Sedibeng District Municipality

Agri-Parks Master Business Plan

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Final Report

rural development & land reform

Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

SEDIBENG DISTRICT MUNICIPALITY

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Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

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Agri-Parks Master Plan Roadmap

Chapter 1: Introduction

Summary: This chapter provides a background to the project, the project goal and objectives, as well as the purpose of the project. It also presents the project methodology.

Key Words: Introduction, Master Business Plan, Goal, Objectives, Purpose, Agri-Park.

Must Read: If the reader does not have any background on the Agri-Park Project.
If the reader does not know what the goal and objectives of the Agri-Park are.
If the reader would like to know what approach the project team took

Chapter 2: The Agri-Parks Model

Summary: The chapter provides a general overview of the Agri-Park model that was developed by DRDLR.

Key Words: Definition, Model, FPSU, AH, RUMC, smallholder farmers, commercial farmers.

Must read if the reader is not familiar with: The Agri-Park definition
The Agri-Park model
The three (3) basic units of the Agri-Park

Chapter 3: Policy Review

Summary: Chapter three provides an overview of the key policies that will guide the development of the Agri-Park Project

Key Words: National policies, provincial policies, Local policies, implication.

Must read:

- If the reader is not familiar with the policies that has an influence on the Agri-Park project.
- If the reader does not know how the Agri-Park aligns with the existing policies

Chapter 4: Location Context

Summary: The chapter provides an overview of the Sedibeng District Municipality (SDM), the major economic activities and infrastructure, as well as the proposed location of the Agri-Hub.

Key Words: Economic Activities, Gross Value Added (GVA), Agri-Hub, Location.

Must read if:

- The reader does not know where the SDM is located.
- The does not know the major economic activities in the SDM
- If the reader does know where the Agri-hub will be located in the SDM.

Chapter 5: Main District Role-Players

Summary: Provides a list of the main role players that could potentially be involved in the SDM Agri-Park at varying levels of the development process.

Key Words: Extension services, Financial services, Associations and Organisation.

Must Read if: The reader wants to know the main role players that the Agri-Park could form private-public partnerships (PPPs) with.

Chapter 6: Economic and Socio-Economic Analysis

Summary:

- Demographic analysis.
- Sectoral analysis.
- Unemployment rates.
- Level of education.
- Income and Poverty level.

Chapter 7: Local Agricultural Industry Analysis

Summary:

- Main agricultural activities.
- Environmental conditions.
- Commodity identification.
- Commodity prioritization – three commodities

Chapter 8, 9 and 10: Commodity Analysis: Red meat, Poultry, Vegetables

Summary:

- Market assessment.
- Value chain assessment.
- Technology needed.
- Related products.
- Stakeholder.
- SWOT analysis.

Chapter 11: Agri-Parks Concept Development

Summary:

- Development concept.
- High–level capital expenditure.

Chapter 12: Agri-Parks Organisational Structure

Summary:

- Advisory Structures
- Approval Structures
- Implementation and Monitoring

Chapter 13: Agri-Parks Implementation Guidelines

Summary: Implementation guidelines of the TMDM Agri-Park.

Key Words: Alignment, Implementation Process, Recommendations, Roll-out Plan.

Must Read if: The reader is interested in the implementation of the Master business plan

Executive Summary

The Agri-Park concept is a relatively new concept in South Africa and has led to the introduction if the Programme: One Agri-Park per District Municipality. The master business plan represents a guiding document in the implementation of the Agri-Park model that was developed by the Department of Rural Development and Land Reform (DRDLR).

Section 1 - Introduction
The introduction provides a background to the Agri-Park Programme as well as the goals and objectives, along with the purpose that the business plan will serve. In order to provide insight into the methodology used in compiling the business plan, the methodology is demonstrated and briefly discussed in this section.

Section 2 - Agri-Park Model
The section highlights the Agri-Park concept by providing a definition of an Agri-Park and describes the Agri-Park Model in terms of its three basic units, the functions of the Agri-Park units and demonstrations the interactions between the unit.

Section 3 - Policy Review
This section provides an overview of the national, provincial and district policies that will guide the development of the Agri-Park Programme in order to achieve its set objectives and gain support from government structures. The policy review provides background on the relevant policies, identifies key focus areas and targets; and discusses the implications for the Agri-Parks Master Business Plan.

Section 4 - Locational Context
This section provides an overview of the locational features of the Sedibeng District Municipality (SDM), such as locational features and major economic infrastructure. The proposed location of the Agri-Hub is indicated along with the criteria for its selection and rationale. This chapter provides an understanding of the area by providing an
which paves the way for informed decisions, opportunities, constraints and recommendations to be made in terms of the AP

Section 5 - Main Role-Players per District
This section lists the main role-players that could potentially be involved in the SDM Agri-Park at different levels of the development process. The role-players have been categorized into the following: Government and Public Sector; Private Companies; and Associations and Organisations. This section serves the purpose identifying the possible assistance and partnership opportunities that could be available for the Sedibeng Agri-Park.

Section 6 - Economic and Socio-Economic Analysis
This section provides an overview of the core economic sectors and drivers within the study area is discussed below. The makeup of the study area's economy provides insight into the sensitivity of the area to changing economic factors, as well as the forms of activities within the area. Furthermore, growth in different sectors have different implications on a location; and provide further insight into the extent of development and growth, providing insight into the types of development required and area-specific drivers and opportunities.

Section 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. Chapter 7 therefore 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 WRDM's agricultural

sector presents. In addition, the chapter provides an overview of the status quo for agriculture in the district, as well as important agricultural resource availability.

Furthermore, this chapter identifies the three dominant commodities in the WRDM, through a thorough prioritisation process. Products related to the three (3) selected commodities are also briefly discussed during this chapter. The three commodities identified for the district include vegetable, broiler and maize production.

Section 8, 9 & 10 - Commodity Analysis
These sections provide an analysis of the local, global, capital and commodity markets for each of the selected commodities. Other aspects assessed in this section 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. Each

Section 11 - Agri-Park Concept Development:
This section highlights the Agri-park concept in relation to the three (3) identified commodities in the SDM. This section focuses on the alignment of the value chain that has been developed for each commodity with the Agri-Park model. The Section includes detailed functions, roles and requirements of each of the Agri-Park units including the Farmer Production Support Unit, the Agri-Hub and finally, the Rural-Urban Marketing Centre.

Section 12 - Agri-Park Organisational Structure
In thi section proposed organisational structure of the SDM Agri-Park is illustrated and described. Details of how activities such as task allocation, co-ordination and supervision of the Agri-Park in the SDM and across the district municipalities in South Africa are explained.

Aection 13 - Implementation Guidelines
In this section the implementation guidelines indicate 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 guiding document that will ensure that the project is implemented in an efficient manner based on the content provided in the previous sections. 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 business model canvases.

Farmer Production Support Unit

Key Role/Function

- Input supplies;
- Provision of inputs & extension services;
- Mechanisation support;
- Facilitation of administrative operations;
- Field preparation and planting;
- Local market sales;
- Training;
- Logistics support; and
- Limited processing.

Location

- Given that the district is a relatively high density district it is recommended that 15 FPSU's are established throughout the district.

Training

To provide training and extension support to farmers, including:

- Best management and production practices;
- Data interpretation;
- Marketing;
- Crop cultivation;
- Animal husbandry; and
- Business administration.

Infrastructure & Equipment

The FPSU would require to put in place the following major equipment / infrastructure:

- Curing shed;
- Sorting facilities;
- cleaning, sorting, grading, drying machines;
- Weighing and packaging machines;
- Small scale processing facilities for local market;
- Produce sorting facility;
- Auction facility;
- Storage facility;
- Farming equipment required for farming activities; and
- Agricultural input distribution and sales centre.

Recommended number of FPSU's: 15

Estimated Capex: R263 440 950

Human Resources

- Agricultural extension officers' / support office;
- Machine operators/ Local mechanisation centre and workshops;
- Agronomists;
- Researchers; and
- Voluntary/Established commercial farmers

Agri-Hub

Key Role/Function

- Training support;
- Logistics support;
- Storage/warehousing;
- Packaging;
- Product branding;
- Product grading;
- Product distribution;
- Vegetable processing/packaging;
- Broiler slaughter and processing; and
- Maize storage and processing

Location

- Rietkuil

Training

Some of core training activities that would take place within the Agri-Hub include:

- Training of processing staff;
- Training on best practices, based on changing demand and supply; and
- Training on new innovations as they surface.

Human Resources

- Administrative staff;
- Quality control personnel;
- Processing/floor staff;
- Research and demonstration personnel; and
- Training personnel.

Infrastructure & Equipment

The FPSU would require to put in place the following major equipment / infrastructure:

- Agro-Processing facilities;
- Veg processing;
- Abattoir;
- Packaging facilities;
- Retail facility;
- Training centre;
- Student and staff housing;
- Logistics and transport facility;
- Large warehouses/ holding facilities; and
- Cold storage

Number of Agri-Hubs: 1

Estimated Capex: R95 671 820

Rural Urban Market Centre

Key Role/Function

Links producers to local and international markets through:

- Provision of market intelligence;
- Identification of product markets;
- Interact and negotiate with buyers;
- Undertake/manage contractual agreements;
- Storage (DC); and
- Logistics support

Location

It is proposed that there should be only **one RUMC** for all the Agri-Parks in the Gauteng Province. However, if the SDM's Agri-Park develops into a feasible business venture, and there is a demand for an RUMC in ten years, an ideal location would be selected at a district level.

Note: Recommended due to proximity to major markets

Training

The following forms of training would be provided at the Rural Urban Market Centre:

- Data collection/collation;
- Data interpretation; and
- Data dissemination

Human Resources

- Administrative staff;
- Quality control personnel;
- Processing/floor staff;
- Research and demonstration personnel; and
- Training personnel

Infrastructure & Equipment

The Rural Urban Market Centre would require to put in place the following equipment/infrastructure:

- Office facilities/ information centre;
- ICT; and
- Distribution centre

Number of RUMC: 1

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Acronyms

AFASA	**African Farmers Association of South Africa**
AH	Agri-Hub
AP	Agri-Park
APAC	Agricultural Producers Agents Council
APAP	Agricultural Policy Action Plan
ARC	Agriculture Resource Council
ARC	Agriculture Resource Council
CASP	Comprehensive Agricultural Support Programme
COGTA	Department of Cooperative Governance and Traditional Affairs
CRDP	Comprehensive Rural Development Programme
DAFF	Department of Agriculture, Forestry and Fisheries
DBSA	Development Bank of Southern Africa
DL	Department of Labour
DM	District Municipality
DPWT	Department of Public Works and Transport
DRDLR	Department of Rural Development and Land Reform
DTI	Department of Trade and Industry
DWA	Department of Water and Sanitation
DWS	Department of Water and Sanitation
EU	European Union
FNB	First National Bank
FPSU	Farmer Production Support Unit
FS	Free State
GDARD	Gauteng Department of Agriculture and Rural Development
GEP	Gauteng Enterprise propeller
GMO	Genetically Modified Organism
GP	Gauteng Province
HACCP	Hazard Analysis and Critical Control Points
ICT	Information and Communications Technologies
IDP	Integrated Development Plan
IGDP	Integrated Growth and Development Plan
IPAP	Industrial Policy Action Plan
LM	Local Municipalities
LRF	Livestock Registering Federation
LSH	Large-Scale Farmers
MLM	Midvaal Local Municipality
NAFU	National African Farmers Union
NDA	National Development Agency
NDA	National Development Agency
NERMPO	National Emergent Red Meat Producers Organisation

NFPM	National Fresh Produce Market
PDMA	Poultry Disease Management Agency
PDMA	Poultry Disease Management Agency
PIMD	Provincial Index of Multiple Deprivation
PLAS	Proactive Land Acquisition Strategy
PPP	Premier Pork Producers
PROKON	Product Control for Agriculture
REMA	Red Meat Abattoir Association
RID	Rural Infrastructure Development
RMPO	Red Meat Producers Organisation
RUMC	The Rural Urban Market Centre Unit
SACNASP	South African Council for Natural Scientific Progression
SADC	South African Development Commission
SAFA	South African Feedlot Association
SAGIS	Savannah Area Geographic Information System
SAMIC	South African Meat Industry Company
SAMPRO	South African Mini Tuber Producers
SANHA	South African National Halaal Authority
SAOBC	South African Ostrich Business Chamber
SAPA	Southern African Poultry Association
SAPPO	South African Pork Producers Organisation
SASAE	South African Society for Agricultural Extensionists
SDF	Spatial Development Framework
SEDA	Small Enterprise Development Agency
SMH	Small-Scale Farmers
SWOT	Strengths Weaknesses Opportunities Threats
TDCA	Trade, Development and Co-Operative
TPO	Tomato Producers Organisation
USA	United States of America
WARD	Women in Agriculture

Tables

Figures

Maps

Section 1: Introduction

1.1. Introduction

Urban-Econ has been appointed by the Department of Rural Development and Land Reform (DRDLR) to develop an Agri-Park (AP) Business Plan for the Sedibeng District Municipality (SDM). The DRDLR has been commissioned the implementation of an APs programme that is aimed at the eradication of rural poverty, a critical challenge for the government. This requires that a business plan is developed for each AP in order to move forward with the implementation of the programme.

1.2. Goals and Objectives

The goal of the project can be described as the "development of a Master AP Business Plan that aligns with the AP Model that was developed by the DRDLR and the dominant Commodity Value Chains in the SDM".

The objectives of the project can be summarised as follows:

1. To develop a guiding document towards the implementation of the AP within the district;
2. To engage with district representatives, government officials, and other related role-players;
3. Aligning the business plan with existing policies, strategies, and other relevant development plans;
4. Identify three dominant or most feasible commodities within the district;
5. To identify agro-processing business opportunities for each AP based on the three commodities;
6. Identify current agro-processing initiatives and possible synergies, linkages and opportunities to buy into existing businesses;
7. Identify potential public-private partnerships;
8. Propose an action plan, investment incentives, and further recommendations;
9. Develop black class farmers in terms of technical expertise, ability to supply the market, sustainability, and at the desired market quality;
10. Create joint ventures that will see small scale and emerging farmers participate in supplying the AP; and
11. Create incentives for private farmers to join the AP as a lucrative investment opportunity.

1.3. Purpose of the Master Agri-Park Business Plan

The purpose of the master business plan is to guide the process implementing the AP in the SDM. The Master AP Business Plan will be aligned with the AP model which was developed by the DRDLR and the dominant commodity value chain(s) in the specified DM. The Master AP Business Plan will be in-line with the commodities in the respective:

- Farmer Production Support Units (linked to farmers and farming areas);
- Agri-Hub and feeder Farmer Production Support Units; and
- Rural Urban Market Centre and linkages with Agri-Hub and Farmer Production Support Units.

Additionally, the Business Plan will assist in highlighting any existing and possible new agro-processing initiatives, possible synergies and linkages based on market analysis and financial viability. Lastly, an institutional/ organisational plan will be developed in order to show how existing farmer support organisations, support services (private and public sector) and farmers will be linked to the AP Model.

1.4. Methodology

Figure 1 below provides for a methodology illustration of the various steps that are undertaken for the study, these are issue described below in more detail.

Figure 1: Methodology

1.5. Report Outline

The remainder of the report is broken down into the following sub-sections:

- **Section 2: Agri-Park Model –** this section includes an overview of the AP Model.
- **Section 3: Policy Review** - this section includes a review of all the relevant policies to indicate how the proposed developments are aligned to government objectives and includes a list of projects (public and private) occurring in the area.
- **Section 4: Locational Context –** this section includes an overview of the locational context within the district.
- **Section 5: Main Role-Players –** this sections indicates who the main role-players are within the district.
- **Section 6: Socio-Economic Profile** – this section provides an overview of the expected socio-economic impacts for the proposed project
- **Section 7: Agricultural Industry Analysis –** this section provides an agricultural analysis of the district.
- **Sections 8, 9 and 10: Commodity Analysis –** this section provides an overview of the top three selected commodities.
- **Section 11: Agri-Park Development Concept –** this section provides an overview of the development concepts for each of the identified commodities.
- **Section 12: Implementation Guidelines –** this section outlines the recommendations that will guide the AP development.
- **Section 13: Appendix A**

Section 2: Agri-Park Model

2.1. Introduction

This section focuses on the relevant concepts and background information associated with the AP and AH development as well as the strategic objectives for the AP programme. An AP is an innovative system of agro-production, processing, logistics, marketing and training, and extension services located in District Municipalities. As a network, it enables a market-driven combination and integration of various agricultural activities and rural transformation services.

2.2. Understanding the Agri-Park Concept

The AP concept follows an integrated approach of collective farming efforts, Agri-Clusters, small-scale farmer incubation programmes, 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, whereby multiple tenants and owners operate under a common management structure where a range of enterprises can exist. The AP model is required to have a strong social mobilisation component for the organisation and mobilisation of black farmers and agri-business entrepreneurs to actively support the initiative. Furthermore, the model should strengthen partnerships between government, the private sector, and civil society, such as forming relationships with the Department of Agriculture, Forestry and Fisheries (DAFF) and the Department of Cooperative Governance and Traditional Affairs (COGTA).

For the programme to be successfully implemented, the AP should adhere to the following criteria. The AP should be based on the locational economic and comparative advantages of the area; have all the elements required by a value chain (cluster) for a dominant comparative, or product advantage; and be able to lay a solid economic foundation for the development of rural industrialisation.

To ensure the successful implementation of the AP programme the following guiding principles should be followed:

1. One AP per District (44 nationally, 6 provincially)
2. AP must be farmer controlled.
3. AP must be the catalyst around which rural industrialization will takes place.
4. AP must be supported by government (for 10 years) to ensure economic sustainability.
5. Partnerships between government and private sector stakeholders should be strengthened, ensuring increased access to water, energy, and transport services, and production and develop existing and create new markets to strengthen and expand value-chains.
6. Maximise production of state land with high agricultural potential.
7. Increase and maximise access to markets to all farmers, especially emerging farmers and rural communities.
8. Maximise the use of land with high agricultural potential (i.e. land with high production capability).
9. Maximise use of existing agro-processing, bulk and logistics infrastructure.
10. Revitalise rural towns and provide support to towns with good growth potential, particularly towns with high current or potential economic growth, and high population growth over the past ten years.

Therefore, the business plans for the AP will be structured around the identification of appropriate products, location, potential 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. Importantly, an assessment of each district's comparative advantages, in terms of agriculture, will assist in aiding in the development of the APs.

2.3. Background to Agri-Parks

The Department of Rural Development and Land Reform (DRDLR) has been commissioned for the implementation of an AP programme that is aimed at the eradication of rural poverty, a critical challenge for the government which requires a business plan is developed for each AP in order to move forward with operationalisation. The Master AP Business Plan that will be produced will be aligned to the the AP model that was developed by the DRDLR. The Government has many key areas to address, one of which is poverty alleviation, especially in rural areas where there is a lack of economic activity. Government has intervened with various anti-poverty programmes; however, the impact to-date has been. The key issue has not been the programmes themselves, but rather the co-ordination of anti-poverty activities and integrated service packages to match the local priorities.

The APs system is a relatively new concept to South Africa (SA), 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, 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 AP (nationwide network) will play in open space preservation. The term "AP" 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 AP are intended to provide a platform for networking between producers, markets and processors, while also providing the physical infrastructure required for the transforming industries (DAFF, 2014).

