU(s) should be strategically located around productive farms and areas with huge potentials for primary production. The group of farmers that would be earmarked for production, for the Agri-Park, should be identified as part of the kick-off programme. It is a further recommendation that Master Business Plans for each of the units as well as farmers that would participate in the Agri-Park process, be developed.
Logistics	<ul style="list-style-type: none"> Considering that the District is a favourite destination for tourist and people visiting the Free State Province, the structures within the RUMC and the Agri-Hub should be developed in such a way that it will allow for Agro-Tourism e.g. school excursion, visits by tourist, etc. District should form partnership with some of the existing main players in the various industries to enable them penetrate the international market. A further recommendation is that internal transport facilities (e.g. buses) should be arranged for the purpose of transporting tourists visiting the Agri-Parks. These transport facilities can also be used as staff buses. This will serve as a source of revenue for the Agri-Park. District should develop a committee that will look into stakeholders' engagement.
Policy Environment	<ul style="list-style-type: none"> Cross-Border relationships and partnerships should be encouraged or formed with neighbouring districts, where infrastructure and resources can be shared, should the district be short of or have excess of certain resources. The establishment and management of committees and structures contribute to maintaining the Agri-Park's principles and drive its development. It is also recommended that the district should develop a strategic plan that can be reviewed after a certain short-term period, to allow for the normative context of the Agri-Park to be upheld, and also to allow for the evaluation of the Agri-Park development.
Funding /investment	<ul style="list-style-type: none"> District should develop funding mechanisms that would encourage and attract foreign investments. Investment policies that would encourage more investments on agricultural land should be established.
Integrated Development	<ul style="list-style-type: none"> Considering that the District is a destination for tourist and people visiting the Free State Province, the structures within the RUMC and the Agri-Hub should be developed in such a way that it will allow for Agro-Tourism e.g. school excursion, visits by tourist, etc.
Market	<ul style="list-style-type: none"> More programmes that would be directed towards establishing market linkages should put in place. District should form partnership with some of the existing main players in the various industries to enable them penetrate the international market.

Key Areas	Recommendations
Joint Ventures and Partnerships	<ul style="list-style-type: none"> It is recommended that smallholder farmers with small production capacities should be encouraged to work in joint ventures in order to participate in supplying the Agri-Park. Farmers should also function as cooperatives in order to have better supply and receive better returns on their products. Farmers of commodities that have value chain relations should also work together to leverage opportunities for input supply and other activities in their value chains. For example, livestock farmers can enter a partnership with maize, dry bean, vegetable, etc. farmers, so that farmers can support each other within the Agri-Park system as opposed to buying feed from other producers which are not part of the Agri-Park. Long term contractual agreements between the Agri-Park (smallholder farmers) and potential buyers such Tiger Foods, Pick 'n Pay, Checkers, etc. can be established. Public-Private Partnerships should be formed between the Agri-Park and current producers and service providers, such as BoxMore Plastic International, Harrismith Truck & Bus, and Whey-Farm Gold Foods, among others, of whom have established infrastructures and technologies, allowing the Agri-Park to have access to infrastructure (transportation, inputs, silos, etc.) and the private companies will have access to various benefits such as, but not limited to, Agro-Processing opportunities, supply, and market linkages.
Catalytic Projects	<ul style="list-style-type: none"> Vegetable pack house and processing facility at Tshiame to sort, store, and process vegetables and fruits (apple). Grain silo for storage of locally grown dry beans. The silo should ideally be linked to the FPSUs in Vrede, and Clarens. Large-Scale cold storage facility for storage of milk and other dairy products. The facility should be located in Tshiame close to the Agri-Hub.
Incentive programme	<ul style="list-style-type: none"> Incentive programmes and packages that would make agriculture more attractive, (especially to the youths) should be developed. For example, awarding scholarships that would encourage young individuals to study in the field of agriculture, creating a youth centre within the Agri-Park, to help the underprivileged youth in a way such that they render services to the Agri-park, while they get taken care of in return.

These recommendations, in Table 12-2 above, are based on the analysis done on the economic infrastructure, socio-economic analysis, and consultations with district stakeholders.



13.5 Roll-Out Plan (GANTT Chart)

The following section of this report will serve as a guideline for the implementation and roll-out of the Agri-Park in the Thabo Mofutsanyana District. Table 13-3 below illustrates the ten-year roll-out plan in the form of a Gantt chart.

Table 13-3: Roll-Out Plan for Thabo Mofutsanyana District's Agri-Park

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
STEP 1: Agri-Park Model	1. Development of policy framework for the Agri-Parks.										
	2. Approval of the policy framework required for the Agri-Parks.										
	3. Establishment of the national Agri-Park project support facility which will serve to support and coordinate district base operational teams.										
	4. Development of a detailed plan and design of a prototypical Agri-Park that is adaptable, and based on commodity types.										
	5. Selection of district municipalities and Status Quo analysis/report for the selected district municipalities.										
	6. Establishment of NAPOTT, PAPOTT, and DAPOTT.										
	7. Appointment of District Agri-Parks Advisory Councils (DAAC's) for each of the 44 Districts.										
STEP 2: Agri-Hub Location Selection	1. Development of a site selection methodology and location criteria.										
	2. Initial site identification as well as the generation of site specific maps with district specific narratives and selection criteria.										
	3. Property selection process.										
	4. Sign-off of the final Agri-Park sites by each district municipalities.										
STEP 3: Master Agri-	1. Appointment of service providers, of which will develop a Agri-Park Master Business Plan for each district municipality.										