The focus of the AP is primarily on the processing of agricultural products, while the mix of 'non-agricultural' industries may be low or non-existent. Of prime importance is access to viable agricultural land, where a range of productive agri-horticultural enterprises may exist. The AP Programme forms part of Government's undertaking to review all land reform policies as enunciated 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 AP will be farmer-controlled with the model having a strong social mobilisation component so that black farmers and agri-business entrepreneurs are actively mobilised and organised to support this initiative. For the success of the initiative the DRDLR's will be required to develop strategic partnerships with key government departments such as DAFF, and COGTA and other spheres of government. In addition, state land will be brought into use and is to be used for both production and processing.

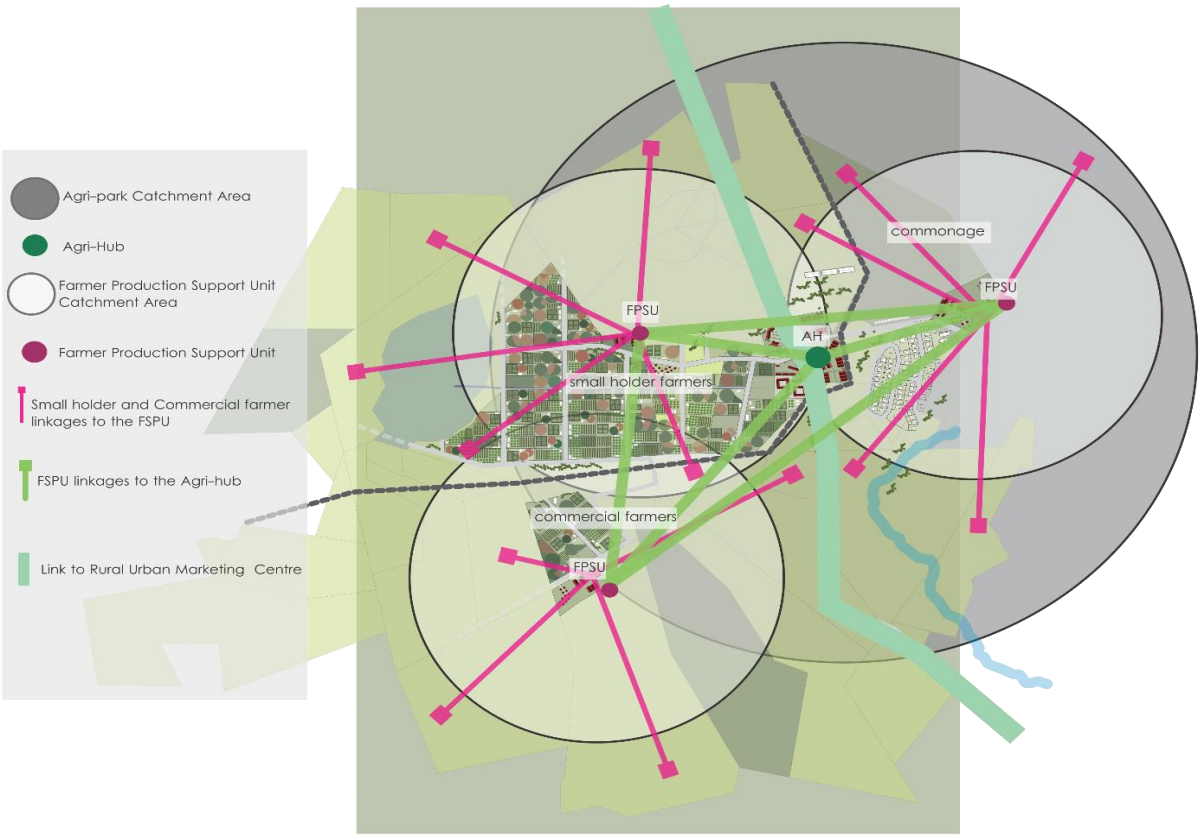
An AP is an innovative system of agro-production, processing, logistics, marketing and training and extension services located in the DM. As a network, it enables a market-driven combination and integration of various agricultural activities and rural transformation services. The AP contain three basic units:

1. **Farmer Production Support Units (FPSU):** Are centres (more than one per district) of agricultural input supplies, extension support, mechanization support, local logistics support, primary produce collection, and through-put to Agri-Hubs. The FPSUs have limited sorting, packaging, storage, and processing for local markets with through-put of excess products to Agri-Hub.
2. **Agri-Hub (AH):** AH are located in central places in a DM, preferably places with sufficient physical and social infrastructure to accommodate storage/warehousing facilities; Agri-processing facilities; packaging facilities; logistics hubs; agricultural technology demonstration parks; accommodation for extension support training; housing and recreational facilities for laborers. AH receive primary inputs form FPSU's for processing, value adding and packaging, which is through-put into the Rural Urban Market Centres or exported directly to markets; and

3. **A Rural Urban Marketing Centre (RUMC):** RUMCs are located on the periphery of large urban areas, these facilities provide market intelligence assist farmers, processors in managing a nexus of contracts. With large warehousing and cold storage facilities to enable market management. Both FPSU's and AH provide inputs to the RUMC. AP share RUMCs.

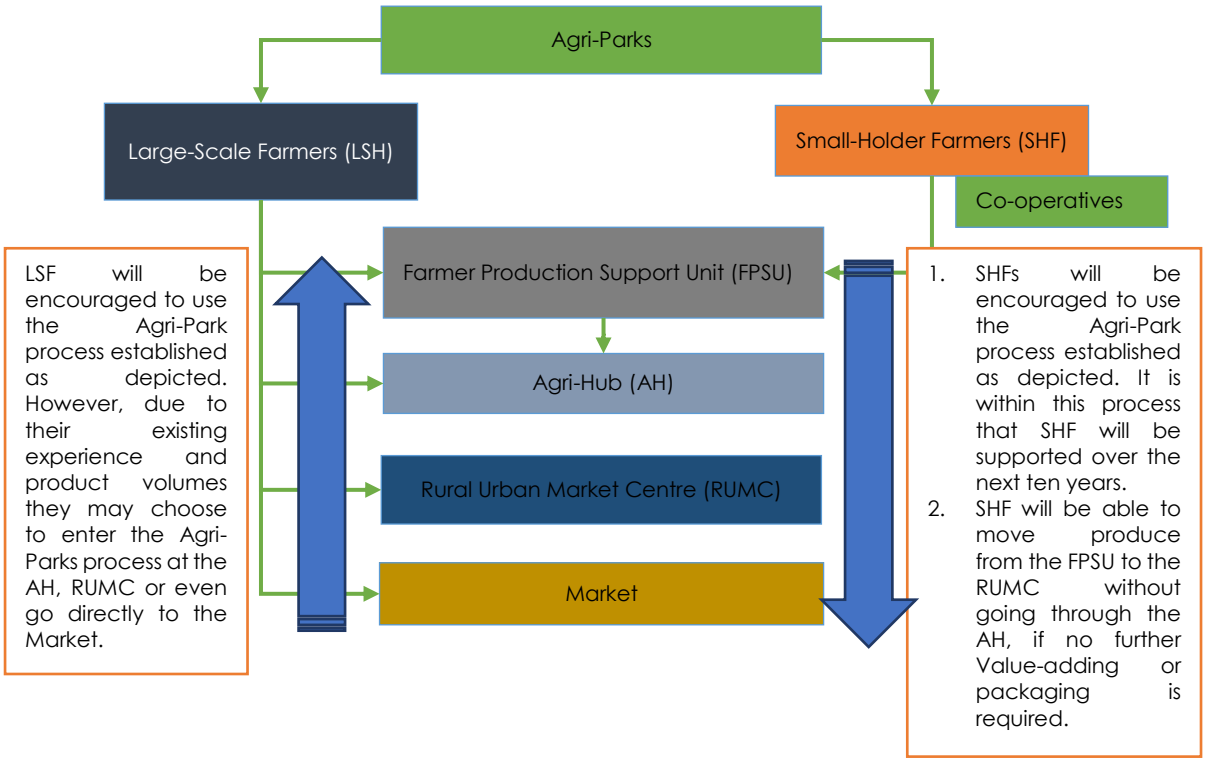
Figure 2 below depicts the catchment area of the AP in the grey circle, essentially illustrating the size and contents of the Park that includes farmers, FPSU's, AH's and RUMC's. The AH, forms the central point of the AP that is linked to the FPSU's. There will be more than one FPSU per district, which is intended to provide a supporting role between the AH and the farmers. All these components of the AH are interlinked, providing a streamlined and integrated approach to agricultural and rural development.

Figure 2: Strategic Representation of the Agri-Park Model



A visual representation of the information and produce flows within the AH system is provided in ***figure 3*** below.

Figure 3: Agri-Park produce and information flows



The above figure illustrates the strategic representation of the AP model. This model is to be duplicated in each district across the country, essentially creating a Mega AP. Each AP, however will be developed based on its own comparative advantages and its strength, in order to develop each district level economy.

The FPSU is designed to have catchment areas of 30km in low density areas and 10km in high density areas, 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 AH's than FPSU's. The RUMC is designed to have the largest catchment areas of 250km in low density areas and 150km in high density areas. It is important to note that there will be one RUMC in the province in order not to duplicate resources. *Table 1* provides the relevant detail of the proposed catchment of each component (FPSU, AH, RUMC).

Table 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

The AP Programme seeks to achieve rural economic development through an all-inclusive approach to development by developing agricultural value chains that are linked nationally. The programme will also aims to address issues of employment, skills development and productivity of land. It is viewed as a programme that will address issues of rural economic development. Government has previously intervened with various anti-poverty programmes, but with a lower impact than what was expected. The AP model, however, is expected to co-ordinate anti-poverty activities, providing an integrated package service that will match the local priorities.

2.4. Strategic Objectives of the Agri-Park Programme

The following are the strategic objectives of the AP Programme:

- Establish AP in all of South Africa's DM that will kick start the Rural Economic Transformation for these rural regions;
- 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 (as set out in the National Growth Path);
- Promote the skills of, and support to, small-holder farmers through the provision of capacity building, mentorship, farm infrastructure, extension services, production inputs and mechanization inputs;
- Strengthen existing and create new 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 AP value chain;
- Enable producer ownership of the majority of AP equity (70%), with the state and commercial interests holding minority shares (30%);
- Allow smallholder producers to take full control of AP by steadily decreasing state support over a period of ten years;
- Bring under-utilized land (especially in Communal Areas Land and land reform farms) into full production over the next few years, and expand irrigated agriculture; and
- Contribute to the achievement of the National Development Plan's "inclusive rural economy" and target of 1 million jobs created in agriculture sector through creating a higher demand for raw agricultural produce, primary and ancillary inputs, as well as generating increased downstream economic activities in the sector.

Section 3: Policy Review

3.1. Introduction

This section provides an overview of the national, provincial and district policies that will guide the development of the APs Master Business Plan. The policy review provides background on the relevant policies, identifies key focus areas and targets; and discusses the implications for the APs Master Business Plan.

3.2. National Policy

a) New Growth Path Framework 2010

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 by five million jobs by 2020; to ensure that half of the working-age population in SA 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 (Department of Economic Development, 2010).

Strategic priorities/ focus area

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; and
- Invest in health including effective measures to address HIV/AIDS.

Implications for the development of the AP

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 APs Master Business Plan.

b) National Development Plan 2030 (2010)

SA'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 SA, 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 SA. These aspects affect every other aspect 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 (National Planning Commission, 2010):

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. SA remains a divided society.

Strategic priorities/ focus area

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:

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

Implications for the development of the AP

The National Development Plan views agriculture as critical to employment and food security. It is estimated that Agriculture could potentially create a million jobs by 2030. AP's 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 APs based on the growth potential of value-adding commodities. As such, each AP 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, APs 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 SA 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.

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

The *Industrial Policy Action Plan (IPAP) 2013/14-2015/16* is in its fifth iteration 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 SA's manufacturing sectors. IPAP will ultimately lead to a restructured economy with more value-adding, labour intensive, and environmentally sustainable industrial activities (Department of Trade and Industry, 2013/14 – 2015/16).

Strategic priorities/ focus area

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; and
- Special economic zones.

Implications for the development of the AP

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 government.

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

- Development of a Food-processing Strategy and Action Plan with the objective of accelerated growth in the food-processing sector.

- Development of a small-scale milling industry to enable small-scale maize milling enterprises to produce for local markets at competitive prices.
- 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.
- Development of a Soybean Action Plan promoting market linkages between primary agricultural producers and processors.
- 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.
- 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 AP Programme is key in advancing the objectives of IPAP. The AP 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.

d) 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 (Department of Agriculture, Forestry and Fisheries, 2015-2019).

Strategic priorities/ focus area

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 development of the AP

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

a) Contribution to food and security
b) Job creation
c) Value of production
d) Potential contribution to trade balance

The APAP informs the APs 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 development of APs is in line with the APAP policy levers and would help in achieving its set out goals.

e) 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 (Department of Agriculture, Forestry and Fisheries, 2012) .

Strategic priorities/ focus area

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:

a) Facilitate access to incentives and support packages
b) Facilitate access to infrastructure
c) Promote value chain linkages
d) Support technical and managerial training
e) Facilitate access to appropriate technology
f) 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 development of the AP

Developing and supporting the currently underserviced agro-processing SME's 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 APs Master Business Plans due to the scope of agro-processing in the national economy.

f) 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 (Department of Agriculture, Forestry and Fisheries, 2013/14 – 2017/18).

Strategic priorities/ focus area

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; and
- Agro-processing strategic frameworks.

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

- 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; and
- Effective and efficient governance.

Implications for the development of the AP

The Strategic Plan of the DAFF supports the development of the APs Business Plan. 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.

g) National Policy Framework on the Development of Small and Medium Agro-Processing Enterprise in the Republic of South Africa (2015)

The *National Policy Framework on the Development of Small and Medium Agro-Processing Enterprise* in *the Republic of* SA was initiated by the DAFF (Department of Agriculture, Forestry and Fisheries, 2015).

Strategic priorities/ focus area

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; and
- 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 SMEs 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; and
- Facilitate infrastructure investment specifically within rural areas.

Implications for the development of the AP

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 APs Master Business Plan 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.

h) 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 SA. 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 (Department of Agriculture, Forestry and Fisheries, 2012).

Strategic priorities/ focus area

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; and
- Good governance.

Implications for the development of the AP

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.

i) South African Agricultural Production Strategy

The global threat on the affordability and availability of basic food has plunged many countries into food crisis. Governments debated and re-looked at the role of agriculture both economically and socially and within South African Agricultural Production Strategy (SAAPS) is indicated how agriculture has an important role to play in industrialisation and development (Department of Agriculture, Forestry and Fisheries, 2011 - 2025).

Strategic priorities/ focus area

The South African Production Strategy seeks to position primary agriculture by targeting the following:
- Subsistence production;
- Smallholder production; and
- Commercial production.

The purpose of focusing on the above is for improving national food security, safety and agricultural economic output in a profitable and sustainable manner through a qualitative and quantitative improvement of SA 's agricultural productivity, production efficiency and trade and regulatory environment for all commodity groups. It also strives to stimulate rural economic growth and development.

The strategic goals of the SAAPS:
1. Increase the entry levels into commercial agriculture;
2. Improve the national agricultural economic output and national food safety and security;
3. Improve agricultural support services, the regulatory framework, and the competitive advantage for commodity sectors; and
4. Stimulate rural economic growth and development, by stimulating spatial economic planning and implementation, further serving as an incentive for investment in rural areas.

The SAAPS has strategic objectives that can be achieved through the Farmers Development Programme/ Acts and the Food Securities Programme/ Act. The strategic objectives that will be achieved through the interventions are as follows:
1. Improve the food security, policy and legislative framework to mitigate against high global food prices and market manipulation;
2. Improve the domestic and global competitiveness of the South African agricultural sector;
3. Create formal platforms of interaction, between government and industry;
4. Improve national coordination and management of government support services to farmers, and decentralised support services in the form of local Agricultural Development Service Centres;
5. Address the decreasing production levels among the smallholder and subsistence food producers through commodity-based experiential training and mentorship academies, as a prerequisite to government financial support; and
6. To improve the government 's planning capacity at national, provincial and local levels, through the formulation and installation of knowledge

Implications for the development of the AP

The SAAPS indicates that agriculture remains critical to SA's development agenda in meeting the following strategic objectives:
- Increased participation in the agricultural sector;
- Ensure household food security and national food security by ensuring food availability and affordability;
- Ensuring sustainable resource management; and
- Ensuring agricultural economic growth that maximises spill over effects into the rest of the economy.

In terms of the above the APs Master Business Plan will assist in meeting the above strategic objectives.

Linkages to National Government Programmes

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

Department of Rural Development and Land Reform

a) 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 including: 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 development of the AP

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:

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.

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 to mitigate community vulnerability to, especially, climate change, soil erosion, adverse weather conditions and natural disasters, hunger and food insecurity.

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.

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.

Other Programmes

a) Land Reform Programmes

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

- Strategically located land acquired
- Farm development support provided to smallholder farmers
- Functional system and institutional arrangements

b) 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 Business Plan, which stipulates comprehensive development requirements of targeted properties over a 5-year recapitalisation and development cycle.

c) Provincial Shared Services Centres

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

- Redistribution in terms of the Pro Active Land Acquisition Strategy (PLAS)
- Tenure (ESTA, IPILRA)
- Recapitalisation

Department of Agriculture, Forestry and Fishing

a) Comprehensive Agriculture Support Programme

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.

b) Micro-Agricultural Financial Institutions of South Africa

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.

c) 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.

d) 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.

3.3. Provincial Policy

a) Gauteng Agro-Processing Strategy (2015)

The Gauteng Agro-Processing Strategy identifies challenges and highlights that interventions are necessary to redress the imbalances of the past and the skewed nature of the sector. In addition, the strategy identifies a significant opportunity for agro-processing to become a driving force for economic growth in Gauteng. While the intent and commitment by the Province in this regard is well documented, a planned and coordinated approach to the development of the industry is required. Through the

development of a targeted Agro-processing Strategy, the Gauteng province can strengthen its competitiveness and support localisation (Urban-Econ, 2015).

Strategic priorities/ focus areas

The key objectives to be met in achieving this vision are to:

- Develop a modern, efficient and integrated agro-processing industry in the Province;
- Include small enterprises in the mainstream agricultural and agro-processing economy towards the creation of black industrialists;
- Capitalise on and optimally utilise the existing infrastructure, networks and natural resources at the disposal of the Province in value adding activities;
- Invest in human capacity and promote technology transfer to enable greater participation in agro-processing activities;
- Provide the appropriate infrastructure and enabling environment for growth and development of the agro-processing industry in Gauteng.

The Strategic Framework aimed at driving agro-processing development and growth comprises of four main pillars, namely:

- Pillar 1: Government-Led Investment;
- Pillar 2: Partnership Development;
- Pillar 3: Transformation; and
- Pillar 4: Creating a Conducive Environment.

In terms of agri-specific opportunities, based on the evaluation framework presented above, the various industries were ranked in terms of the opportunities for development they offer. Based on the rankings, the industries were grouped as follows:

- First order or high priority industries: fruit and vegetables, grain milling and baking, poultry, red meat, and piggeries;
- Second order or medium priority industries: Diary, animal feeds, vegetable oil and oil seed, liquor and leather; and
- Third order or low priority industries: agro-pharmaceutical, aquaculture, non-alcoholic beverages, flowers and essential oils.

Implications for the development of the AP

Additionally, the ***key benefits*** that will be realised through the implementation of the Gauteng Agro-processing Strategy includes

- Job opportunities in the entire value chain of the agriculture sector;
- Promotion and investment in the agro-processing sector of the Gauteng Province;
- Improvement in competitiveness of the local economy by optimally using the local resource base and locational advantages;
- Stronger integration between the different economic sectors of the Province;
- Enhancement of local businesses/enterprises and skills development for the agro-processing industries; and
- Promotion of overall growth and development of the agro-processing industries.

b) Gauteng Industrial Policy Framework (2010 - 2014)

The *Gauteng Industrial Policy Framework (GIPF)* is a framework designed to contribute effectively to wide-ranging industrial development, food security and the creation of decent job opportunities in Gauteng. The framework is aligned to the Gauteng's Provincial Government's vision for industrial development. This

policy framework seeks to move Gauteng's economy towards high value-added and more technological advanced development with knowledge playing a major role (Gauteng Province: Economic Development, 2010 - 2014).

Strategic priorities / focus areas

The strategic priority is to grow the industrial sectors that are more labour intensive focusing on those that can accommodate both unskilled and semi-skilled workers. The green economy is identified as a potential labour intensive sector within the GIPF. Local food production is key to a developmental of a green economy.

Implications for the development of the AP

The agro-processing sector is one of the key sectors identified to address food security. The GIPF informs the APs Master Business Plan that increasing production within this sector will invariably result into creation of employment opportunities as well as building a stronger regional food economy. It is stated that all provincial programmes should both complement and utilise national policy through the following:

- Establishment of a National Food Control Agency;
- Development of the organic food sector;
- Development of high-value agriculture niche markets – organic cotton;
- Competitive enhancement in the fruit and vegetable canning industry; and
- Promote exports of beneficiated Rooibos and Honeybush products.

c) Gauteng Township Economy Revitalisation Strategy (2014)

The Gauteng Township Economy Revitalisation Strategy (GTERS) coordinated by the Gauteng Department of Economic Development (GDED) sets out a programme of action that shows how government together with various partners and intergovernmental working groups intend to take a lead in revitalising the township economy over a period of five years and even beyond. The township economy was defined as enterprises and markets based in townships. The aim of this strategy is to address specific barriers associated with township enterprises such as the following (Gauteng Province: Economic Development, 2014):

- Lack of entrepreneurial and productive activity
- Poor understanding of the abilities and values
- Little hard evidence to demonstrate the impact and value-added
- Limited account taken of their particular characteristics and needs within enabling and supportive environment
- Complexity and lack of coherence within township economic sectors combined with widely varying skills and knowledge bases

What the strategy sought to achieve is to create an enabling and supporting environment in which township economy can flourish and ensure that township enterprises become key players in the Gauteng economy.

Strategic priorities / focus areas

Government is committed to ensuring that township economies contribute at least 30% of the Gauteng GDP as against the current 10% by 2030. The following seven strategic focus areas have been identified:

- Ensuring that there is an appropriate legal and regulatory framework
- Promoting manufacturing and productive activities
- Economic infrastructure support and clustered enterprise development
- Promoting entrepreneurship development

- Financing and investing in the township economy
- Promoting access to markets
- Promotion of innovation and indigenous knowledge systems

Implications for the development of the AP

With cognisance of the productive potentials of township enterprises, the GTERS indicates to the APs Master Business Plan that it 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.

d) Gauteng Employment Growth and Development Strategy (2009 – 2014)

The GEGDS is a multi-stakeholder strategy led by the GDED, set out to create an inclusive and sustainable Gauteng City-Region that promotes a developmental and equitable society. The GEGDS primarily addresses the first strategic priority of the MTSF which is to create decent work and build a growing, inclusive economy. The broad targets of the GEGDS therefore are increased economic growth rate, decreased unemployment rate and decreased poverty rate (Gauteng Department of Economic Development, 2009 - 2014).

Strategic priorities / focus areas

The long term strategic objective of GEGDS is to create decent job opportunities through endogenous economic growth trajectory based on innovation, green growth and an inclusive economy. The strategic priorities are the following:

- Promoting quality education and skills development;
- Better healthcare for all;
- Stimulating rural development and food security;
- Intensify the fight against crime and corruption;
- Building cohesive and sustainable communities; and
- Strengthening the developmental state and good governance.

The following five strategic pillars are identified towards achieving the priorities indicated above:

- Transforming the provincial economy through improved efficiency (economic dimension);
- Sustainable employment creation (economic dimension);
- Increasing economic equity and ownership (equality dimension);
- Investing in people (social dimension); and
- Sustainable communities and social cohesion (social dimension).

The following agri-specific projects under each pillar have and will be focused on according to Vision 2055:

Pillar 1: Transforming the provincial economy through improved efficiency (economic dimension)
- Agriculture and agro-processing

Pillar 2: Sustainable employment creation (economic dimension)
- Agriculture and agro-processing

Pillar 5: Sustainable communities and social cohesion (social dimension)
- Agriculture and agro-processing

Implications for the development of the AP

The GEGDS informs the APs Master Business Plan that agriculture and the agro-processing sectors are identified as labour absorbing sectors. The sectors will assist in transforming the provincial economy through efficiency. Growing and development of the agro-industrial sectors will play in key role in sustainable employment creation within Gauteng.

e) Gauteng 2055

The Discussion Paper on the Long-Term Development Plan for the Gauteng-City Region (GCR) presents an analytical framework for a long term plan tagged 'Gauteng 2055'. The ideas and questions posed in this document aim to support the analysis and prioritisation of possible long-term initiatives to shape the future of the GCR. Gauteng 2055 is a development plan which will guide all stakeholders to ensure that the province is prepared to face the challenges presented by urbanisation, migration, poverty, unemployment and climate change and build on the numerous opportunities offered by the region and its people (Gauteng Provincial Government, No Year).

Strategic priorities / focus areas

The strategic priorities of the framework presented in this Discussion Paper is to attain a liveable, equitable, prosperous and united GCR. The drivers within the GCR will be a developmental state, an engaged civil society and active citizenry. The four key primary ideals that this framework seeks to achieve are the following:

- Equitable growth;
- Social inclusivity and cohesion;
- Sustainable development and infrastructure; and
- Good governance.

Indicated below are key agricultural specific interventions:

1. Develop and implement the Gauteng Integrated Food Development Strategy
2. Providing smallholder farmer development and support (technical, financial, infrastructure) for agrarian transformation
3. West Rand Agricultural College
4. A policy to address the protection of high-potential agricultural land
5. The Gauteng Comprehensive Rural Development Strategy was approved and the first Rural Development Summit was held
6. Increasing access to quality basic infrastructure and services, particularly in education, healthcare and public transport in rural areas
7. Investment in production of bio-fuels from locally produced crops
8. Integration of urban and peri-urban economies

Implications for the development of the AP

The Discussion Paper discusses the importance of the four key primary ideals. The document states that the inclusion of social partnerships would assist in meeting the objectives of inclusive employment, in this instance the APs Master Business Plan would support Gauteng 2055.

f) Gauteng Provincial Environmental Management Framework (2014)

The GDARD produced a GPEMF to replace all the EMFs in Gauteng (except the Cradle of Humankind World Heritage Site which is incorporated within the GPEMF) (GDARD, 2014).

Strategic priorities / focus areas

The objectives of the GPEMF is to guide sustainable land use management within the GP and serves the following purposes:

- Provide strategic and overall framework for environmental management in GP;
- Align sustainable development initiatives with environmental resources, developmental pressures and growth imperatives of Gauteng;
- Determine geographical areas where certain activities can be excluded from an EIA process; and
- Identify appropriate, inappropriate and conditionally compatible activities in Environmental Management Zones in a manner that promotes pro-active decision making.

The GPEMF indicates that agricultural and rural development that support agriculture should be promoted,

Implications for the development of the AP

The GPEMF is aimed at providing information that can be used by the authorities to support decisions that will take the APs Master Business Plan in the "right direction." The GPEMF will inform the APs Master Business Plan that it important to find the best possible match between protecting resources (i.e. preventing their loss or degradation) on which humankind depends, whilst addressing the need for development to address pressing social needs such as poverty.

g) Gauteng Agricultural Development Strategy (GADS) 2006

The Gauteng Agricultural Development Strategy (GADS) is a concise document that assists in directing agricultural development across the GP and presents opportunities to assist in achieving the objectives of the Gauteng Growth and Development Strategy (GDARD, 2006).

The GADS is fivefold; its purpose is to:

1. Develop Gauteng's agricultural economies (first and second) to attain their maximum potentials and convergence into one;
2. Maximise the contribution of the agricultural economy to job creation, poverty alleviation and economic growth in Gauteng;
3. Provide a co-ordinating framework for investment and implementation in the province;
4. Align agricultural development with the Gauteng Growth and Development strategy; and
5. Create a vehicle which facilitates the integration of the various existing national and provincial agricultural policies, laws and strategies which are applicable to Gauteng.

Strategic priorities / focus areas

This document has identified five strategic priorities to make the vision of long term, sustainable growth of the GP economy, meeting the socio-economic development needs of its people, creating jobs, and reducing unemployment and poverty a reality. The five strategic priorities:

- Enabling fast economic growth and job creation;
- Fighting poverty and building safe, secure and sustainable communities;
- Developing healthy, skilled and productive people;
- Deepening democracy and nation building and realising the constitutional rights of the people; and
- Building an effective and caring government.

Additionally, the GDS reflects six strategic objectives to assist in achieving its vision, namely:

1. Provision of social and economic infrastructure and services to build sustainable communities and contributing to halving poverty;

2. Accelerated, labour-absorbing economic growth that increases per annum and will create long-term sustainable jobs and contribute to halving unemployment;
3. Sustainable socio-economic development;
4. Enhanced government efficiency and cooperative governance;
5. Participatory democracy, provincial and national unity and citizenship;
6. Contributing to successful achievement of New Partnerships for Africa's Development (NEPAD) goals and objectives across the Continent in an overall commitment to reducing poverty and unemployment.

There are opportunities for the agricultural economy to contribute to the majority of areas of development outlined in the GDS. The GDS identifies six strategy imperatives, namely:

1. Provision of social and economic infrastructure;
2. Accelerating labour absorption and growth;
3. Sustainable economic development;
4. Enhanced government efficiency and co-operative government;
5. Deepening participatory democracy, and provincial and national security; and
6. Contributing to the successful achievement of NEPADS goals and objectives.

In terms of mechanisms' identified to strengthen the rural economy, the following factors are seen as the building blocks of the GADS, namely, *natural agricultural resource protection, agricultural planning and market analysis, farmer development and support, enhancing the competitiveness of the agricultural sector, partnerships formation and maintenance,* and the *focus on vulnerable groups in agriculture.*

Implications for the development of the AP

The GADS is aimed at providing information that assists the APs Master Business Plan in the development of the AP. The APs Master Business Plan will contribute in achieving the both the strategic priorities and objectives, such as providing job opportunities that would aid in decreasing unemployment and poverty.

h) Gauteng Department of Agriculture and Rural Development Strategic Plan (2010 – 2014)

The Strategic Plan (SP) is guided by the Gauteng's Provincial Government's five year strategic priorities and regulatory mandate, namely (GDARD, 2010 - 2014):

1. Create work and build a growing inclusive economy;
2. Provide quality education and skills development;
3. Better healthcare;
4. Stimulate rural development and food security;
5. Intensify fight against crime and corruption;
6. Build cohesive and sustainable communities; and
7. Strengthen the development state and good governance.

The SP has a vision to create a vibrant, equitable, sustainable rural communities, food security for all, protected and enhanced environmental assets and natural resources.

Strategic priorities / focus areas

The focus area of the SP is to unlock the potential of the environment, agriculture and rural development to enhance the economic, ecological and social wealth of Gauteng. The document indicates that this would be done through:

- Improved access to affordable, diverse and nutritious food;
- Accelerated sustainable agrarian reform;
- Champions of animal health and welfare;

- Improved rural services and infrastructure to support sustainable livelihoods with respect to agriculture, environment, education, health, transport, and other forms of infrastructure and services;
- Rural job creation linked to skills development and promoting economic livelihoods; and
- Sustainable management of natural resources by promoting conservation, better management of waste and reduction of greenhouse emissions.

In terms of agriculture GDARD has identified the following strategic goals and objectives:

- Strategic goal 1 outcome 7: Vibrant, equitable, sustainable rural communities contributing towards food security for all;
- *Strategic goal 2* outcome 10: Protected and enhanced environmental assets;
- Strategic objective output 3: Improved rural services to support livelihoods
- Strategic objective output 4: Improved employment opportunities and economic livelihoods

Implications for the development of the AP

The SP of GDARD supports the development of the APs development. The APs Master Business Plan would play a key role in ensuring an equitable food-secure economy as well as reducing unemployment within the GP.

i) Gauteng Rural Development Plan

The Gauteng Rural Development Plan is a strategic plan prepared for the rural areas of the province to develop areas of great opportunity for economic activity, job creation, a quality of life and a decent chance at life for all those who live in these areas. A number of novel rural development concepts were introduced through the plan, most notably "functional regional rural zones", "rural design" and transit-oriented rural development" (DRDLR, No Year).

Strategic priorities / focus areas

Key outcomes:

1. A set of nine functional Rural Regions which span rural Gauteng;
2. A set of nine templates, one per functional rural region, for ease of use in intergovernmental planning, budgeting and implementation scheduling-sessions;
3. A three-phased approach to developing each of the nine functional rural regions; and
4. A set of significant quick gain actions that can be undertaken in the Gauteng province to, in general, meet governments overarching objective of addressing the triple challenges facing the country in inequality, poverty and employment.

Key objectives:

- Strategically plan for and provide guidance for future rural development and land reform projects in the Gauteng province;
- Provide up-to-date detailed GIS data to assist future rural development and land reform decision making; and
- Provide an integrated framework (i.e. that of the functional rural region) within which to approach, engage, explore think about and undertake rural development and land reform; and\assist with reaching goals of national government as set out in the NPD 2030 Outcomes as adopted by cabinet.

Implications for the development of the AP

In terms of agriculture, using the framework for intervention as set out in the GRDP, significant quick gains can be achieved in the GP in meeting the outcome 7 objectives by:

- Action A: Transforming rural nodes into high potency, catalytic regional rural development anchors and rural service centres;
- Action B: Expanding small-scale farming and supporting small-scale farmers and associated agro-processing;
- Action C: Enabling and supporting transit-oriented rural development along provincial routes; and
- Action D: strengthening and deepening natural systems-based tourism in the province

The five most suitable places/areas for Action B are:

1. The Rooiwal Agri-Cluster;
2. The Heidelberg Small-Scale Agriculture;
3. The Bapsfontein Small-Scale Agriculture;
4. The Sokhulumi CRDP Node; and
5. The Walkerville Agri-Cluster.

The DRDLR have identified Sebokeng in the SDM as a suitable location for an AP in order to expand small scale and emerging farmers as well as associated agro-processing facilities.

3.4. District Policy

a) Sedibeng Integrated Development Plan (IDP) 2015 – 2016

The Sedibeng Integrated Development Plan (IDP) 2015 – 2016 aims to promote and sustain an integrated service delivery that both enhances and supports the Municipality to achieve growth and development for its community. The SIDP is a strategic planning tool that guides the development of the district (Sedibeng District Municipality, 2015 - 2016).

Strategic priorities / focus areas

Giving shape to the vision of the Sedibeng IDP, the key focus area of the Sedibeng IDP is to stimulate and mature the township economy. The Sedibeng IDP has the following strategic objectives in order to achieve its vision of building a developmental Metropolitan City of choice, namely:

- Promote efficient and effective integrated services that address the socio-economic and environmental development imperatives of the Region;
- Implement prudent and cost effective financial management and sustainability;
- Ensure good governance and sound management practices; and
- Ensure effective service delivery.

In terms of agriculture the area to the east of the SDM has been identified as a good area for agriculture. The Sedibeng IDP realises the importance of high potential agricultural land and hubs, and the protection of this land is of high importance. Additionally, food security is a national priority and the addressing of this opportunity will require creative approaches. The GP has identified agro-processing for the SDM however the GDS 2 has targeted actions towards waste conversion to green and alternative energy.

The Sedibeng IDP identified the Sedibeng Maize Triangle as flagship project that would be beneficial to agriculture. The project aims to provide technical and infrastructure as well as logistical support to small and emerging farmers and cooperation in agriculture;

Implications for the development of the AP

The APs Master Business Plan would aid in the contribution towards reducing the issue of unemployment and poverty in the SDM in terms of providing sustainable employment and contributing to the local economy through the development of agro-processing facilities and investment. This in turn would

benefit the local communities of the SDM which supports the key focus of the IDP. The development of the AP will assist in contributing to food security.

b) Sedibeng Spatial Development Framework (SDF) 2015

The Sedibeng Spatial Development Framework (SDF) 2015 has a vision towards building a Developmental Metropolitan City of choice. The Sedibeng SDF provides a clear vision, spatial structuring elements as well as projects and guidelines for informing and directing spatial planning (Sedibeng District Municipality, 2015).

Strategic priorities / focus areas

The Sedibeng SDF adopted the principles from the Sedibeng IDP 2015 – 2016. Principles incorporated are as follows:

- ***Sustainability***: Development is to be interpreted in a manner which ensures the sustainability of environmental resources while creating opportunities for future generations;
- ***Efficiency***: Efficient use of resources to be achieved through robust urban form and structure, managed growth, based on the availability of infrastructure and interconnectivity between facilities; and
- ***Accessibility***: Accessibility is to result in the enhanced ability of residents to access various opportunities with reduced costs.

The developmental objectives of the Sedibeng SDF are to:

- Focus development initiatives and investments to maximise impact;
- Remove competition between and among municipalities in the district;
- Manage outward leakage of resources, both human and economic;
- Put in place clear district nodes, service centres and corridors for the district;
- Co-ordinate integrated development planning responsibilities; and
- Protect the resources of the district, particularly agricultural, environmental and tourism resources.

The Sedibeng SDF indicated that a major concern for the District, is the protection of high potential agricultural land and the lack of investment in the agricultural sector as well as the promotion of food security. Uses supported for agriculture include: agricultural product beneficiation, agricultural schools, agro-processing, farmer's markets, commercial farming and related activities.

Implications for the development of the AP

The Sedibeng SDF informs the APs Master Business Plan that although agricultural development is important, consideration must be given at the same time to the sustainability of environmental resources through sustainable development and infrastructure. Impact decisions on the AP development are important. Through the development of the AP both outwards leakages of resources will be minimised and investment into the agricultural sector will occur as well as the development of infrastructure which will create employment opportunities thus reducing poverty in the SDM.

c) Sedibeng Economic and Industrial Development Plan (EIDP)

During the State of the Province Address (SOPA) 2014, the Gauteng Provincial Government re-emphasised that the Gauteng City Region should be an integrated and globally competitive region. This means building cities that complement one another in creating functional economies. The purpose of the SEIDP is to develop a plan that would provide strategic direction in ensuring that Sedibeng is integrated into the Gauteng City Region (Sedibeng District Municipality, 2015).

Strategic priorities / focus areas

The rationale for Sedibeng EIDP is to address the structural, industrialisation and other economic development challenges of the Southern Corridor in an integrated approach which emphasises partnerships between government and the private sector to contend with the challenges of under-development and fragmented planning. The Southern Corridor encompassing the economy of the SDM and the creation of new industries, new economic nodes and new cities.

The SEIDP identified five strategic industry plans, namely,

1. The Sedibeng Transport and Logistic Hub;
2. The Sedibeng Building Equipment and Supply Hub;
3. The Sedibeng Iron and Steel Beneficiation Cluster;
4. The Sedibeng Green Economy and Agropolis; and
5. The Sedibeng Tourism City.

In terms of agriculture the following industry plans have a link with agriculture, namely:

- Sedibeng Transport and Logistic Hub which would assist in linking the province to agricultural and mining regions, as well as urban centres and ports; and
- In order to grow the economy of the Sedibeng, a main focus should be the Green Economy, specifically through establishing the SDM as an Agropolis. This would assist the SDM to move away from an over reliance on the steel industry and become more involved in the agricultural industry. Establishing the SDM as an Agropolis, includes all aspect of farming and agro-processing.