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Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Park Master Business Plan	2. Stakeholder consultations.										
	3. Commodity identification.										
	4. Policy and strategy alignment of the Agri-Park.										
	5. Identification of major role-players.										
	6. Development of an industry report.										
	7. Feasibility assessment of three prioritised commodities for the District.										
	8. Concept development.										
	9. Development of an implementation plan.										
	10. Economic advisory services.										
STEP 4: Governance	1. Establishment of Agri-Park Working (Group/Implementation structure)										
	2. Development of an ownership structure.										
	3. Development of an institutional structures.										
	4. Ongoing policies and procedures: establishes design and content of policy manuals and associated procedures that will ensure frequency of reporting and communication on the progress of the programme.										
	5. Monitoring and evaluation: defines scorecards, measures, and metrics to track performance.										
STEP 5: Funding Model	1. Development of a funding model for the establishment of Agri-Parks programme.										
	2. Identification and analysis of various Financial Development Institutions in South Africa.										
	3. Identification and analysis of incentives in South Africa.										
	4. Identification and analysis of commercial funding organisations in South Africa.										
	5. Run a financial model based on various project gearing scenarios.										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	6. Conduct a sensitivity analysis.										
STEP 6: Technical Planning	1. Design of Agri-park specific incentive schemes.										
	3. Identification of potential Public Private Partnerships.										
	2. Secure private investors/technical partners.										
	3. FPSU- Role should be expanded and spin-off opportunities should be expanded towards these areas in order to widen the scope and influence the agro-processing activities.										
	4. Agri-Hub-core activities, production cycles and distribution functions of the Agri-Hub should be evaluated.										
	5. RUMC - Investigate market intelligence.										
	6. Identification of land parcels related to farming areas (mapping of areas).										
	7. Consultations with technical specialists.										
	8. Development of the Agri-Park's monitoring and evaluation framework.										
STEP 7: Detailed Master Business Plans	1. Development of detailed Master Business Plans for each FPSU.										
	2. Development of a detail Master Business Plan for the Agri -hub.										
	3. Development of a detail Master Business Plan for the RUMC.										
	4. Development of a detail Master Business Plan for each smallholder farmer.										
	5. Development of a detail Master Business Plan for the Agri-Park logistics.										
STEP 8: Financing	1. Selected targeted financial institutions to apply for financing.										
	2. Determine the minimum requirements of each financial institution.										
	3. Prepare application pack.										
	4. Apply for financing.										
	5. Project financial close.										
	1. Finalise the project designs and drawings.										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
STEP 9: Construction	2. Conduct a bill of quantities.										
	3. Prepare tender documentation.										
	5. Tender evaluation and selection process.										
	7. Site preparation.										
	8. Construction facilities and upgrade of existing infrastructure.										
	9. Site handover.										
STEP 10: Primary Production	1. Identify emerging farmers and their capacity to supply to the different agri-businesses, assess the capacity of the farms in order to see what the capacity of the farms are in terms of production.										
	2. Provide the emerging farmers with the necessary infrastructure, training, and livestock to be able to supply the adequate level of products.										
	3. Production of the identified commodities.										
	4. Training of personnel at the FPSU that will assist farmers with various activities such as, for example, seeding, fertiliser spreading, and harvesting.										
STEP 11: Training Programmes Roll-Out	1. Training, if required, of small-scale and emerging farmers at the FPSU.										
	2. Training of personnel at the Agri-Hub that will participate in the processing and value-adding of commodities.										
	3. Training of personnel at the RUMC, that will conduct market research and utilise various technologies.										
	4. Identify local skills capacity for each of the agri-businesses and sync training activities with the lack of skills or/ and capacitate local skills base.										
	5. Engage and develop partnerships with training institutions.										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	6. Expansion of emerging farmers' capacity to produce adequate supply for agri-businesses, this should be incorporated with committed local mentors and continuous training programmes to increase the farmers and co-operative management skills.										
STEP 12: Agro-Processing	1. Define the product idea, features, availability, and benefits to the consumers.										
	2. Product development, which includes all aspects such as packaging, labelling, and branding.										
	3. Analyse processing volumes and capacity.										
	4. Investigate prospective buyers, possible distribution and marketing channels, and possible export destinations.										
	5. Design processing facilities/production lines, taking into consideration processes which can be used to prevent contamination, proper food handling hygiene, sanitation system, pest management system etc.										
	6. Identify product (s) regulations and food safety requirement.										
	7. Develop a comprehensive logistic plan of how products will be received for processing.										
	8. Develop a quality control system.										
	9. Purchase of: processing equipment, production materials, and the identification of suppliers' location,										
	10. Recruit and train employees.										
	11. Secondary processing of primary processed products, packaging, labelling, and storage.										
STEP 13: Product Marketing (RUMC)	1. Conduct market analysis to determine: opportunities, available market for the product, distribution channels, what price to set for the product depending, competitors, prospective buyers/consumers, industry analysis, etc.										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	2. Assess the market to determine local, national, regional, and international trends, available market information, product market, market size, supply performance, market drivers and constraints, competitors, potential poverty reduction impacts, etc.										
	3. Set market price, depending on cost of production, competition, quality and the target market.										
	4. Engage off-take agreements based on future production in terms of quantity, quality, etc.										
	5. Determine various promotion and advertising channels that are best suitable to influencing consumers' decision to buy the products.										
	6. Distribute and market products.										
	7. Continuous engagement with potential/future clients.										
	8. Hosting of Road shows, Trade fair, industry summits, etc.										