Implications for the development of the AP

The APs Master Business Plan informs the AP that in order to assist the SDM in growing its economy the AP must help the SDM in becoming a green economy by establishing itself as an Agropolis. This can be done through investment into infrastructure, such as technology, energy and production processes that will assist the SDM in becoming a green economy. Additionally, this will assist in reducing the input costs of having to utilize unsustainable resources.

d) Sedibeng Growth and Development Strategy (GDS 2)

The Sedibeng Growth and Development Strategy (GDS 2) is a strategy that describes the vision for the Sedibeng in 2030. It indicates the need to remedy past injustices, maximise current opportunities and celebrate future successes through calling together stakeholders for engagement around the growth and development of the future Sedibeng. The Sedibeng 2030 vision is that in 2030 Sedibeng is a well-known Metropolitan City with a strong and diverse economy and high quality standard of living (Sedibeng District Municipality, 2012).

Strategic priorities / focus areas

The vision of the SDM in 2030 requires that the following principles are followed:

- Eradicate poverty;
- Access to basic and essential services for all;
- People have skills;
- Employment and business opportunities are growing and constant;
- Diverse, robust and growing economy;
- SMME sector continues to grow;
- Low unemployment figures;
- Sedibeng looks aesthetically wonderful;
- Mixed typology settlements; and
- Safe and easy to move around Sedibeng.

The GDS 2 identified 8 interventions (flagship projects) which will make change to the face of Sedibeng, namely:

1. Sedibeng Development Agency;
2. Creation of a logistics hub;
3. Completion of the Regional Sewerage Scheme;
4. Implementation of the Rural Development Programme;
5. Alternative Energy Programme;
6. Implementation of Integrated Transport Model;
7. Implementing a h\Heritage Programme;
8. Establishing a Single Regional Authority; and
9. Enhancing connectivity.

Implications for the development of the AP

Although the development of the AP does not fall part of any of the identified flagship projects, the GDS 2 does indicate that the agriculture sector is not a driver but rather forms a vital part in the value adding chain and holds great potential for future development. With infrastructure investment, job creation, greening in the SDM as well as providing opportunities for small scale and emerging farmers, the AP programme will contribute to the SDM in achieving its vision for 2030 and well as contributing to both future development and the value adding chain in agriculture.

3.5. Conclusion

Given the reviewed documentation, the overall objectives of the above policies communicate the aim to not only reduce poverty, achieve equity, and increase economic growth but also the importance of agricultural development in assisting with food security, reducing unemployment, poverty and contributing to the economy. The development of the AP will contribute the to the various objectives as set out within the above mentioned documentation.

Section 4: Locational Context

4.1. Introduction

The locational context provides an overview of the location of the Sedibeng District Municipality (SDM) as well as the current situation and relationship with its surrounding environment. The locational context assists in providing a current understanding of the area which paves the way for informed decisions, opportunities, constraints and recommendations to be made in terms of the AP.

4.2. Description of the District

The Gauteng Province (GP) with its unique geography offers a combination of natural beauty and mineral wealth. It is located SA Highveld and the province is home to the scenic Magaliesberg and Witwatersberg mountains. The GP is one SAs nine provinces. The SDM has three metropolitan municipalities: City of Johannesburg, City of Tshwane (Greater Pretoria) and Ekurhuleni Metropolitan Municipality (East Rand).

The proposed Rietkuil Agri-Hub (AH) and Sebokeng Agri-Park (AP) will be located in the SDM. The SDM is a category C municipality which covers the entire southern area of the GP adjacent to the Vaal River which is the provincial boundary between the GP and the Free State (FS). The SDM is one of the two district municipalities (DM) in the GP, the other being the West Rand District Municipality (WRDM). The following map provides a figure of the GP as well as the various DMs.

Map 1: Gauteng Province

(Sedibeng District Municipality, 2015)

The SDM in the GP covers the southern region of the province and covers a total geographic region of approximately 4,630 km². The three local municipalities (LM) which make up the SDM include Lesedi LM,

Midvaal LM and Emfuleni LM (refer to Map 2). As part of the 2016 municipal re-demarcation process, Lesedi LM will be incorporated into the Ekurhuleni Metropolitan Municipality.

Map 2: Local Municipalities within the Sedibeng District Municipality

(Sedibeng District Municipality, 2015)

The SDM includes the following major towns: Vereeniging, Vanderbijlpark, Meyerton, Nigel, Vaal Oewer, De Deur/ Walkerville, Eikenhof, Vaal Marina, Devon, Heidelberg, and the townships of Sharpeville, Evaton, Sebokeng, Boipatong, Bophelong and Ratanda.

Of the above mentioned towns, Vereeniging is the administrative seat of the SDM. The national road network consisting of the N1, N3 and R59 intersect the district making the SDM a highly accessible district. In the SDM there are two transport corridors, one which links Ekurhuleni Metropolitan Municipality (MM) and Heidelberg, and the other, which links Johannesburg, Ekurhuleni MM and Vereeniging.

The SDM is one of the most important centres of high value mass production manufacturing in SA (Sedibeng District Municipality, 2015 - 2016). In 2013, manufacturing contributed 21% to the local economy. The district is part of the area known as the Vaal Triangle which incorporates the towns of Vereeniging and Vanderbijlpark in the SDM and Sasolburg in the Fezile Dabi DM in the FS. The Vaal Triangle is known as the industrial hub of SA. The area is home to ArcelorMittal South Africa and Sasol, which are processing facilities for steel and oil. The manufacturing sector within the SDM when coupled with agriculture could prove to be an important means of improving the economic activities within the area.

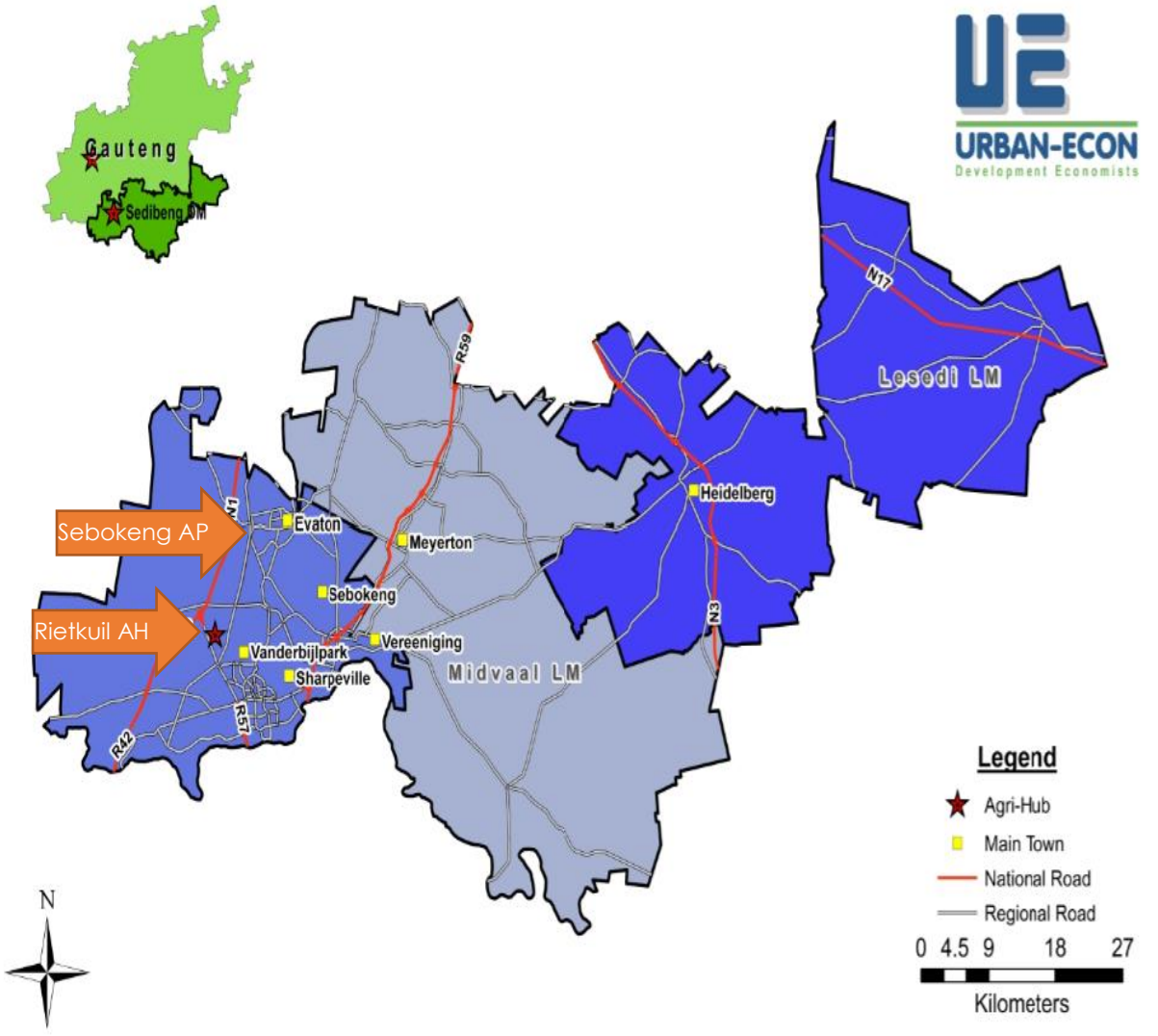
An advantage the farmers in the SDM have is the moderate to high agricultural potential, proximity to the Vereeniging Fresh Produce Market as well as to City of Tshwane and City of Johannesburg which are the largest market of perishable goods in SA.

The SDM additionally boasts a wide variety of tourist attractions and sites for adventure, heritage, art, nature, sport, business and educational tourism, such as the Vaal River, Vaal Dam and Suikerbosrand Nature Reserve. The Vaal Dam other than acting as a tourist attraction, also plays a pivotal role in providing water to the PWV megalopolis (Pretoria, Witwatersrand and the Vaal Triangle). It is important

to note that the Vaal River which is on the southern border of SDM is an important source of water in SA. The Vaal River not only assists in supplying water to the residential, industrial and agricultural needs for the majority of GP but is also a key supplier of other tributaries located in Mpumalanga, the FS, North West and the Northern Cape (Sedibeng District Municipality, 2015 - 2016).

The SDM has been identified by DRDLR as the ideal location for an AH and AP. The SDM footprint covers a vast area and the land is predominantly moderate potential arable land which is suited for a range of agricultural activities as well the ideal location for an AH and AP. *Map 3* below indicates the locations of the AP and the AH in the SDM which falls on the southern border of the GP.

Map 3: Location of the Agri-Hub and Agri-Park within the Sedibeng District Municipality



(Urban-Econ, 2015)

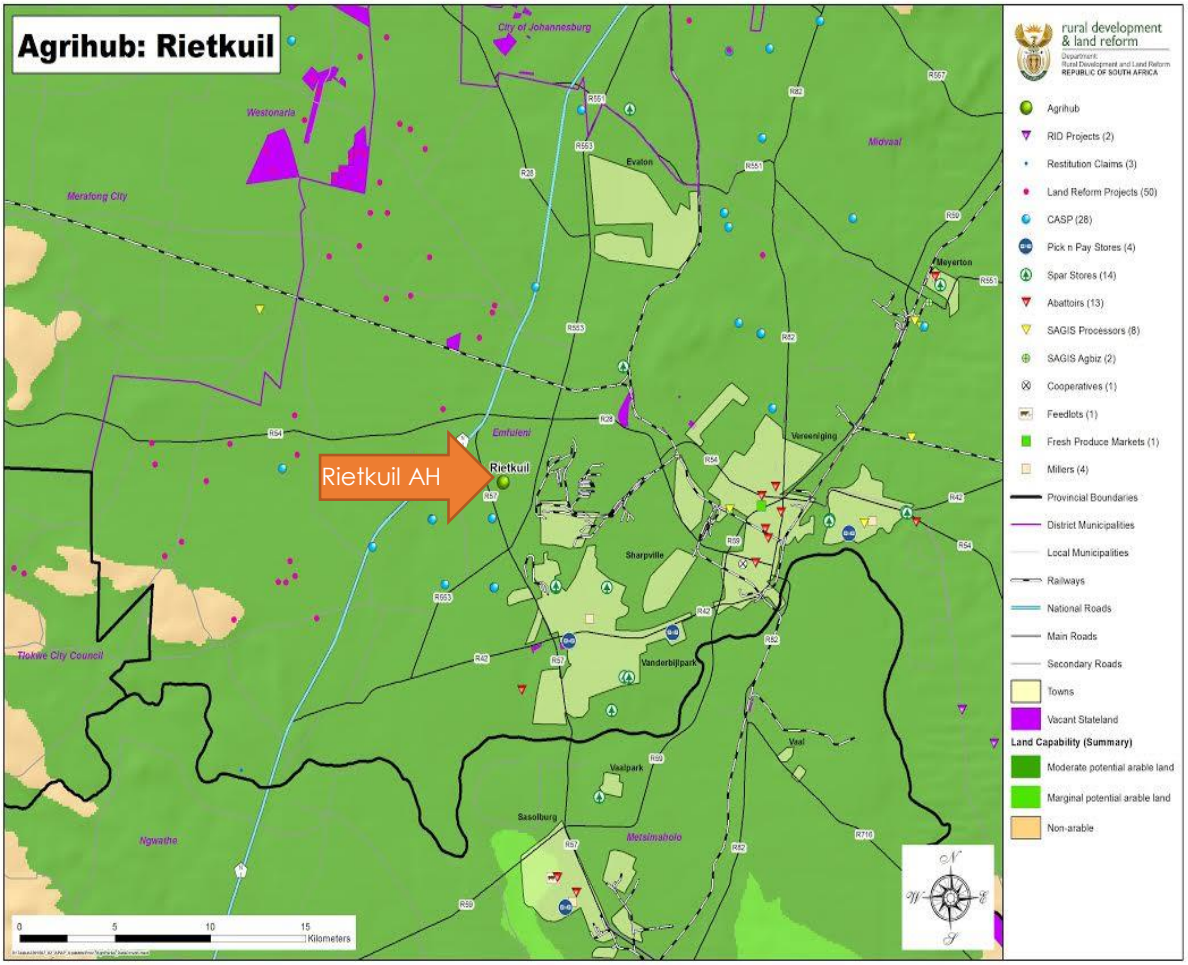
The above map indicates the proposed location of both the AH and AP within the SDM. The site indicated for the AH is located in Rietkuil which is a farm in the GP. The proposed AH in Rietkuil was chosen for the following locational characteristics by DRDLR.:

- There is good road and rail connectivity (next to N1);
- There are at least ± 4 Pick n Pay food stores in the area;
- At least 11 SPAR food stores in the area;
- 28 CASP Projects in the area;

- Land Reform acquisition projects to the west of Doornkuil;
- Moderate and High potential land capability;
- 9 Abattoirs in the area;
- Many land reform projects to the north west of Rietkuil;
- 4 South African Grain Information Service (SAGIS) processors in the area;
- Potential vacant state land to the north and north west of the location;
- Proximity to the CRDP site to the east of Sebokeng;
- 1 Cooperative close to the Rietkuil location;
- Close proximity to N1 national road between Gauteng and the Western Cape;
- Moderate land capability; and
- At least one fresh produce market to the east of Rietkuil.

Map 4 on the following page indicates the location of the Rietkuil AH as well as important locational characteristics.

Map 4: Agri-hub Location



Source: DRDLR, 2015

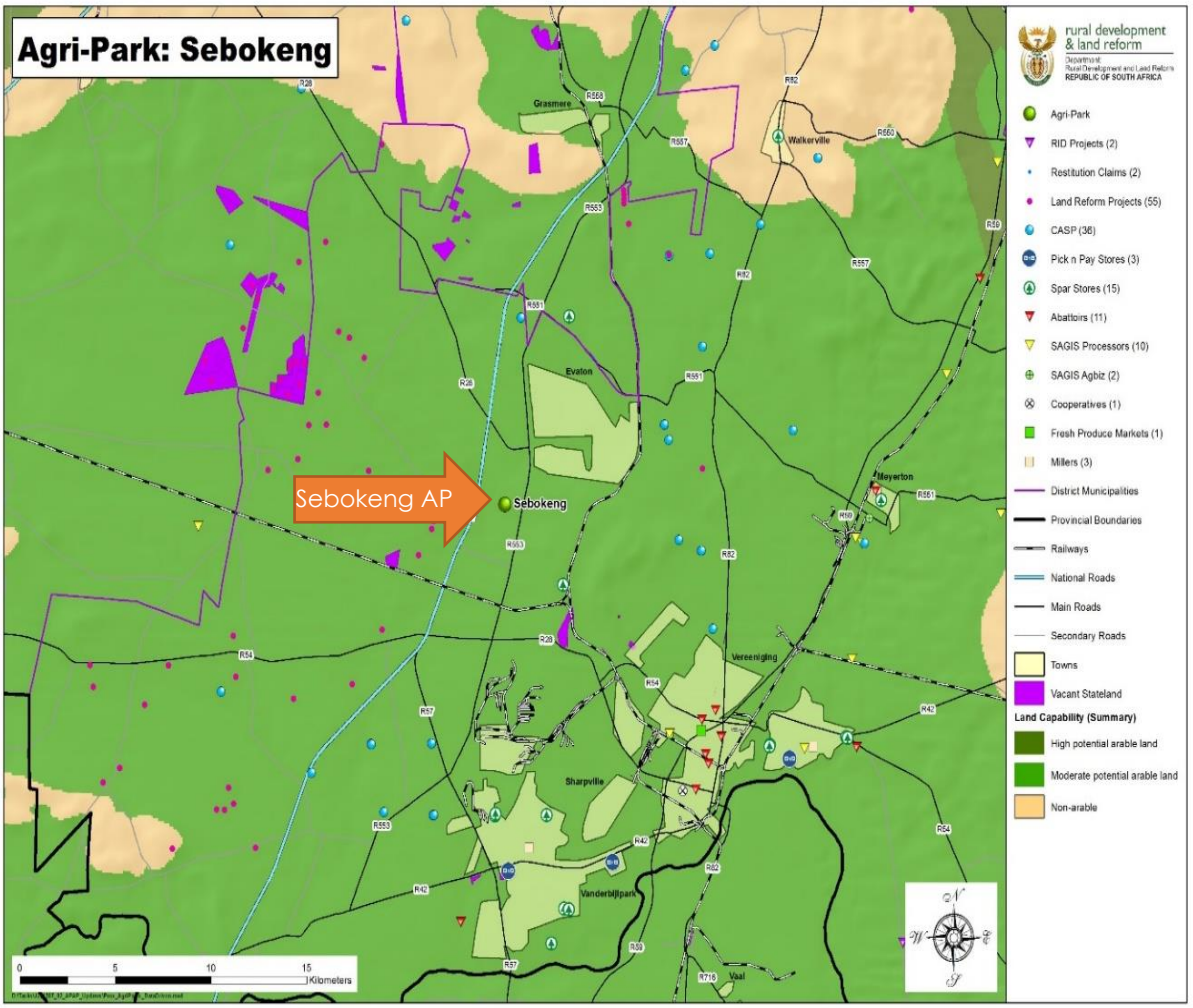
The Rietkuil AH will have a direct link with the AP as discussed in section 3. The site indicated for the AP is located near Sebokeng which is a township in the GP The proposed AP in Sebokeng was chosen for the following locational characteristics by DRDLR. The reasons are as follows:

- Good road and rail connectivity,
- Many PLAS projects to the west of the location,
- CASP projects and Ilima Letsema projects in the area,
- Land Reform acquisition projects to the west of Sebokeng,

- Moderate land capability,
- Fresh produce market, Miller,
- At least 11 SPAR food stores in the area,
- Good water supply in terms of rivers in the area,
- Potential vacant state land to the south and north west of the location,
- Proximity to the CRDP site to the east of Sebokeng,
- Location lies within the poorest wards (PIMD),
- Proposed location is surrounded by CASP 15 – 16 projects,
- Close proximity to N1 national road between Gauteng and the Western Cape,
- 2 RID projects to the south east of the proposed location, and
- Close proximity to the Emfuleni Regional Gateway.