From the Gantt chart illustrated in Table 13-3 above, it can be seen that there are various steps that need to be taken in the roll-out of the Agri-Park programme for the Thabo Mofutsanyana District. Table 13-3 above, displays the ten year roll-out plan, which begins in 2015 and ends in 2024, the chart also illustrates the various steps (depicted as a coloured block) that will occur in each of the years.

Steps one to four began in 2015, and entailed the development of the Agri-Park Model, the selection of the Agri-Hub's location, the development of the Master Agri-Park Business Plan per district, and the establishment of the Agri-Park's implementation structure. Actions such as, for example, the production of identified commodities, engagement and development of partnerships with training institutions, and the determination of promotional and advertising channels; will take place throughout a number of year, as they will continuously change and be developed and adapted to the changing markets, climates, and technologies.

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15 APPENDICES

15.1 Appendix A

Agricultural projects currently and proposed for the District

#	Project	Town	Size in hectares	Type of Production	Land used	Farmer
1	Madikwe Beef	Harrismith	2000	Beef	State	Commercial
2	Madihlofa Dairy	Harrismith	2000	Dairy	State	Commercial
3	Marematlou Crops Coop	Harrismith	2000	Crop	State	Commercial
4	Diyatalawa Fresh Fruit	Harrismith	2000	Apples and vegetables	State	Small-Holder
5	Kholokoe Potato	Harrismith	50	Potatoes	State	Small-Holder
6	Tshimokgolo	Harrismith	190	Crop	State	Small-Holder
7	Tsotesti enterprise	Harrismith	-	Crop	Private	Small-Holder
8	Motsoeneng enterprise	Harrismith	-	Crop	Private	Small-Holder
9	Dihoai Tsa Botjhabela	Harrismith	-	Crop	Private	Small-Holder
10	PVC	Phuthaditjhaba		Poultry	Private	Small-Holder
11	Refioloe Coop	Harrismith	-	Vegetables	State	Small-Holder
12	Dikhoale Coop	Phuthaditjhaba	-	Vegetables	State	Small-Holder
13	Moloi Vegetable project	Harrismith	278	Vegetables, crops, and beef	Private	Commercial
14	Tugela Trust	Harrismith	226	Dairy and crops	Private	Commercial
15	Mahlatsi Trust	Harrismith	241	Beef	Private	Small-Holder
16	N.L. Moloi	Harrismith	350	Dairy	Private	Small-Holder
17	L.J. Makoele	Harrismith	286	Dairy and crops	Private	Commercial
18	M.J. Zim	Harrismith	207	Dairy and crops	Private	Commercial
19	P.S. Mokoena	Harrismith	430	Dairy and crops	Private	Commercial
20	K.A. Malinga	Harrismith	1982	Dairy	State	Commercial
21	Ms Hika	Kestell	147	Dairy	Private	Commercial
22	Mr. Makhubo	Phuthaditjhaba	360	Dairy	Private	Commercial
23	Dr. Khalema	Harrismith	78	Dairy	Private	Commercial
24	P. Motlokoa	Harrismith	480	Dairy	Private	Commercial
25	Mr. Macapasa	Kestell	506	Beef, sheep, and crops	Private	Commercial
26	Mr. Komako	Kestell	900	Beef and crops	Private	Commercial
27	Mr. M.D. Mphuthi	Kestell	566	Beef and crops	Private	Commercial
28	Ms Mbhele	Harrismith	239	Beef and crops	Private	Commercial