Map 5 on the following page indicates the location of the Rietkuil as important locational characteristics.

Map 5: Agri-Park Location



Source: DRDLR, 2015

An important consideration is the location of the West Rand District and its related Agri-Hub. Connectivity between districts is provides potential for several linkages, particularly in the way of agriculture. The strategies of the districts need to be aligned such that they become complementary districts, rather than competing districts. The focus of the West Rand District Master Agri-Parks Master Plan is centred around maize, poultry and vegetable production while Sedibeng will focus on the production of vegetables, poultry and red meat.

4.3. Economic Infrastructure

Economic infrastructure plays a vital role in the functioning of the economy, additionally, a well-developed infrastructure network ensures that communities have access to the economic activities and service they require to function at an optimal level.

4.3.1. Transportation

Transportation plays a vital role in the functionality of the AH and the AP. It is important to understand how transport infrastructure functions to determine whether there will be challenges faced should the proposed AH and AP be developed. The SDM has infrastructure for 3 modes of transportation, namely road, air and rail.

4.3.1.1. Road

The road infrastructure provides a vital link between the various economic activities within the area. It was indicated by GDARD that one of the reasons for choosing the AH and AP was for its good road connectivity. There is an extensive road network axis of East/ West and North and South with the N17, N1, N3, and R59-highways which transverse the district. The extensive road network makes the district an ideal site for investors who wish to focus on export via the N3 route to Durban Port and the N1 and the R59 routes to OR Tambo International Airport. The R59-corridor and the northern parts of the Midvaal Local Municipality seem to be the primary areas of over-flow of industrial relocation from Central Gauteng and further afield into the District (Sedibeng District Municipality, 2015 - 2016).

The SDM is serviced by an extensive national, provincial and local road network. The national roads in the district include the following:

1. N3 national freeway, which connects Gauteng, Free State and KwaZulu Natal; and
2. The N17 national road, which links Gauteng, southern Mpumalanga, KwaZulu Natal and Swaziland.

Two main corridors exist in the district, namely:

1. N3 south corridor, which links Johannesburg, Ekurhuleni and Heidelberg.
2. R59 corridor, which links Johannesburg, Ekurhuleni, Meyerton and Vereeniging.

Major national and provincial roads traversing the municipal area where the Agri-Hub will be located are as follows:

1. The R59, a north/south route that links Vereeniging with Alberton and the N12 in Johannesburg. This route is situated in the central part of Midvaal Local Municipality area;
2. The N1, which is the major national north/south National Road linking Messina, on the northern border of South Africa, to Cape Town in the south and which passes the Midvaal area adjacent to the western boundary of the municipality;
3. The N3, which is the major transport link between Gauteng Province and Ethekwini (Durban) and which passes through the Midvaal area a few kilometres to the north-east border of the municipality;
4. The R82, a secondary north/south route linking Vereeniging and Johannesburg via Walkerville, situated in the western parts of Midvaal;
5. The M61, a secondary north-south route running parallel to the R59 linking Vereeniging and Alberton via Meyerton, Randvaal and Klipriver;
6. The R42, which runs east/west through Midvaal and links Meyerton with Heidelberg and the N17 in the Lesedi Local Municipality;

7. The R551, an east/west route between the N1 and the Suikerbosrand Nature Reserve. This road merges with the R42 at the Nature Reserve;
8. The R550, an east-west link between the N3, R59 and R82 in Midvaal; and
9. The R54, which links Vaal Marina to the R82 in Midvaal.

The Sedibeng SDF 2015 indicated that internal movement within the district is in a north/south direction between Vereeniging/Vanderbijlpark and Sebokeng/Evaton. This indicates movement between home and places of work within Emfuleni LM. There are similar patterns between home and work which occurs between Ratanda and Heidelberg in Lesedi LM (Sedibeng District Municipality, 2015). Commercial trips are mainly generated between Vereeniging/Vanderbijlpark along the R59 Development Corridor to industrial areas of Ekurhuleni Metropolitan Municipality (Germiston, Kempton Park and Springs). The movement is made up of mainly commercial vehicles (trucks) and goods transported by rail. The linkage created within the SDM are important in keeping the region connected as well as providing access to economic opportunities.

The condition of provincial roads in the SDM is generally poor and the routes require upgrading. Freight transport and a lack of maintenance are contributing to the deterioration of provincial road infrastructure. Stormwater runoff is a particular problem in the rural areas where roads are not properly constructed. During heavy rains damage is caused to roads by storm-water, rendering the roads unusable and requiring frequent maintenance and repair.

4.3.1.2. Air

Air transportation is the fastest way of connecting people and businesses, and it assists in enhancing economic development. For air transport to be successful there must be sufficient infrastructure capacity (roads) which will assist in providing necessary connections. In the SDM there are 3 air transport services that operate through the following airfields (Sedibeng District Municipality, 2015 - 2016):

1. In Lesedi LM there is a small private airfield which is situated south of Bergsig. This airport is largely utilised by farmers who have built the airstrips.
2. The Aerovaal Airport, situated on the boundary between Midvaal LM and Emfuleni LM, has two runways and accommodates approximately 64 aeroplanes.
3. The Vanderbijlpark airport is located in Bophelong in Emfuleni LM.

The Aerovaal Airport is currently being investigated to determine the viability of rerouting cargo flights from O.R Tambo International Airport to this airport in order to alleviate airspace congestion. O.R Tambo International Airport is a hub for both international and domestic travel from South Africa. Additionally, it has a transit terminal located between the domestic and international terminals.

There is potential that the airports indicated above could be used by the AP; however further discussions with the relevant authorities would need to occur to ascertain the potential utilisation of the airports.

4.3.1.3. Rail

Rail transport could provide a means of transporting both workers and goods for the AH and AP. The Sedibeng IDP 2015 – 2016 indicates that the rail transportation infrastructure is well developed in the SDM (Sedibeng District Municipality, 2015 - 2016). In the e Lesedi LM there are two railway lines. The railway line that runs parallel to the N17 through Devon and the rail linkage between Ekurhuleni MM with Belfour that runs through to Heidelberg. Both of these are freight lines. The main railway line in Midvaal LM runs parallel to the R59 from north to south. It connects Vereeniging with Germiston and Johannesburg. A secondary railway line which traverses an east/west line, is used for freight only. A further railway line, running through Vereeniging, Sebokeng and Orange Farm, is used as a passenger rail line. In Emfuleni MM there is a rail line that links Vereeniging and Johannesburg to the north. It was indicated by GDARD that one of the reasons that the AH and the AP where chosen were due to their location to rail infrastructure.

4.3.2. Electricity Distribution

The economy of any district depends on electricity supply. The SDM is mainly supplied by ESKOM, with a few areas supplied by the relevant local authorities. It was indicated by GDARD that alternatives such as solar systems need to be explored. The Sedibeng IDP 2015 – 2016 indicates there is sufficient electrical capacity available for current and planned developments; however, the Sedibeng SDF 2015 states that there is an inadequate supply of energy to the rural and farming areas that are needed to support the development of agriculture, both in terms of cultivation and agricultural product processing. This limits the potential for agricultural production (Sedibeng District Municipality, 2015 - 2016).

4.3.3. Water Supply and Sanitation

The SDM water and sanitation services are supplied by the Municipalities at the local level, however bulk water is supplied to each Municipality by Rand Water. The water is pumped from the Vaal River into local reservoirs; water supply in the area is considered to be fairly good. The Sedibeng Regional Sanitation Scheme consists of various components, such as a new waste water works, upgrading current Sebokeng works, a new pump station, new rising mains and a new gravity main outfall.

4.3.4. Solid Waste Disposal

The SDM has a high majority of its population who receives weekly refuse removal (88.2%) according to Census 2011. This service mainly occurs in the urban areas where the majority of the population resides. The major challenges that the district faces with regard to solid waste are the shortage of waste disposal sites and the inadequate capacity of existing disposal sites. This includes disposal sites for waste from heavy industry. The inadequacy of such sites has a potentially negative effect on the environment, especially with regard to the impact on water bodies and rivers. Through regular and efficient refuse removal a healthy living environment is created as well as an environment that is conducive for conducting business. The key issue that arises is the need for planning and provision of adequate refuse disposal sites to accommodate current and future solid waste (Sedibeng District Municipality, 2015).

4.3.5. Telecommunication

A communication network is vital for the movement of information. The Sedibeng SDF 2015 indicates that the majority of individuals within urban areas within the SDM have no access to internet (80%). More people have access to telephones and mobile phones (ranges across the district; 24% to 50%). The location of both the AH and AP in the SDM are within more rural areas, so an issue which arises is the need to provide telecommunication infrastructure in order to enhance communication for general business purposes and to link rural areas with urban areas.

4.4. Conclusion

The SDM has road, rail and air infrastructure already in place. Consideration will have to be given to upgrading the road networks, determining whether the airports within the SDM could be utilised by the AP and AH, as well as improving the electricity, water and sanitation, and solid waste disposal infrastructure should the AH and AP be developed within the SDM. From a road network point of view, the SDM has extensive road networks that have linkages with both the airports and rail transportation infrastructure.

The following section will outline the various role-players (governmental, private, and associations and organisations) who would play a role in the AH and AP

Section 5: Main Role-Players in the Sedibeng District Municipality

5.1. Introduction

The following section will outline the various role-players in the SDM who would play a role in the AP) and AH). There are three categories of role-players which will be discussed, namely government, private companies, and associations and organisations.

5.2. Role-Players

Role-players play a pivotal role in providing support services to both the AH and AP valuable assistance. This section focuses on the main role players that will contribute to the overall development of the SDM. The following table covers other public, private and Government stakeholders.

Table 2: Summary of Industry Role Players

Role Player	Potential Role
	Government & Public Sector
Department of Agriculture Forestry and Fisheries (DAFF)	○ The purpose of the Directorate National Extension Support is to provide strategic leadership in the coordination and implementation of Norms and Standards for extension and advisory services. It also provides support in the implementation of extension programmes executed by provinces. It comprises of two sub-directorates namely Extension Programmes, and Extension Partnerships. Service delivery is undertaken and managed by the Provincial Departments of Agriculture (PDAs). Within South Africa there are currently approximately 4 000 extensionists and agricultural advisors rendering such services to farmers.
Department of Rural Development and Land Reform (DRDLR)	○ Within DRDLR the relevant extension support services will be provided by the Directorate Rural Enterprise and Industrial Development (REID). Its mission and objectives are to facilitate poverty reduction, social organisation, youth development and the development of cooperatives, rural enterprises and industries. To this end the following are components and functions: 1. Reduce household poverty in accordance with CRDP 2. Promote rural businesses development and facilitate rural development financing 3. Facilitate establishment and support of primary cooperatives 4. Facilitate organisation of primary cooperatives into secondary and tertiary coops and provide support 5. Facilitate the development of rural enterprise and industries 6. Provide strategic management in the coordination of financial and non-financial service delivery 7. Provide social organisation and youth development towards economic upliftment
Sedibeng District Municipality	○ Facilitation of District initiatives ○ Liaison with local stakeholders ○ Institutional support and facilitation
National Development Agency (NDA)	○ Grant funding ○ Partnering for development ○ Research and development

Role Player	Potential Role
	○ Capacity building
Department of Trade and Industry (DTI)	○ Development facilitation ○ Institutional support
Agriculture Resource Council (ARC)	○ Agricultural research support ○ Institutional support
Department of Public Works and Transport (DPWT)	○ Infrastructural support and coordination ○ Site preparation and bulk services implementation support
Department of Labour (DL)	○ Employment equity and support ○ Creating linkages between employers and employment opportunities
Department of Water and Sanitation (DWS)	○ Formulation and implementation of policy ○ Responsible for water services provided by the Government
Local Municipalities (LM)	○ Facilitation of local initiatives ○ Liaison with local stakeholders ○ Institutional support and facilitation
Gauteng Enterprise Propeller (GEP)	○ Provide financial and non-financial support to SMME ○ Provide a one-stop service to entrepreneurs ○ Facilitate SMMEs from the second economy participating in mainstream economy ○ Increase the sustainability and profitability of SMME's ○ Enhance SMME contribution to GDP, equity and employment in the Province
Rand Water	○ Infrastructure and storage system management ○ Water purification ○ Bulk sanitation, ○ Water quality management ○ Water analysis
Financial Companies	
First National Bank (FNB)	○ Financial solutions and support for emerging farmers and agri-businesses ○ Business skills training
Standard Bank Agriculture	○ Financial solutions and support for emerging farmers and agri-businesses ○ Business skills training
ABSA Agribusiness	○ Financial solutions and support for emerging farmers and agri-businesses ○ Business skills training
Land Bank	○ Financial solutions and support for emerging farmers and agri-businesses ○ Business skills training
Small Enterprise Development Agency (SEDA)	○ Financial solutions and support for emerging farmers and agri-businesses ○ Facilitation of agri-business development ○ Small business development ○ Institutional and soft skills support to emerging farmers and entrepreneurs.
Development Bank of Southern Africa (DBSA)	○ Financial solutions and support for emerging farmers and agri-businesses.
Organisations and Associations	
Red Meat Industry Forum	○ Facilitation of market penetration ○ Red meat development support

Role Player	Potential Role
SA Meat Industry Company (SAMIC)	○ Quality assurance
Livestock Registering Federation (LRF)	○ Independent Registering Authorities
Red Meat Producers Organisation (RMPO)	○ Facilitation of market penetration ○ Red meat development support
Afrivet	○ Agricultural Training Services
National Wool Growers Organisation of South Africa	○ Emerging sheep farmer support towards wool production ○ Training of wool workers and farm workers
Emerging Farmers	○ Provision of agricultural produce ○ Identification of agricultural and training needs and requirements
South African Council for Natural Scientific Progression (SACNASP)	○ Legislated regulatory body for Natural Science Professionals in South Africa
South African Society for Agricultural Extensionists (SASAE)	○ Promotion of the Science and Vocation of Agricultural Extension
Hortgro	○ Production and technical information ○ Market intelligence and statistics ○ Administration and legislation ○ Transformation support
Transvaal Agricultural Union (TAU SA)	○ Farm rights
Agricultural Business Chamber	○ Promotion of agribusinesses ○ Influence policy and regulatory environment ○ Improve the commercial and sustainable agribusiness environment ○ Support B-BEE transformation ○ Agribusiness intelligence
Southern African Poultry Association (SAPA)	○ Industry support and solutions ○ Four subsidiary organisations, namely: the developing poultry farmer's organisation, the egg organisation, the chick producer's organisation, and the broiler organisation
South African National Halaal Authority (SANHA)	○ Support base for both the producers and consumers of halaal products.
Poultry Disease Management Agency (PDMA)	○ Surveillance, monitoring and management of diseases
South African Pork Producers Organisation (SAPO)	○ Emerging farmer support ○ Product promotion ○ Research ○ Quality assurance ○ Animal health
South African Feedlot Association (SAFA)	○ Industry representation ○ Provides support and solutions ○ Collective branding of grain fed beef ○ Educational workshops and tours ○ Animal health issues
National Emergent Red Meat Producers Organisation (NERMPO)	○ Lobbying and Advocacy ○ Access to Information ○ Access to Finance

Role Player	Potential Role
	○ Access to Technical Support
Grain SA	○ Strategic support and services to South African grain producers
Senwes	○ Provision of supporting agricultural equipment and services
National African Farmers Union (NAFU)	○ Emerging farmer support ○ Facilitation of access to land for small farmers
BKB	○ Livestock and auctions ○ Financial services ○ Wool and mohair information ○ Grain storage, trading, trading and Gritco ○ Product trade and property
African Farmers Association of South Africa (AFASA)	○ Facilitate the development of African farmers
AgriMega	○ Holistic primary and secondary agri sector development and growth services and products
South African Ostrich Business Chamber (SAOBC)	○ Co-ordinating body for the ostrich industry for producers and processors of ostrich products
Women in Agriculture (WARD)	○ Representative body for women in agriculture
Red Meat Abattoir Association (REMA)	○ Skills training ○ Support services
Agriculture Resource Council (ARC)	○ Agricultural research support ○ Institutional support
Potato SA	○ Commodity organisation
NUMPRO	○ Grading and standards of potatoes produced
South African Mini Tuber Producers (SAMPRO)	○ Grading and standards of potatoes produced
ZZ2 Laboratory	○ Laboratory services for tomatoes
Perishable Export Control Board	○ Product quality inspections and food certification of perishable products intended for export
Fresh Produce Exporters Forum	○ Voluntary forum assisting with fresh produce exports
Agricultural Producers Agents Council (APAC)	○ Regulating council – agents in the industry
Product Control for Agriculture (PROKON)	○ Grading and standards of vegetables produced
Tomato Producers Organisation (TPO)	○ Commodity organisation
Premier Pork Producers (PPP)	○ Representative body for pork producers
Ark Veilings	○ Livestock auctioneers
Thoroughbred Breeders Association of South Africa (and Livestock Auctioneers)	○ Livestock auctioneers

Role Player	Potential Role
Training Institutions	
Tshwane University of Technology	○ Provision of training programmes to emerging farmers, farm workers, etc.
Technikon SA	○ Provision of training programmes to emerging farmers, farm workers, etc.
University of South Africa	○ Provision of training programmes to emerging farmers, farm workers, etc.
University of Pretoria	○ Provision of training programmes to emerging farmers, farm workers, etc.
SA Pork Baynesfield Training Academy	○ Specialist training service provider for pork industry

5.3. Conclusion

The above mentioned role-players would be able to assist the AP and the AH in terms of financial funding and solutions, training, agricultural technology, research as well as policy assistance. To the emerging and small scale black farmer the role the stakeholders play could be detrimental in them being successful.

These role-players could all potentially play roles in public-private partnerships (PPP's). PPP's should be developed to enhance the strength and competitiveness of the Agri-Hub –and agglomeration of expertise is required to ensure the success of the APs programmes and the respective projects. Logistics, financial, agricultural, market and administrative support is important for the functioning of the programme and employing PPP's to source the support would be critical.

Section 6: Socio-Economic Profile

6.1. Introduction

This section outlines key socio-economic characteristics of the study area, as per the delineation provided in the section four. The purpose of compiling an economic profile and a socio-demographic profile is to develop an understanding of the trends, issues and dynamics of the local economy in terms of its micro and macro context. The purpose of the following sub-section is to provide an insight into the socio-economic situation of the GP, SDM and WRDM.

6.2. Local Demographic Profile

The population trends in a geographical area affect the rate of economic growth through the provision of labour and entrepreneurism, and demand for goods, services and accommodation. These trends also indicate the number of people who are likely to be impacted by the proposed AP. This information is useful for determining the magnitude of the economic impact that will be created by the proposed AP. The table below indicates the population and household total within the study area in 2015.