29	T.A.Lephoto	Harrismith	519	Dairy and crops	Private	Commercial
30	PJ Modise	Harrismith	335	Beef and crops	Private	Commercial
31	Piet Simela	Harrismith	206	-	Private	Commercial
32	T Mnguni	Harrismith	359	Crops	Private	Commercial
33	MS Macholo	Harrismith	407	Beef and crops	Private	Commercial
34	OJ Mothiane	Phuthaditjhaba	173	Vegetables	Private	Small-Holder
35	SP Chabalala	Harrismith	214	Crops	Private	Commercial
36	Mosala S	Kestell	221	Crops	Private	Commercial
37	SA Mthimkulu	Kestell	257	Mixed	Private	Commercial
38	Maleleka	Kestell	277	Mixed	Private	Commercial
39	Buthelezi OJ.	Kestell	988	Beef	Private	Commercial
40	Skhosana NR.	Kestell	512	Beef	Private	Commercial
41	Mazibuko J.	Kestell	512	Beef	Private	Commercial
42	BW Motaung	Kestell	249	Beef	Private	Commercial
43	Makhalemele J.	Phuthaditjhaba	1074	Mixed	Private	Commercial
44	M Mopeli	Aberfeldy	460	Boer goats and crops	State	Commercial
45	Rietlaagte youth farmers	Kestell	506	Beef and crops	State	Small-Holder
46	Mr. R. A Moeng	Kestell	333	Beef	Private	Commercial
47	Buthelezi Poultry	Dithotang	1	Broiler	Communal	Small-Holder
48	Dithotang poultry	Dithotang	0.5	Broiler	Communal	Small-Holder
49	Boiteko poultry	Kgoshele	1	Broiler	Communal	Small-Holder
50	Kaheng Vaal dam	Monontsa	1	Broiler	Communal	Small-Holder
51	Iketsetseng Project	Kgoshele	3	Broiler	Communal	Small-Holder
52	Itekeng Basadi	Maralaneng	1	Broiler	Communal	Small-Holder
53	Kokoi Poultry Proj.	Moptampelong	1.5	Broiler	Communal	Small-Holder
54	Ikaheng Poultry	Poelong	4	Broiler	Communal	Small-Holder
55	Ikaheng	Qoqolosing	2	Broiler	Communal	Small-Holder
56	Itekeng Layers	Paballong	0.5	Layer	Communal	Small-Holder
57	Itshokolele	Ha Sethunya	1.5	Broiler	Communal	Small-Holder
58	Makwane Layers	Matsikeng	0.6	Layer	Communal	Small-Holder
59	Teleko Poultry	Tseki	1	Broiler	Communal	Small-Holder
60	Tseki Poultry	Tseki	5	Broiler	Communal	Small-Holder
61	Lehlohonolo vegetables	Hasethunya	0.75	Vegetables	Communal	Small-Holder
62	Naledi ya meso vegetables	Winnepark	1	Vegetables	Communal	Small-Holder
63	Botle ba tlhaho vegetables	Mandelapark	1	Vegetables	Communal	Small-Holder
64	Kgorisanong vegetables	Letshalemad	0.5	Vegetables	Communal	Small-Holder
65	Kgatelo pele vegetables	Namahali	0.5	Vegetables	Communal	Small-Holder
67	Sethuwa majwe	Marakong	7	Vegetables	Communal	Small-Holder
68	Marakong Household	Marakong	0.5	Vegetables	Communal	Small-Holder
69	Hasethunya Household	Hasethunya	0.5	Vegetables	Communal	Small-Holder
70	Slovo Household	Slovo	1	Vegetables	Communal	Small-Holder
71	Thababosiu Household	Thababosiu	0.5	Vegetables	Communal	Small-Holder

72	Winniepark Household	Winniepark	0.5	Vegetables	Communal	Small-Holder
73	Katlehong Household	Katlehong	0.5	Vegetables	Communal	Small-Holder
74	Jwalaboholo Vegetables	Jwalaboholo	0.1	Vegetables	Communal	Small-Holder
75	Letshalemaduk vegetables	Letshalemad	0.1	Vegetables	Communal	Small-Holder
76	Dikgakeng Vegetables	Naledi	0.1	Vegetables	Communal	Small-Holder
77	Ikaneng vegetable	Tseseng	0.25	Vegetables	Communal	Small-Holder
78	Sedibeng Primary School	Tseseng	0.001	Vegetables	Communal	Small-Holder
79	Sethaothe vegetable	Tseseng	0.25	Vegetables	Communal	Small-Holder
80	Tsowa o iketsetse	Tseseng	0.25	Vegetables	Communal	Small-Holder
81	Thiba le phako	Tseseng	0.25	Vegetables	Communal	Small-Holder
82	Reitumetse Vegetable	Tseseng	0.25	Vegetables	Communal	Small-Holder
83	Namoha Vegetable production	Tseseng	0.25	Vegetables	Communal	Small-Holder
84	Boikitlaetso Vegetable production	Tseseng	0.25	Vegetables	Communal	Small-Holder
85	Mongangane Vegetable production	Tseseng	0.25	Vegetables	Communal	Small-Holder
86	Mahlamba Vegetable production	Tseseng	0.25	Vegetables	Communal	Small-Holder
87	Thembalihle Vegetable production	Tseseng	0.25	Vegetables	Communal	Small-Holder
88	Tiisetso vegetable production	Tseseng	0.25	Vegetables	Communal	Small-Holder
89	Phela o phedise	Tseseng	0.25	Vegetables	Communal	Small-Holder
90	Khambule veg production	Tseseng	0.25	Vegetables	Communal	Small-Holder
91	Dinaledi tsa Dihwai	Tseseng	0.25	Vegetables	Communal	Small-Holder
92	Selepe vegetables	Tseseng	5	Vegetables	Communal	Small-Holder
93	Selahilwe	Tseseng	0.25	Vegetables	Communal	Small-Holder
94	Mohale's Garden	Thaba-tsoeu	0.44	Vegetables	Communal	Small-Holder
95	Dillo vegetable garden (Tsolo School)	Thabana-tsoana	-	Vegetables	Communal	Small-Holder
96	SOS Vegetable	Makeneng	-	Vegetables	Communal	Small-Holder
97	Sekgothadi School garden	Thabana-tsoana	-	Vegetables	Communal	Small-Holder
98	Masukela Small Farm	Thabana-tsoana	-	Vegetables	Communal	Small-Holder
99	Mamello - Tiisetso	QwaQwa	5	Vegetables	Communal	Small-Holder
100	Ikaheng Vaal Dam	Monontsa	0.5	Vegetables	Communal	Small-Holder
101	Boitiko ditholoana	Monontsa	0.5	Vegetables	Communal	Small-Holder
102	Iketsetseng	Monontsa	3	Vegetables	Communal	Small-Holder
103	Emma Mme Vegetable Project	Monontsa	4.5	Vegetables	Communal	Small-Holder
104	Mphempe e yalapisa	Bolata	0.5	Vegetables	Communal	Small-Holder
105	Boitiko Ditholoana	Phuthaditjhaba	0.5	Vegetables	Communal	Small-Holder
106	Bophelo Ke Temo Maafika	Phuthaditjhaba	0.5	Vegetables	Communal	Small-Holder
107	Diphethoho Veggies	Makeneng	0.8	Vegetables	Communal	Small-Holder
108	Mpho Masukela	Makeneng	0.5	Vegetables	Communal	Small-Holder
109	Tsietso Thola	Makeneng	1	Vegetables	Communal	Small-Holder

110	Market yourself vegetable project	Makeneng	1	Vegetables	Communal	Small-Holder
111	Makwane Social Crime	Makwane	0.5	Vegetables	Communal	Small-Holder
112	Selepe Vegetable Project	Makwane	1	Vegetables	Communal	Small-Holder
113	Thuthukani Vegetable Project	Makwane	0.5	Vegetables	Communal	Small-Holder
114	Madlamini Vegetable Garden	Kestell	1	Vegetables	Communal	Small-Holder
115	Tirisa Vegetable Project	Kestell	0.5	Vegetables	Communal	Small-Holder
116	Mampho vegetable Project	Kestell	0.5	Vegetables	Communal	Small-Holder
117	Mamosiya Vegetable Project	Kestell	0.5	Vegetables	Communal	Small-Holder
118	Mochochonono Youth Vegetable Production	Tseseng	2	Vegetables	Communal	Small-Holder
119	Phahama Lepoqong Vegetable Project	Tseseng	0.5	Vegetables	Communal	Small-Holder
120	Tsoha o Oketsetse Vegetable Project	Tseseng	0.5	Vegetables	Communal	Small-Holder
121	Tlama –Thata Vegetable Project	Tseseng	1	Vegetables	Communal	Small-Holder
122	Ithabeleng Vegetable Project	Tseseng	1	Vegetables	Communal	Small-Holder
123	Reitumetse Vegetable Project	Tseseng	1	Vegetables	Communal	Small-Holder
124	Thiba Lephako Vegetable Project	Tseseng	1	Vegetables	Communal	Small-Holder
125	Diqhobong Primary school	Makwane	0.2	Vegetables	Public School	Small-Holder
126	Saze'sfike coop	Monontsha ward	0.5	Vegetables	Clinic	Small-Holder
127	Mohlaping	Tseseng	1	Broiler	Private	Small-Holder
128	Thiba Lephako broiler Project	Tseseng	3	Broiler	Communal	Small-Holder
129	Boitumelo broilers	Tseseng	3	-	Communal	Small-Holder
130	Molefe	Tseseng	3	Layers	Communal	Small-Holder
131	Mamofina	Tseseng	1	Broiler	Private	Small-Holder
132	Moloi	Tseseng	1	Broiler	Private	Small-Holder
133	Geduld	Kestell	700	Beef and corps	State	Small-Holder
134	Java Unit 1.01	Kestell	463	Dairy and crop	Private	Small-Holder
135	Cumnor	Harrismith	270	Beef	State	Small-Holder
136	Excelsior	Paul Roux	-	Beef	Private	Small-Holder
137	Mabesele	Paul Roux	171	Beef	Private	Small-Holder
138	Beulah	Tshiame	2000	Beef and crops	State	Small-Holder

Adapted from Thabo Mofutsanyana District, 2014; Department of Rural Development and Land Reform, 2015.

15.2 Appendix B

Possible crop/livestock for Thabo Mofutsanyane	A. Biophysical criteria	Temperature	Water/moisture	Land type, capability and soil	Weed, pest and disease resilience	Adaptability to adverse conditions	B. Enterprise viability criteria	B.1 Transport, market access and infrastructure	Distance to markets and transport cost	Current demand	Future market growth potential	Market openness	B.2 Strategy, payback and profitability	Business strategy and positioning	Payback period	Profitability	B.3 Human, physical and financial infrastructure	Familiarity and local knowledge/skills	Labour cost and productivity	Implements and infrastructure	Ease to finance
Weight→		3	3	2	1	1			3	3	2	1		2	1	3		2	2	1	2
Red meat production (beef cattle and mutton sheep)		3	3	3	2	2			3	3	3	3		3	2	3		3	3	3	3
Dairy		3	3	3	1	2			3	3	2	2		3	2	2		3	2	1	2
Wool sheep		3	3	3	3	3			3	2	3	2		3	2	2		3	2	3	3
Appels		2	1	3	2	2			2	3	3	3		2	1	3		2	2	3	1
Cabbage		3	2	3	3	3			2	3	3	3		3	3	3		3	2	3	2
Asparagus		3	2	3	2	3			3	2	3	2		3	3	2		3	2	3	2
Potatoes		3	2	3	3	3			2	3	2	3		3	3	3		3	2	3	3
Carrots		2	2	3	1	2			2	2	2	3		3	3	2		3	2	3	2
Onions		2	2	3	3	2			2	3	2	3		3	3	2		3	2	3	2
Pumpkin		3	2	3	3	2			2	2	2	3		3	3	2		3	3	3	2