Table 3: Population and Household Total (2015)

2015	Population Total	Household Total	Ave Household Size
GP	13 197 140	4 256 091	3,10
SDM	938 371	287 910	3,26
WRDM	864 661	287 047	3,01

(Quantec, 2015)

The SDM encompasses 938,371 people comprising of 287,910 households, which accounts for 7% of the total population of the GP. The SDM has an average growth rate between 1996 and 2015 of 1.0% which is the same as the WRDM (1.0%) and lower than the average for GP (2.0%). The SDM has an average household size of 3.26 in 2015, this figure is higher than the WRDM (3.01) and the GP (3.10). The SDM shows a positive population growth, the increase in population translates into an increased demand for employment. The means that there is a potential labour pool for the AP.

The age profile of a population provides valuable insight into the composition of the market population and will help establish the Potentially Economically Active population (PEA). The PEA refers to the population that falls within the working age group (aged between 15 and 64). It does not mean that this entire portion of the population is prepared, willing or able to be employed, i.e. some prefer to stay at home as housekeepers, others are disabled and some are full-time students, or have stopped looking for work. They do however form part of the potential labour pool. It is important to consider age in agricultural planning as this has a direct impact on the labour requirements of an area. In terms of agriculture generally requires labourers who are physically fit and many areas are experiencing migration of the working aged group to major centres leaving the elderly and young in the rural areas. Table 4 below indicates the age profile for the different areas.

Table 4: Age Profile (2015)

2015	GP	SDM	WRDM
Age 0-14	21%	23%	21%
Age15-64	74%	71%	74%
Age 65+	5%	6%	5%

(Quantec, 2015)

Within the SDM 71% of the population fall within the PEA which is below the GP (74%) and the WRDM (74%). Approximately 23% is under the age of 14 and 6% is over the age of 65. This indicates The SDM is characterised by a high dependency ratio with just under a third of the population (29%) being

dependent on the PEA which is higher than both the GP (26%) and the WRDM (26%). These are members of the population younger than fifteen and older than sixty-five. This often results in the very young and old populations remaining in rural and under developed areas. Table 3 below indicates the age profile for the different areas. The size of the working age population is an important consideration in analysing the size of the potential labour force. It is evident from the above table that the SDM has a high proportion of working age persons which could be used in the AP.

It is important to understand education levels in any given market area as it will influence economic and human development. It is clear that low education levels lead to a low skills base in an area while high education levels have the opposite effect, producing a skilled or highly skilled population. There is also no doubt that household and personal income levels are either positively or adversely affected by education levels. Also, a population that is skilled does not necessarily aspire to employment but to entrepreneurship, which will add businesses to the area, increase economic activity and consequently increase the number of jobs available. Education levels will be indicated in Table 5 below.

Table 5: Education (2015)

2015	GP	SDM	WRDM
No schooling	6,7%	7,7%	8,2%
Grade 1 - 7	20,0%	23,0%	24,9%
Grade 8 - 12	59,1%	59,0%	58,4%
Less than matric & certif/dip	0,5%	0,4%	0,4%
Certificate with Grade 12	3,0%	3,1%	2,5%
Diploma with Grade 12	5,5%	4,1%	3,5%
Tertiary Education (Bachelor's, Honours, & Master's Degree)	5,1%	2,7%	2,2%

(Quantec, 2015)

The following in terms of education can be seen in the study areas:

- In the SDM roughly 7.7% of the population has no schooling which is higher than the GP (6.7%) and lower than the WRDM (8.2%);
- In the SDM roughly 23.0% of the population completed grade 1 to 7 which higher than the GP (20.0%) and lower than the WRDM (24.9%);
- In the SDM roughly 59.0% have completed grade 8 to 12 which is slightly lower than the GP (59.1%) and higher than the WRDM (58.4%);
- In the SDM roughly 2.7% have completed some form of tertiary education which is lower than the GP (5.1%) and higher than the WRDM (2.2%)

Tertiary education levels thus remain low within the SDM due to a large percentage of the population (36.9%) consists of low-skilled adults; therefore, they would require low-skilled jobs, or better education opportunities to obtain higher skills levels which will also increase their income.

The South African Constitution states that all households are entitled to a minimum level of service defined as an electricity connection to each dwelling; clean safe drinking water within 200m; and availability of a ventilated pit toilet. Basic services will be indicated in Table 6 below.

Table 6: Basic Services

2015	GP	SDM	WRDM
Electricity	87,2%	89,9%	81,7%
Piped water: inside and outside yard (within 200m	95,3%	96,5%	92,6%
Flush or chemical toilet	85,0%	87,5%	80,6%
Removed by local authority at least once a week	88,1%	87,4%	76,7%

(Quantec, 2015)

The majority of the population within the specified study areas have access to the necessary services as stated in the South African Constitution which indicates that the residents in the areas under investigation have a high standard of living.

The level of household income in a study area is indicative of social welfare and the capacity to purchase goods and services. Generally household income levels are a basis for determining poverty levels in a community. In addition, the income levels of a particular area provide some insight into the economic behavior of a particular community, i.e. the purchasing power of that community, the potential poverty levels that a community might be experiencing and vulnerability to changes in the economy. Households that have either no income or a low-income fall within the poverty level (R0 –R42,862 per annum), indicating that they experience difficulty in meeting their basic needs. A high poverty level results in a social dependency on the government and could lead to great strain on the government budget. A middle-income household is classified as earning R42,863–R342,894 per annum whereas a high income household is classified as earning R342, 895 or more per annum. Table 7 below indicates the annual household income in the study area.

Table 7: Annual Household Income (2015)

2015	GP	SDM	WRDM	
No Income	16,4%	16,9%	15,6%	**Low Income**
R1 - R5358	3,4%	4,6%	4,0%	
R5359 - R10 715	4,9%	6,8%	5,9%	
R10716 - R21 431	11,4%	15,5%	13,3%	
R21 432 - R42 862	16,5%	17,2%	17,1%	
R42 863 - R85 724	14,4%	13,6%	18,3%	**Middle Income**
R85 725 - R171 447	10,9%	10,6%	10,7%	
R171 448 - R342 894	9,4%	8,0%	8,0%	
R342 895 - R685 788	7,3%	4,7%	4,8%	**High Income**
R685 789 - R1 371 577	3,6%	1,5%	1,6%	
R1 371 578 - R2 742 153	1,1%	0,4%	0,4%	
R2 743 154 and more	0,6%	0,3%	0,3%	

(Quantec, 2015)

The annual household income trends of the SDM are as follows:

- In the SDM, 61.0% of the households fall within the annual low income bracket.
- In the SDM, 32.2% of the households fall within the medium income bracket.
- In the SDM, 6.9% of the households fall within the annual high income bracket.

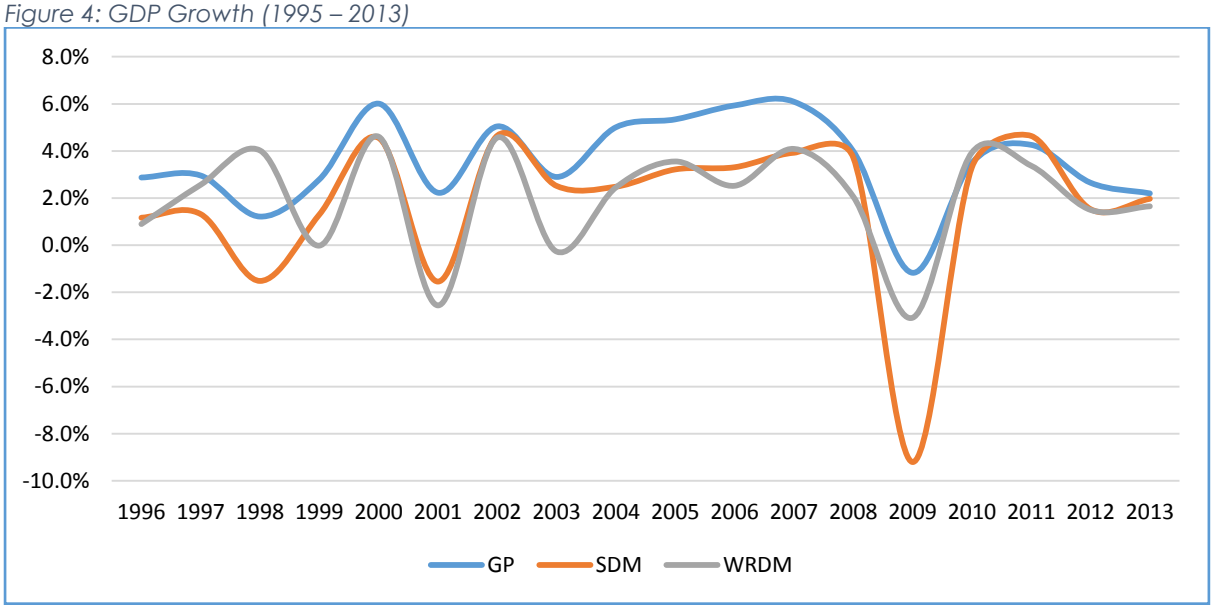
The low levels of household income in SDM indicate a need for job opportunities as well as education and training programmes (in order to obtain better skills for better job opportunities). The level of employment and the type of occupations taken up by the population of an area directly affects the income levels of its people. The high poverty level in the study areas has social consequences such as to not be able to pay for school fees, lack of money to buy food and other daily necessities, and the inability to afford a medical aid. Income categories will not improve unless their skills improve through better education attainment opportunities and job creation in higher skilled economic sectors. The lower income levels in study area indicate a higher demand for employment. The AP would provide opportunities not only in terms of jobs but also training. By providing such opportunities, many of the objectives as set in the policies discussed in section three would be met.

6.3. Local Economic Profile

Economic analysis is important in the interpretation of impact assessment results, as it allows for an understanding of the extent to which a proposed activity will change the outputs and trends in specific sectors. The structure of an economy is also indicative of its reliance on particular sectors and its sensitivity to fluctuations in global and regional markets.

Gross Value Added (GVA) is linked as a measurement to GDP. The relationship is defined as: GDP = GVA + Taxes – Subsidies. As the total aggregates of taxes on products and subsidies on products are only available at whole economy level, GVA is used for measuring Gross Regional Domestic Product and other measures of the output of entities smaller than a whole economy. GVA is the difference between output and intermediate consumption for any given sector/industry. That is the difference between the value of goods and services produced and the cost of raw materials and other inputs which are used in production. Figure 4 below indicates the GDP growth between 1995 and 2013.

Figure 4: GDP Growth (1995 – 2013)



(Quantec, 2015)

The economy of the SDM grew at an average growth rate of 1.7% between 1995 and 2013. This was lower than the average growth rate of the GP (3.5%) and the WRDM (2.0%). In 2009, the economy has been rather stagnating after experiencing a sharp decrease. This illustrates that the economy is highly sensitive to the changes in the global and national economic situation. In 2009, the global economy went into recession following financial crisis, which negatively impacted the demand for South Africa's goods and services and resulted in a drastic decrease in export earnings and domestic consumption. The economic situation started to improve in 2010, the prognosis was not realised and it was clear that the recession had a greater impact than was perceived originally. As a result, the provincial economy showed poor performance and it is clear that the SDM could not recover in full during that time either.

The following table indicates the GDP contribution of each economic sector to the economies of the SDM.

Table 8: GDP Contribution (2013)

2013	GP	SDM	WRDM
Agriculture, forestry & fishing	0,3%	0,4%	0,5%
Mining & quarrying	3,2%	5,4%	15,8%
Manufacturing	13,1%	20,4%	12,4%
Electricity, gas & water	3,0%	5,2%	2,7%

Construction	4,7%	5,1%	4,5%
Wholesale & retail trade, catering & accommodation	17,8%	17,7%	16,1%
Transport, storage & communication	7,9%	4,9%	6,4%
Finance, insurance, real estate & business services	25,7%	16,6%	18,2%
Community, social & personal services	4,1%	3,6%	3,7%
General government	20,2%	20,6%	19,7%

(Quantec, 2015)

The economic sectors that contributed the most to the SDM economy are ***general government; finance, insurance and real estate***; ***wholesale, retail trade, catering and accommodation***; *and* ***manufacturing***. Agriculture was the smallest contributor to the economy sitting at 0.4%. The following table indicates the sectors in which residents are employed within SDM.

Table 9: Employment per Sector

2013	GP	SDM	WRDM
Agriculture, forestry & fishing	1,4%	1,5%	2,1%
Mining & quarrying	0,8%	0,8%	5,6%
Manufacturing	10,9%	14,7%	10,5%
Electricity, gas & water	0,5%	0,9%	0,5%
Construction	6,1%	6,0%	5,9%
Wholesale & retail trade, catering & accommodation	25,2%	26,2%	24,4%
Transport, storage & communication	5,7%	4,6%	4,6%
Finance, insurance, real estate & business services	20,7%	15,9%	17,4%
Community, social & personal services	15,8%	16,6%	16,5%
General government	12,8%	13,0%	12,6%

(Quantec, 2015)

It can be clearly seen that agriculture only contribute 1.5% of the total employment in the SDM while wholesale and retail trade, catering and accommodation contributes the majority (26.2%). Through the development of the AP it is possible that the development would add to employment within the agricultural sector. This would assist in meeting the objectives set out within section three by reducing unemployment and contributing towards the SDM becoming a green economy.

The employment profile of the study area is an important indicator of human development, but also of the level of disposable income and subsequently the expenditure capacity of the residing population. The employment rate refers to those economically active people who are unemployed and looking for work as well as persons who are unemployed and not looking for work but would accept work if it was offered to them. This category also includes the not economically active population, which are people who are not working, but are housewives, scholars/full-time students, pensioners, disabled people and people not wishing to work. The following table indicates the level of employment within the SDM.

Table 10: Employment (2013)

2013	GP	SDM	WRDM
Employed	54,0%	42,4%	51,8%
Unemployed	18,7%	24,2%	17,7%
Not economically active	27,3%	33,4%	30,4%

(Quantec, 2015)

Within the SDM (42.4%) of the population are employed, 24.2% are unemployed and 33.4% are not economically active. The high unemployment rates across the SDM are indicative of limited employment opportunities as well as a mismatch between the skills demand by the market and what is currently supplied.

The skills level of the labour force has an impact on the level of income earned (i.e. the higher the skills level the higher the annual income that could be earned). The table below indicates the skills level within the SDM.

Table 11: Skills Level (2013)

2013	GP	SDM	WRDM
Highly skilled	19,0%	18,5%	17,5%
Skilled	46,5%	44,6%	42,9%
Semi- and unskilled	34,5%	36,9%	39,7%

(Quantec, 2015)

A population which is skilled has the ability to improve their income. There is a high percentage of the population with low skills and a population with low skills won't be able to improve their income and therefore it would be important to implement skills development programmes and job creation in higher skilled occupations. The skills profile indicates that the availability of local labour for the AP is not limited to semi – and unskilled labour as there is a high percentage of skilled labour available. Additionally, there is a high percentage of local population who have informal skills thus workers who have informal skills and who are semi – and unskilled should be utilised as much as possible in order to alleviate local unemployment.

6.4. Conclusion

The high percentage of unskilled labour in the SDM (36.9%) together with the low annual household income for the area (61.0%) creates a need for economic growth through absorption of the current labour force. Important sectors in the sectors include, manufacturing, wholesale and retail trade, finance and business services and general Government in terms of contribution to economic growth and wholesale and retail trade, finance and business services sector and community services in terms of employment opportunities. Agriculture is the smallest contributor of employment within the SDM with wholesale and retail trade, catering and accommodation contributes the majority. The towns within the LM of the SDM would be the areas that would most benefit from the employment opportunities provided during the construction and operation of the AP due to the proposed facilities to be included in the development. Additionally, the opportunity for skills development would enable them to acquire skills that could be utilised in the future.

Section 7: Agricultural Industry Analysis

7.1. Introduction

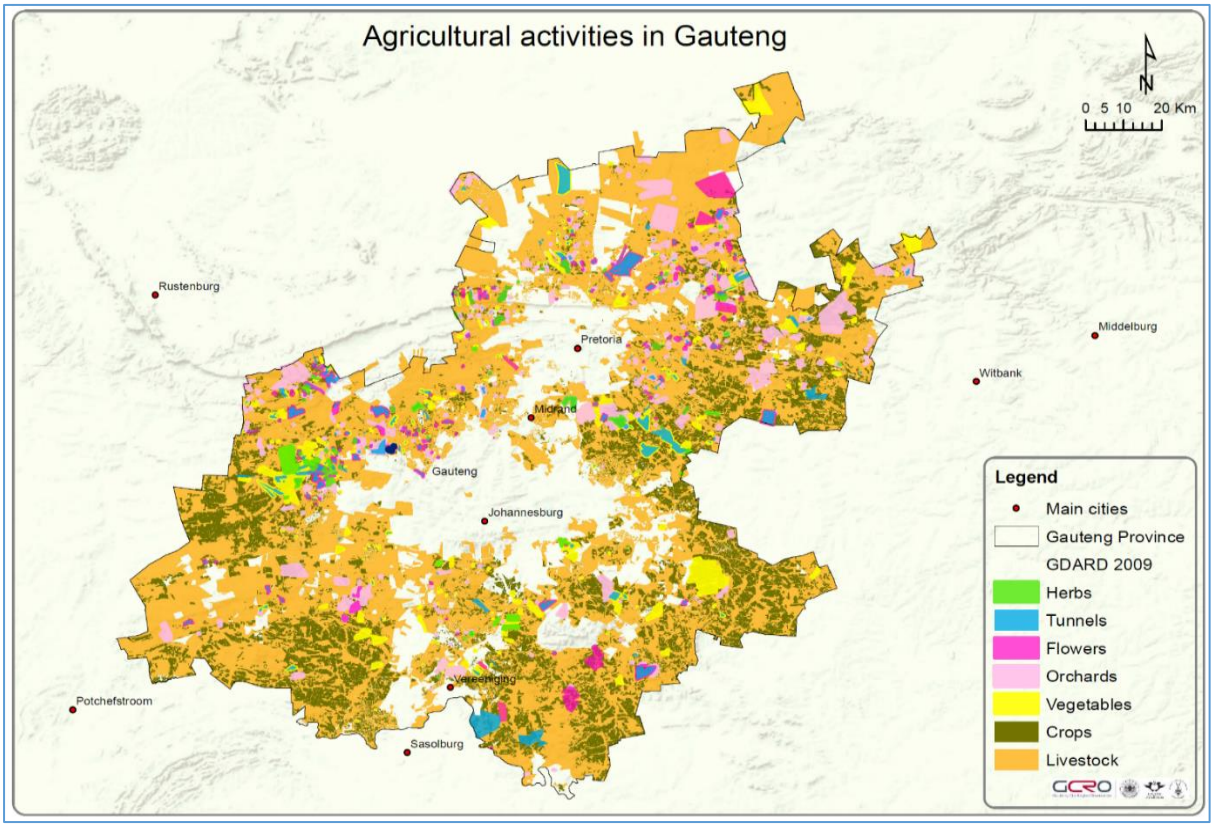
Agriculture is one of the economic sectors in SA that contributes to the GVA of the country. The agricultural industry not only contributes to food security but also to job creation, GVA, social welfare and eco-tourism, as well as adding value to raw materials. The following section outlines the main agricultural activities in the SDM as well as the main commodities selected that will form the basis of the Master APs Business Plan.

7.2. Main Agricultural Activities

The Gauteng Province (GP) comprises of three metropolitan municipalities, namely, City of Johannesburg, City of Tshwane (Greater Pretoria) and Ekurhuleni Metropolitan Municipality (EMM), each of which with high population densities. The GP is a major contributor to agricultural production in the Province, and according to the Gauteng Agro-Processing Strategy – Draft Industry Overview August 2015 (Urban-Econ, 2015) , it is estimated that only some 20% of land in Gauteng is covered by irrigated and rain fed commercial agriculture, contributing to the relatively low levels of agricultural production and contribution to the economy of the Province.