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Peas (including dry pea varieties)		3	3	3	3	3			2	1	2	2		3	3	2		1	3	3	2
Maize		3	2	3	3	2			2	2	3	3		2	3	2		3	3	2	2
Sorghum		3	3	3	3	3			3	3	3	3		3	3	2		3	3	2	2
Wheat		3	2	3	3	2			3	2	2	2		2	3	2		2	3	3	2
Quinoa		3	3	3	3	2			3	3	3	3		3	3	3		1	3	3	2
Chickpea		2	2	3	2	3			3	2	2	2		3	3	3		3	3	2	2
Dry beans		2	2	3	2	2			3	2	3	3		3	3	2		3	2	3	2
Mung bean (Green gram)		3	3	3	3	3			3	2	3	3		3	3	3		1	2	2	2
Soya Beans		2	2	3	3	2			2	3	3	3		3	3	3		3	3	2	2
Sunflower		2	2	3	3	2			2	3	3	3		3	3	3		2	3	2	2
Canola (rapeseed)		3	3	3	3	3			2	2	3	3		2	3	3		2	3	2	2

Possible crop/livestock for Thabo Mofutsanyane	C. Economic development criteria	C.1 Linkages and processing opportunities	Forward and backward economic linkages	Processing opportunities at District level	C.2 Job creation	Direct on-farm job creation	Indirect and induced job creation	Job quality/decency	C.3 Local development	Local opportunities and agglomeration	Agro-intensification and local GDP growth	C.4 Global competitiveness and trade	Global competitiveness	Export potential	Import substitution potential	D. Political and social criteria	D.1 Political and institutional issues	Government priority including APAP	Shortlisted by the District	Existing successful or planned projects	State/communal land suitability
Weight→			1	3		1	1	1		3	1		3	2	3			2	2	1	1



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Red meat production (beef cattle and mutton sheep)			3	3		1	2	2		3	1		2	2	2			3	0	3	2
Dairy			3	3		3	3	3		3	3		2	1	3			3	3	1	3
Wool sheep			3	3		1	2	2		3	1		3	3	2			1	0	1	2
Appels			1	2		2	2	2		2	3		2	3	2			3	3	2	1
Cabbage			3	1		3	2	2		2	3		3	1	1			3	3	3	3
Asparagus			3	2		3	3	2		3	3		3	3	3			3	3	3	3
Potatoes			3	2		3	3	2		2	3		3	3	1			3	3	3	3
Carrots			3	1		3	2	2		2	3		3	2	1			2	2	3	3
Onions			3	2		3	2	2		2	3		3	2	2			2	2	3	3
Pumpkin			3	1		3	2	2		1	3		3	2	1			2	2	3	3
Peas (including dry pea varieties)			2	2		3	3	3		3	3		1	1	1			3	2	3	3
Maize			3	3		2	3	2		3	3		2	2	3			3	0	2	3
Sorghum			3	3		2	3	2		3	3		2	2	3			3	0	3	3
Wheat			3	3		2	3	2		3	3		2	2	3			2	0	2	3
Quinoa			3	3		2	3	2		3	3		3	3	3			1	0	0	3
Chickpea			2	2		3	2	2		3	3		2	1	3			3	0	1	3
Dry beans			3	3		3	2	2		3	3		2	1	3			3	3	3	3
Mung bean (Green gram)			2	2		3	2	2		3	3		2	3	3			2	0	1	3
Soya Beans			3	3		2	3	3		2	3		2	2	3			3	2	3	3
Sunflower			3	2		2	3	3		2	2		2	2	3			2	0	3	3
Canola (rapeseed)			3	2		2	3	3		2	2		2	1	3			2	0	2	3





Possible crop/livestock for Thabo Mofutsanyane	D.2 Social issues	Acceptability (Local "buy-in")	Income equality	Black smallholder suitability	Crime and vandalism resilience	D.3 Food security and sustainability	Contribution to food security	Sustainability		Sub-totals	Biophysical total	Enterprise viability total	Economic development total	Political and social total
weight→		2	3	3	1		3	1						
Red meat production (beef cattle and mutton sheep)		3	2	3	2		2	1			28	65	43	41
Dairy		3	3	3	2		3	3			27	53	50	54
Wool sheep		2	2	3	1		2	2			30	56	48	33
Appels		2	2	2	2		3	3			19	51	40	45
Cabbage		3	3	3	2		3	3			27	59	36	56
Asparagus		3	3	3	2		2	3			26	55	53	53
Potatoes		3	3	3	3		3	3			27	59	44	57
Carrots		3	3	3	2		2	3			21	51	38	49
Onions		3	3	3	2		2	3			23	54	44	49
Pumpkin		3	3	3	2		3	3			26	53	35	52
Peas (including dry pea varieties)		3	3	3	3		3	3			30	45	37	55
Maize		3	2	2	2		3	2			26	52	50	42





Sorghum		3	1	2	2		3	3			30	60	50	41
Wheat		2	1	2	2		3	3			26	51	50	36
Quinoa		2	2	3	2		3	3			29	60	55	38
Chickpea		3	3	3	3		3	3			23	57	44	49
Dry beans		3	3	3	3		3	3			22	56	48	57
Mung bean (Green gram)		2	3	3	3		3	3			30	54	48	45
Soya Beans		3	2	2	3		3	3			23	60	48	49
Sunflower		2	1	2	3		2	2			23	58	44	34
Canola (rapeseed)		2	1	3	3		2	2			30	53	42	36



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15.3 Appendix C

Figure 15-1: Primary Sector Employment

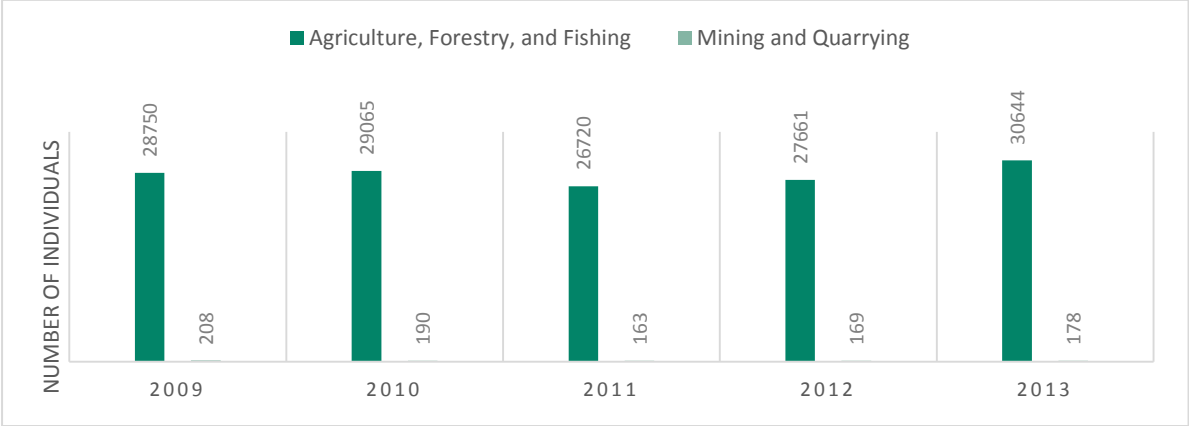




Figure 15-2: Secondary Sector Employment

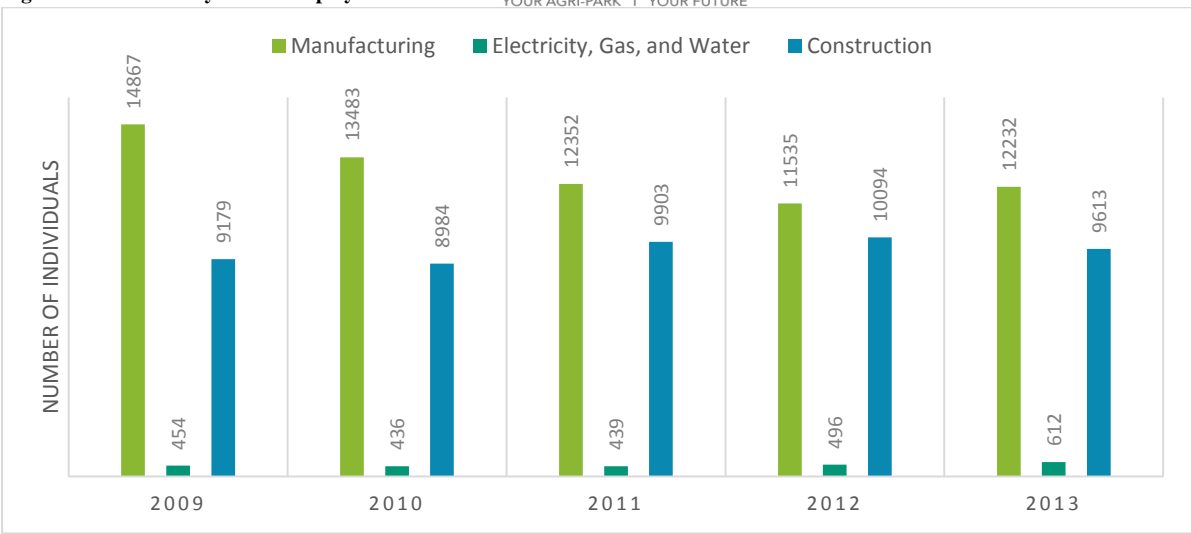




Figure 15-3: Tertiary Sector Employment



15.4 Appendix D



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MAMPOI STREET, OLD PARLIAMENT BUILDING, PRIVATE BAG X810, WITSIESHOEK 9870, SOUTH AFRICA
☎: +27 (58)-718 1032 ☎: +27 (58)713 0940

OFFICE OF THE MUNICIPAL MANAGER

26 October 2015

Urbarn – Econ
3 Sir George Grey Park West
Bloemfontein
9301

Attention: Wynand Myburgh

Re: Thabo Mofutsanyana District Municipality Agri-park Commodities

Thabo Mofutsanyana District Municipality has identified the following commodities to be researched for the project implementation at the identified sites for the Agri- Park.

1. Dairy
2. Vegetables and fruits
3. Dry Beans

If you require any clarity in this regards, please do not hesitate to contact us.

Regards

Me TPM LEBENYA
MUNICIPAL MANAGER

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15.5 Appendix E

DEVELOPING FARMERS IN PROGRAMMES OF VKB				
MEMBER NAME	ID NR OF BUSINESS REG NO	FARM NAME	CONTACT NUMBER	Farming
CHABALALA SP	5602025436088	KROONBERG	0826489298	Mixed crops & livestock
DIPALI MJ	4608145330086	CONCORDIA	0832076703	Mixed crops & livestock
DISHWESHE TSA DIKORONG PRIM	800407524	SPIOENKOP	0835420062	Livestock
KHESWA KI	5405095668089	HOLFONTEIN	072 100 1578	Mixed crops & livestock
KHOLOKOE COM DEVELOPMENT TRUST		RANDFONTEIN	0724064945	Mixed crops & livestock
KHOLOKOE POTATOES PROJECT	1200075524	RANDFONTEIN		Mixed crops & livestock
KHUBEKA J	5508315470089	LANDPUNT	0728923362	Mixed crops & livestock
LESIA KB	7303235393080	SCHURWEKOP	0783692592	Mixed crops & livestock
LETUKA MA	5002025353088	GEDULD	0721709923	Mixed crops & livestock
LIPALI TD	6012265908086	GILBOA	0793697425	Livestock
MABULA M	6502190280080	SWARTFONTEIN	0737491564	Mixed crops & livestock
MAKATE VI	5505025795082	BRONKHORSTFONTEIN	0721599399	Mixed crops & livestock
MAKHALEMELE LA	7408055552085	SAAIHOEK	0834385088	Mixed crops & livestock
MAKHALEMELE EP	6708255641088	BOVENUIT	0825753439	Livestock
MAKOELE LJ	5204065265087	DAGBREEK	0833133531	Mixed crops & livestock