The GP agricultural activities are indicated on *map* 6 below. Map 6 indicates the land capability for the SDM and shows that the area is suited for livestock, crop production as well as herbs, flowers, orchards, and vegetables.

Map 6: Agricultural Activities in Gauteng



(Gauteng City Region Observatory, 2012)

The GP has large areas of land where agricultural activities occur, such as to the north-east of the City of Tshwane; SDM in the south-east and the WRDM in the south-west of the Province. Land available in GP for agriculture is limited and is under pressure from urbanisation and population growth and it is for this reason that the GP is dependent on other provinces for its food requirements. Table 12 below indicates the agricultural land characteristics within the GP in SA.

Table 12: Land Use Characteristics Related to Agriculture in South Africa

Province	Total area (ha)	Farmland (ha)	Farmland as % of total area	Potentially arable land as % of total area	Arable land utilised (ha)	Grazing land as % of total area
South Africa	105 207 300	86 186 026	81.9	13.5	12 900 122	68.4
Western Cape	12 938 600	11 560 609	89.3	19.0	2 126 342	70.4
Northern Cape	36 338 900	29 543 832	81.3	1.3	218 247	80.1
Free State	12 711 500	11 572 000	91.0	32.9	3 995 948	58.1
Eastern Cape	11 886 200	10 815 867	91.0	5.4	601 651	85.6
KwaZulu-Natal	5 540 700	3 439 403	62.1	15.1	834 637	46.9
Mpumalanga	7 504 100	4 486 320	59.8	21.3	1 742 601	38.5
Northern Province	8 348 200	7 153 772	85.7	14.0	660 090	71.7
Gauteng	1 876 000	828 623	44.2	23.4	405 773	20.8
North West	8 063 100	6 785 600	84.2	29.9	2 314 833	54.3

(Department of Agriculture, Forestry and Fishing, 2015)

Of the nine provinces, Gauteng is the smallest in terms of total hectares as it covers an area of 1 876 000 ha, of which only 23.4% is potentially arable. Only 405 773 ha is utilised arable land and 20.8% is for grazing. From the above it is clearly indicated that the GP has a small percentage of land which can be utilised for agriculture. Commercial agriculture takes up the largest area within the SDM and accounts for up to 33% of the total land usage.

The following table indicates the percentage of land within each LM as well as the SDM.

Table 13: Agricultural Land in the Sedibeng District Municipality

Location	Total (ha)	Agriculture (ha)	% of Total
Midvaal LM	172 290,75	118257	69%
Emfuleni LM	96624,75	54378,03	56%
Lesedi LM	148449,96	121624,33	82%
Sedibeng DM	417 365,46	294 259,36	71%

(Department of Agriculture and Rural Development, 2013)

Table 13 above indicates that there is a total of 294 259 hectares of agricultural land within the SDM, that is approximately 71% of the total land available within the SDM. Lesedi LM has 121 624 hectares of agricultural land, which accounts for that largest portion agricultural land in the SDM, closely followed by the Midvaal LM (118 257 ha) and then Emfuleni (54 378 ha).

The SDM produces a variety of different commodities within each of the LM, of which their performance is very dependent on climatic conditions and may fluctuate from year to year. The following list indicates the identified commodities within the SDM:

1. Maize
2. Grain
9. Vegetables
10. Milk

3. Sorghum
4. Wheat
5. Soya
6. Dry beans
7. Ground nuts
8. Sunflower seeds
11. Beef
12. Pork/ goat
13. Mutton
14. Lamb
15. Eggs
16. Poultry

In terms of agriculture within the SDM, Midvaal Local Municipality (MLM) has a medium/ moderate potential agricultural land. Approximately 68.4% of the MLM is zoned for agriculture. Areas of high agricultural potential mainly occur in the south-eastern parts of the municipality between Suikerbosrand and Vaal Marina where extensive agricultural activity occurs (Midvaal Local Municipality, 2015); and to a lesser extent in the central north-western parts between Walkerville, Tedderfield and Waterval. These areas have intensive commercial crop cultivation, including dry land and irrigated crops. Midvaal is characterised by diverse activities such as commercial farming operations (crop production and animal production).

In the Lesedi Local Municipality (LLM), approximately 81.93% of the LLM is zoned for agriculture. The LLM is dominated by large scale commercial farming operations. There are however many small and medium scale family farms and emerging, informal and subsistence producers. The LLM is characterised by high quality soils, access to urban markets, water availability a vast mass of knowledge and skills (Lesedi Local Municipality, 2015).

In the Emfuleni Local Municipality (ELM) approximately 56.28% of the ELM is zoned for agriculture. The agricultural potential of the ELM varies from high to low potential with most of the high potential land found in its south western area, which is in the area of Lochvaal Barrage and Vaal Oewer. The Sonlandpark region has only scattered pockets of high-potential agricultural land (Emfuleni Local Municipality, 2015).

The SDM is dominated by large-scale commercial farming operations, however there are a substantial number of small scale and emerging black farmers (305). The rural settlement pattern in the district is characterized by a large number of small holdings/small farms settlements ranging from 1 – 5 ha properties located around the fringes of the urban areas, especially in the western part of the district, in Midvaal LM and Emfuleni LM. Agricultural holding areas in Lesedi LM are limited to the Vischkuil/Endicott area in the northern part abutting the N17 national road, and some settlements on the edges of Nigel northeast of Heidelberg/Ratanda.

There is a substantial effort being made between government and commercial farmers into building capacity with small scale and emerging black farmers. This is being done through mentorship programmes which is mainly for land reform projects. Many of the small scale and emerging black farmer developments have been successful, this has been attributed to the following:

- Farmer commitment;
- Good management;
- Good business skills;
- Successful application of loans or assistance from financial institutions to expand production;
- Prepared to take calculated risks;
- Networking;
- Full time farmers; and
- Hands on farmers.

However, this is not to say that that all of the small scale and emerging black farmer developments are successful. Typically, unsuccessfulness could be due to lack of commitment, management, funds, and other skills. Support programmes such as the APs programmes would prove vital towards the mutual benefit of the commercial, small-scale, and emerging black farmers. Concerns mentioned in the Sedibeng SDF 2015 (Sedibeng District Municipality, 2015), namely the presence of agricultural land which

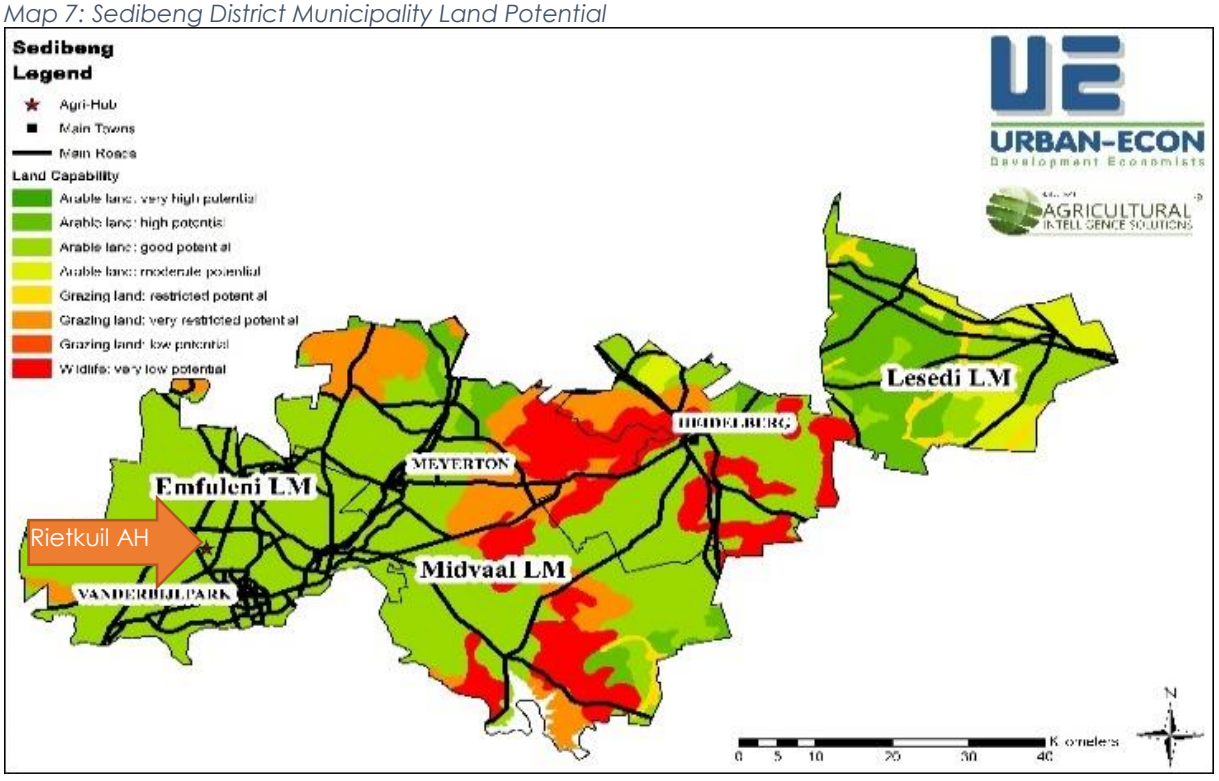
is under threat from urban development, and alien plant invasion throughout the district as it hampers agricultural potential and exacerbates pollution of water. Additionally, the SDM faces numerous challenges in promoting agricultural growth. They are as follows:

- Land use and ownership patterns are skewed;
- High levels of soil-degradation, erosion and bush encroachment exist;
- Agricultural initiatives are ad hoc and do not enjoy strategic, institutional or technical support;
- There is a general lack of awareness to promote agriculture amongst poorer communities as a means to ensure a sustainable food and income source;
- Majority of farmers do not have boreholes and mainly depend on Municipal water;
- No proper infrastructure;
- Access to finance;
- Access to markets is a problem due to no constant supply, inability to meet quantity and some cases not able to meet quality standards; and
- Stock theft.

7.3. Environmental Conditions and Resource Analysis

The resources and environmental conditions within the SDM are important features to consider in assessing the potential for agriculture in the district. This section provides an analysis of the environmental condition and resource availability within the district. The analysis was done based on geographical information (GIS) and areas of agricultural land potential, grazing capacity and rainfall were plotted. The maps below provide an illustrative description of the environmental and resource conditions within the district. *Map 7* below represents the land potential in the SDM.

Map 7: Sedibeng District Municipality Land Potential

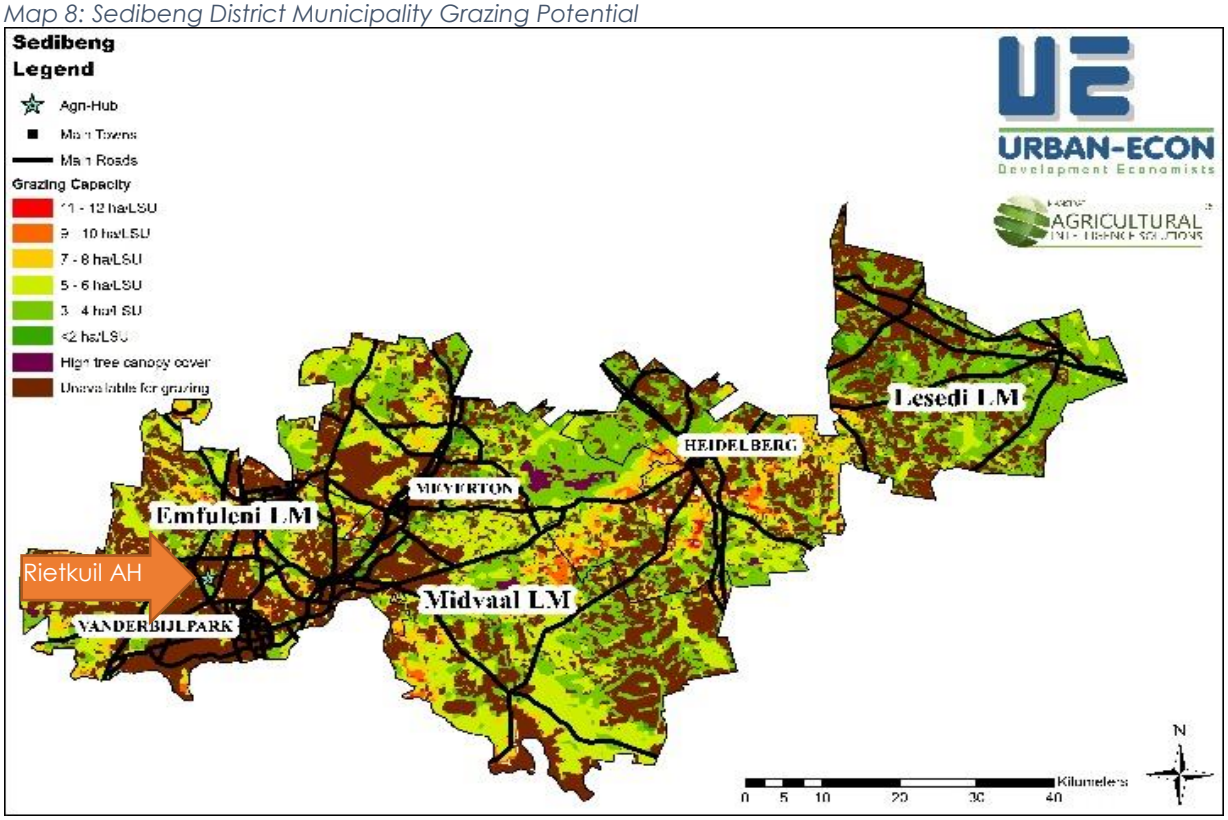


(MANSTRAT, 2015)

There is a significantly high proportion of land that has good potential arable land within the SDM; however, there are still portions of land with very high potential located predominantly within the Lesedi LM. The green areas on the map indicate areas of land and their relative potential for grazing of livestock and wildlife. Around the site of the AH it is clearly indicated that the land has good potential for grazing.

Map 8 depicts the grazing capacity of the land within the SDM. This is illustrated through hectares per livestock units (LSU = 450kg animals) – the number of hectares required to graze a given number of LSU's sustainably.

Map 8: Sedibeng District Municipality Grazing Potential

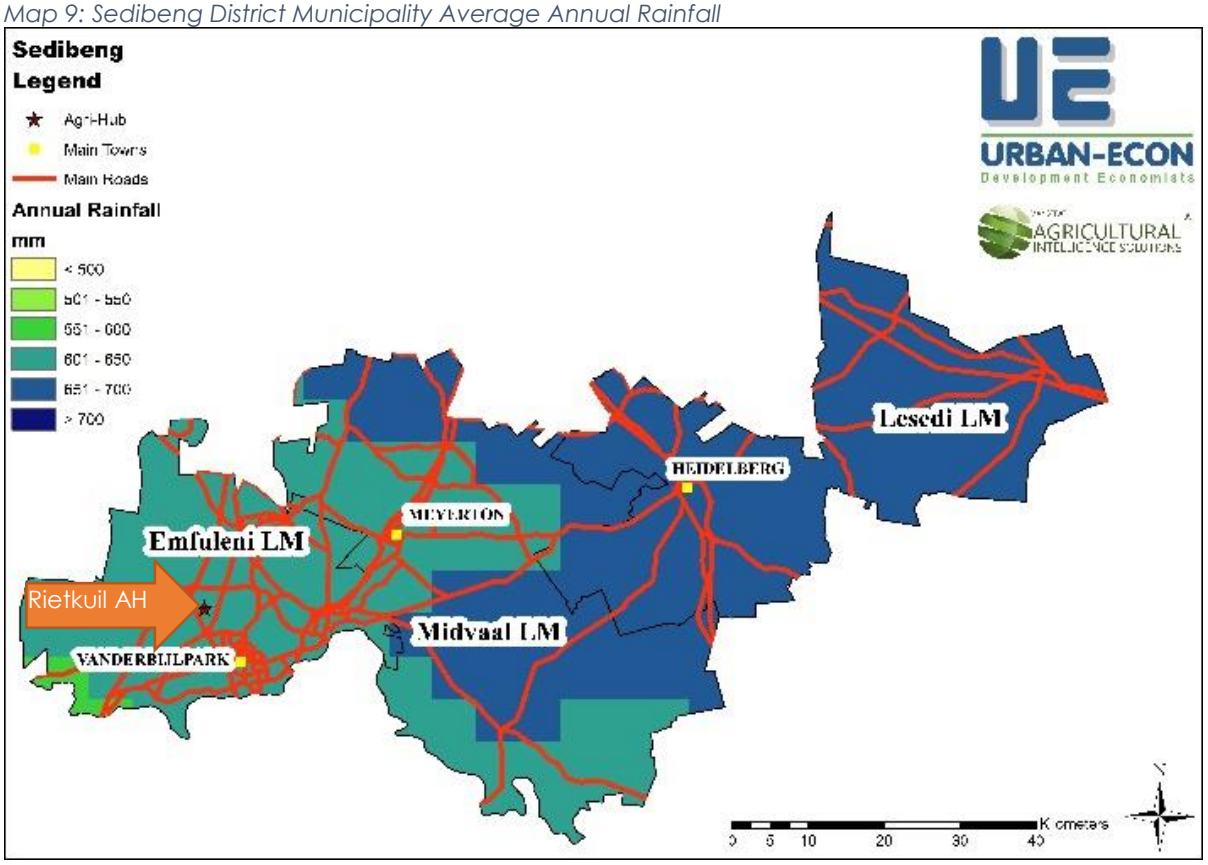


(MANSTRAT, 2015)

A large proportion of land in the SDM has the capacity to carry one LSU for every average 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 11-12 hectares is required per LSU. The large proportion of green highlighted areas suggest that the SDM is suitable for red meat production.

Rainfall is an important indicator of agricultural potential in a given area, with higher rainfalls indicating higher agricultural potential, while also taking into consideration of natural resources, such as soil potential. About 35% of southern Africa receives less than 300 mm per annum as a result of the presence of subtropical high pressure cells which inhibit rainfall generation because of predominantly subsiding air, while only about 7% has a MAP exceeding 800 mm. *Map 9* indicates the average annual rainfall received by the SDM.

Map 9: Sedibeng District Municipality Average Annual Rainfall



(MANSTRAT, 2015)

Map 9 indicates that the SDM receives an average annual rainfall of 601mm to 650mm from the Midvaal LM eastwards and an average annual rainfall of 651mm to 700mm from the Midvaal LM westward. The average annual rainfall in the SDM indicates that there is sufficient rainfall for most agricultural practices and is, on average, not a significantly constraining factor.

7.4. Current and Proposed Projects in the Area

The purpose of this sub-section is to illustrate the status quo in terms of current projects relating to agricultural activities across the district as well as proposed projects for the region. The analysis that will be outlined throughout this section will be more specific in terms of the locations where such developments are undertaken. Developing the rural economy, especially emerging and small-scale farmers in the district requires a proactive development approach that requires that projects are implemented, in the short- and long-terms. The current and proposed projects are described below, which include, RECAP, RIED, RID and CASP projects.

Table 14 below indicates the numerous projects within the SDM that have the potential to make a positive contribution to the Agri-Development.