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MAKOLOBANE FARMERS ENTERPRISES	08/02348707	ZOOPJESFONTEIN	0834537690	Livestock
MAKUBO M	4909255288084	BERTA	0724836169	Mixed crops & livestock
MAKUBO TE	8309115603083	WERDA NO 2	0721819026	Mixed crops & livestock
MALHLABA S	4602055287089	HARTBEES	0829593934	Mixed crops & livestock
MAQALA DT	6204175896085	DE HOOP & COSMOS	0725424751	Mixed crops & livestock
MATASANE SW	6211185391080	VERBLYDEN	0835212044	Mixed crops & livestock
MATOBako KD	8008155387082	ROODEKRANS	0737597258	Mixed crops & livestock
MATSANENG TS	5602165315084	ROSETTA & FRAAIGHT	0833168554	Mixed crops & livestock
MATSOLE JPS	6809275691085	VARIOUS FARMS	0720719738	Mixed crops & livestock
MBELE ML	4401315342085	BRAKFONTEIN	0834811292	Mixed crops & livestock
MBELE MS	6904125557089	DANIELRUST	0820917047	Mixed crops & livestock
MBHELE TM	5807185782086	ALTA	0723679329	Mixed crops & livestock
METSIMAHOLO COMMUNAL PROPTRUST	1	TIERKLOOF	0733328935	Mixed crops & livestock
MHLAMBE MD	8207265555089	SCHURWEKOP	0722735210	Mixed crops & livestock
MOFOKENG MS	6202175366083	RONDERKRAAL	0727598059	Mixed crops & livestock
MOFOKENG W	5109145582080	EXELSIOR	0827569228	Mixed crops & livestock
MOHAPE MJ	4811125653085	BRAKWATER NO 19	0828893011	Mixed crops & livestock
MOHAPI H/A BRAKWATER BOERDERY	4811125653085	BRAKWATER	0828893011	Mixed crops & livestock
MOKOENA MJ	4501135433087	MOKOENA	0715213634	Mixed crops & livestock
MOSAI TD	5201195300081	SCHURWEKOP	0836625018	Mixed crops & livestock
MOTAUNG MA	4402285440081	WELVAART	0837713838	Mixed crops & livestock



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MOTAUNG H/A KOPANO FARMING	5407245770088	BEYERS	0824521734	Mixed crops & livestock
MOTSOENENG J	4011105353083	SUNNYSIDE	0723535194	Mixed crops & livestock
MOTSOENENG M	5201025622084	CONSTANTIA	0791824354	Mixed crops & livestock
MPELE S	6005265747082	NIEU MEYER	0827833402	Mixed crops & livestock
MPHUTHI PA	7904026031084	FRAAIUTSICHT	0746049883	Mixed crops & livestock
MPHUTHI MD	7611115575083	CORNELIA	0725170987	Livestock
MPHUTHI FAMILY TRUST		GUARRIEKOP	0839773412	Mixed crops & livestock
MTHIMKULU MJ	5501225239088	ASTORIA	0835952741	Mixed crops & livestock
NKISI TJ	6906165384084	SCHURWEKOP	0837463781	Mixed crops & livestock
NKUHLU LW	4402055511087	DENEMARK	0828801600	Livestock
NTETHE FARMING CC	1004509523	BHUNGANE	0723582204	Mixed crops & livestock
NYAMBOSE BS	5505095469089	KAALLAAGTE	0825314585	Mixed crops & livestock
NYAMBOSE MJ	8707255586085	EMDEN	0722802472	Mixed crops & livestock
NYAMBOSE & MOTSIMA FARMING BK	9702886323	LORELEI	0825314585	Mixed crops & livestock
PHUNGWAYO J	5909125735081	BOTHASHOEK	0727404189	Livestock
RADEBE AD	7502045441084	GELUK	0822092920	Livestock
SIBEKO GS	7311026014088	EXCELSIOR	0839555298	Livestock
TASO RJ	6903045375085	VEEPOS	0734594306	Mixed crops & livestock
THAKAMAKHOA LA	4710275299089	LE SOUVENIR	0732669062	Mixed crops & livestock
THAMAE LD	6105255568082	HANBURY	0728221513	Mixed crops & livestock
TSOTETSI AJL	8107205407088	ELANDSRIVIER	0836985875	Mixed crops & livestock
TSOTETSI LE	5602115675082	LORENTIA	0725021553	Mixed crops & livestock
TSOTETSI RP	6605025281080	DE BULT	0762656620	Mixed crops & livestock



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YORONA GAME AND GUEST FARMS	800188707	YORONA	0829047800	Livestock
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