Table 14: Projects in the Sedibeng District Municipality

PROGRAM	NO. OF PROJECTS	COMMODITIES	BUDGET
RECAP	16 projects	Grains, Vegetables, Poultry, Red Meat	R39 292 522
REID PROJECTS (Enterprise Dev)	10 Projects	Vegetables, Grains and Poultry	R3 600 000
RID PROJECTS (Infrastructure)	5 projects	Vegetables and Grains	R30 00 000

PROGRAM	NO. OF PROJECTS	COMMODITIES	BUDGET
Comprehensive Agricultural Support Programme (CASP)	14 (Emfuleni, Lesedi and Midvaal)	Grains, Vegetables, and Poultry	R14 673 500
LETSEMA	68 (Emfuleni, Lesedi and Midvaal)	Production Inputs	R6 117 000
EXTENSION	25 (Emfuleni, Lesedi and Midvaal)	Farmer Training	R3 220 000
MECHANISATION (21 TRACTORS)	32 (Emfuleni, Lesedi and Midvaal)	Maintenance, fuel and driver costs	R 818 000
		TOTAL	R97 721 022

(Gauteng Department of Agriculture and Rural Development, 2015)

There are a number of existing and proposed agricultural projects within the SDM. There are 16 RECAP projects, 10 REID projects, 5 RID projects, 14 CASP projects and 68 LETSMA projects. The RECAP, REID, RID and CASP projects are focusing on commodities such as grains, vegetables, poultry and red meat. Additionally, with the inclusion of the LETSEMA, extension and mechanisation there is a focus on production inputs, farmer training as well as maintenance, fuel and driver costs.

The inclusion of the RECAP, RIED, RID and CASP projects into the AP model could integral to the development of the AP, which is intended to have the capacity to support these projects in the way of value adding, market development and skills development. The projects identified will assist in the decisions in determining the prioritised commodities.

7.5. Commodity Selection, Identification and Prioritisation

This subsection focusses on the appropriateness of commodities that could be selected for the SDM and the prioritisation model applied shows the most appropriate commodities. The commodity selection criteria were based to a large extent based on the APAP as well as the following criteria; biophysical, enterprise viability, and economic development, political and social considerations. The first APAP focuses on a discrete number of value chains, identified as strategic in meeting the Government priority targets set out in existing policy frame work such the NGP, NDP and IPAP, using the following general selection criteria:

- Contribution to food security;
- Job creation;
- Growth potential;
- Potential contribution to trade balance;
- Value of production; and
- Agro-Processing.

Considering that the development of an AP per District Municipality is part of the response for achieving national goals of inclusive rural development and integration; employment creation; poverty eradication; and inequality reduction, the AP Model also seeks to strategically select the top three (3) agricultural commodities produced within the District Municipality, which aligns with the APAP selection criteria and develop integrated value-chains for these commodities.

In addition to the APAP criteria the following criteria were used to evaluate the weight of the selected commodities. The scores were allocated based on the importance of commodity to the relation to the criteria, with 3 most optimal and 0 impossible and highly unlikely to succeed. In addition, these weight was from 3 as high importance and 1 low importance. As such the following categories with their descriptions are indicated in the subsequent table (Table 15).

Table 15: Selection Criteria for Commodity Prioritisation

A. Biophysical criteria:
o Temperature
o Water/moisture
o Land type
o Capability and soil
o Weed, pest and disease resilience
o Adaptability to adverse conditions
B. Enterprise viability criteria
o Transport, market access and demand
o Strategy, payback and profitability
o Human, physical and financial capital
C. Economic development criteria
o Linkages and processing opportunities
o Job creation - Direct on-farm job creation
o Local development
o Global competitiveness and trade
D. Political and social criteria
o Political and institutional issues
o Social issues
o Food security and sustainability

In line with the above selection and prioritisation criteria each commodity's relevance to the SDM was evaluated and a scored out of a potential 210. In the table below the scores for each of the commodities are provided and are accompanied by key notes as to their decision. The following table indicates the commodities which were evaluated as well as their scores.

Table 16: Commodity Prioritisation Selection

Commodity	Total
Red meat production (beef cattle, mutton sheep and pork)	93%
Vegetables	88%
Poultry (broilers and layers)	82%
Groundnut	77%
Soya Beans	76%
Sunflower	74%
Dairy	71%

(MANSTRAT, 2015)

Based on their rating and in conjunction with interviews with various stakeholders' and desktop research the following commodities were identified. Table 8 below indicates the top three commodities.

Table 17: Prioritised Commodities

Commodity	Comment
Red meat production (incl. pork)	The grazing potential is sufficient, however, land is fairly limited. Markets are nearby (several marketing channel options in Gauteng, including abattoirs, auctions, direct sale opportunities etc.) and feedstock are cost efficiently available in the area (silos and major grain producing areas to the east, south and west), therefore intensive production in feedlots are likely to be very profitable for beef cattle and mutton sheep. The same applies to piggeries, however, for piggeries and feedlots environmental considerations will be very important.
Poultry (broilers)	Strong competitive advantage due to proximity to markets (nearby chicken abattoirs, meat processors and extensive opportunities for direct sales and other marketing channels in nearby major urban centres), cost efficient feedstock availability (major grain producing areas to the east, south and west) and favourable climate for large scale poultry production.
Vegetables	High yields attainable under irrigation or hydroponics, and major competitive advantage due to proximity to market. However, water availability may be a limiting factor. The most suitable vegetable is Potato, while Cabbage, Carrot, Cucumber, Green mealie and Tomato can also be competitively produced.

The following section will provide an overview of the selected commodities indicated in the table above. The following sections will detail the commodities; **Section 6 "Vegetables"**, **Section 7 "Red Meat"** and **Section 8 "poultry"**.

Section 8: Commodity Analysis: Vegetables

8.1. Introduction

Vegetables are a major production commodity for small-scale and commercial farmers in the SDM, and close proximity to the market allows for easy access, especially since produce is required to be fresh. Vegetables are produced in most parts of the country. However, in certain areas farmers tend to concentrate on specific crops; for example, green beans are grown mainly in Kaapmuiden, Marble Hall and Tzaneen, green peas mainly in George and Vaalharts, onions mainly in Caledon, Pretoria and Brits, and asparagus mainly in Krugersdorp and Ficksburg regions.

The following sub-section will outline various factors of vegetables in terms of production volume, importance of vegetable types. Average price of vegetables, per capita consumption and per capita consumption trends. Firstly, the production of vegetables in South Africa for the period 2009/10 to 2013/14 is compared in Table 18 below.

Table 18: Production Volumes of Vegetable Types

Year July to June	2009/10	2010/11	2011/12	2012/13	2013/14[2]
	'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[1]	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

Year July to June	2009/10	2010/11	2011/12	2012/13	2013/14[2]
	'000 tons				
Other	400	406	421	420	416
Total	4 476	4 717	4 876	4 846	4 835

(Department of Agriculture, Forestry and Fishing, 2015)

Between 2012 and 2014 the total production of vegetables decreased by from 4 846 000 tons to 4 835 000 tons which is a total decrease of 11 000 tons. Concerning the major vegetable types in terms of volumes produced, the production of green mealies rose slightly from approximately 361 000 tons to 362 000 tons and sweet potato's increased by approximately 12 000 tons or 21.2%. Most of the vegetable crops, however, decreased over the period. The decrease in vegetable production could be attributed to adverse weather conditions which could have occurred in 2014.

The relative importance of the major vegetable types, according to gross value of production, during the 2013/14 season, is depicted in Table 19 below.

Table 19: Relative 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%

(Department of Agriculture, Forestry and Fishing, 2015)

Potatoes are clearly a vegetable of high relative importance, with an approximate gross value of production equal to 42% of the total for vegetables. Tomatoes and onions are the also important vegetable crops with a combined gross value of 29%. It is important to take into account the average price of vegetable types. Indicated in the table below are the average price of vegetable types from 2011 to 2014.

The consumption of vegetables is recommended for a healthy lifestyle and is promoted as such globally, additionally it is promoted by all the stakeholders in the fresh produce marketing chain. The per capita consumption of fresh vegetables was 43.01kg during 2014, approximately 2.8% lower than the previous year. The table below summarises consumption of vegetables (excluding potatoes) between 2010 and 2014. Table 20 indicates the per capita consumption for vegetable between 2010 and 2014.

Table 20: Per Capita Consumption

Year	2010	2011	2012	2013	2014
Vegetables (potatoes excluded) (Kg/Year)	44.75	43.90	45.68	44.28	43.01

(Department of Agriculture, Forestry and Fishing, 2015)

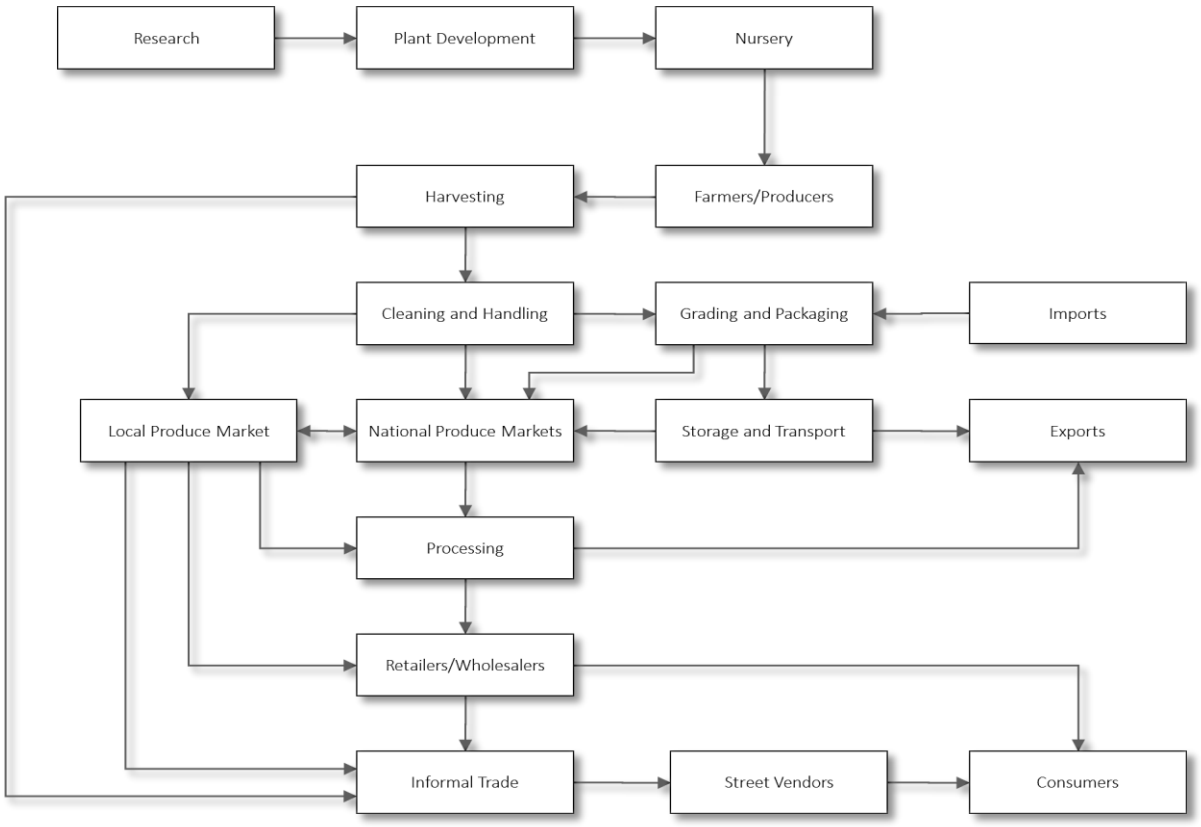
Per capita consumption of vegetables has remained relatively stable over the last 10 years, ranging between 43.01kg per year to 45.68kg per year. Table 20 illustrates the fluctuations in per capita consumption of vegetables between 2010 and 2014. Consumption patterns with respect to vegetable have remained predominantly stable at just over 40kg per capita within South Africa. Fluctuations in per

capita consumption figures may vary due to population figures as well as production figures for the year in question.

8.2. Value Chain Assessment

The following section will diagrammatically represent and provide an analysis of the vegetable value chain. The opportunity analysis will identify potential opportunities within the value chain. The development of sustainable supply and value chains in the vegetable sector from production through processing to markets is important. The value chain below is for vegetable). The value chain will visually represent the process from the production of the commodity through to the consumer. The following value chain is for the vegetable industry (Figure 5).

Figure 5: Vegetable Value Chain



The SDM is well suited for vegetable crop production and there are several factors which impact on their productivity and growth in the sector. These factors include,: growth in the SA economy and rising consumer demand; international trade and trade agreements; the global recession and rise in food prices; the land reform programme; reliance on imports; water availability; changing consumer patterns and demands (e.g. organic food stuffs); rising costs of agricultural inputs ; technological changes and mechanisms; quality standards; farm safety and security; broad based black economic empowerment; skills demand and supply; HIV/AIDS; and changing climate.

Vegetables are a highly important crop in South Africa, and production and production within the SDM does occur. Rainfall, soils and other natural resources is suited for vegetable production in the region. Most of the production of vegetables in Gauteng is geared toward the local market in Gauteng, given that is South Africa's largest market. Moreover, domestic demand for potatoes and potato-related products is increasing. Factors influencing production include: expansion of the fast-food industry; higher average income of the population; the rapid rate of urbanization; and the influx of international

processing companies. Competition is also very strong for emerging farmers, especially since there are several large vegetable producers in the district.

8.2.1. Upstream Activities

As 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 seedlings, fertilisers and other chemicals for pest, weed and disease control. Most of these inputs are supplied by agricultural organisations that are present in the respective areas. The main suppliers of these products are Stark Ayres, NWK, SENWES, Plant Forum, Obaro, Monsanto, Omnia, Dicla Farm and Seed, etc. The main suppliers, including NWK, Dicla and Obaro, to the vegetable industry within the SDM and regionally are summarised in Table 21 below.

Table 21: Main Input Suppliers Vegetables

Input Supplier	Services
Starke Ayres	o Vegetable seed
NWK	o Irrigation o Hardware o Animal health and nutrition o Seeds o Spare parts o Chemicals & fertiliser
SENWES	o Agronomy, o Soil surveys and mapping, o Developing agriculture and o GIS & cartography
Plant Forum	o Vegetable seedlings
Obaro	o Irrigation o Hardware o Animal health and nutrition o Seeds o Spare parts o Chemicals & fertiliser
Monsanto	o Agricultural seed
Omnia	o Fertiliser
Dicla Farm and Seed	o Seed o Tunnels o Poultry Supplies o Irrigation Equipment o Tractors and Implements
Other Seed Companies	o Thinus Maritz Vaalwater (Pty) Ltd (Potatoes) o H du Preez Boerdery (Edms) Bpk (Potatoes) o Aartappel Produksie Net (Potatoes) o Witklip Boerdery (Potatoes) o JAF van den Heever (Potatoes) o Twoline Trading 113 (Edms) Bpk (Potatoes) o Sirkel N Landgoed (Potatoes) o Turfpan & Saron Boerdery BK (Potatoes) o Granary Normandien (Pty) Ltd (Potatoes) o Apjatorskop Boerdery (Potatoes) o Livingseeds Heirloom Seeds (Pty) Ltd o Premier Seeds o Seeds for Africa
Future Packaging and Machinery (Pty Ltd)	o Packaging material

The main suppliers to the vegetable industry, in general, have the capacity to supply most inputs required for vegetable production including vegetable seedling, fertilisers, chemicals, irrigation equipment and machinery, as suggested in Table 21.

8.2.2. Downstream Activities

Harvesting, handling, washing, trimming, grading, packing, packaging, labelling and transporting are all important practices aimed at preserving the quality of the produce, and presenting it to the best advantage. Prices achieved, and thus differences in income obtained, can be greatly affected by the emphasis placed on these practices. They must, therefore, be considered as important elements in the marketing strategy.

Most 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 better prices prevail there. Nationally linked information networks 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 (MANSTRAT, 2015):

Table 22: Vegetable Marketing Channels

Marketing Channels			
Potatoes	**Tomatoes**	**Cabbage**	**Carrots**
Direct sales incl. farm gate sales, roadside farm stalls and farmer's markets	Direct sales (farmer-to-consumer)	Direct sales (farmer-to-consumer)	Direct sales (farmer-to-consumer)
Street hawkers and visiting hawkers (bakkie traders)	Street hawkers and visiting hawkers (bakkie traders)	Street hawkers and visiting hawkers (bakkie traders)	Street hawkers and visiting hawkers (bakkie traders)
Small independent shops or supermarkets	Small independent shops or supermarkets	Free markets, wet markets and informal auctions	Free markets, wet markets and informal auctions
Large retail chains	Large retail chains	Small independent shops or supermarkets	Small independent shops or supermarkets
Independent restaurants and fast food outlets, small hospitality businesses and small employers that provide meals to their employees	Independent restaurants and fast food outlets, small hospitality businesses and small employers that provide meals to their employees	Large retail chains	Large retail chains
Large restaurant and fast food chains	Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes	Restaurants and hospitality businesses	Restaurants and hospitality businesses
Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes	National Fresh Produce Markets	Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes	Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes
National Fresh Produce Markets	Packhouses, vegetable packers and exporters	National Fresh Produce Markets	National Fresh Produce Markets
Packhouses, vegetable packers and exporters	Vegetable processors	Packhouses, vegetable packers, wholesalers and exporters	Packhouses, vegetable packers, wholesalers and exporters
Vegetable processors		Vegetable processors	Vegetable processors

Seed potatoes			

(MANSTRAT, 2015)

The green highlighted outlets in the table above indicate outlets of high priority. Table 23 indicates the marketing channels that were indicated as high to very high priority.

Table 23: High Priority Marketing Channels

Channel	Priority & gaps/opportunities
Potatoes	
Street hawkers and visiting hawkers (bakkie traders)	High priority because it is such an important and profitable channel, however, a system should be implemented to coordinate transactions using modern technology otherwise dealing with large numbers of small transactions will be unviable.
Large retail chains	Very high priority because this is becoming the main modern marketing channel for fresh produce, and farmers can collectively access this market through the APs scheme.
Large restaurant and fast food chains, large hospitality groups and large employers that provide meals to their employees	High priority because this may be a large, consistent and fairly easy channel to target and specially to distribute to.
Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes	Very high priority, especially for government-run institutions and food programs.
National Fresh Produce Markets	High priority during the initial phase simply because it is the easiest marketing channel for potatoes to start with, however, priority should soon decrease as contracts via more profitable marketing channels are secured.
Packhouses, vegetable packers and exporters	High priority in areas where packhouses that handle potatoes are situated, and low or no priority in areas where such packhouses are absent.
Vegetable processors	High priority because financial and non-financial support provision can be negotiated, and could be a low-risk marketing channel to start with during the initial phases of the AP scheme.
Tomatoes	
Street hawkers and visiting hawkers (bakkie traders)	High priority because it is such an important and profitable channel, however, a system should be implemented to coordinate transactions using modern technology otherwise dealing with large numbers of small transactions will be unviable.
Large retail chains	Very high priority because this is becoming the main modern marketing channel for fresh produce, and farmers can collectively access this market through the APs scheme.
Large restaurant and fast food chains, large hospitality groups and large employers that provide meals to their employees.	High priority because this may be a large, consistent and fairly easy channel to target and specially to distribute to.

Channel	Priority & gaps/opportunities
Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes	Very high priority, especially for government-run institutions and food programs.
National Fresh Produce Markets	High priority during the initial phase simply because it is the easiest marketing channel for potatoes to start with, however, priority should soon decrease as contracts via more profitable marketing channels are secured.
Packhouses, vegetable packers and exporters	High priority in areas where packhouses that handle potatoes are situated, and low or no priority in areas where such packhouses are absent.
Vegetable processors	High priority because financial and non-financial support provision can be negotiated, and could be a low-risk marketing channel to start with during the initial phases of the AP scheme.
Cabbages	
Street hawkers and visiting hawkers (bakkie traders)	High priority because it is such an important and profitable channel, however, a system should be implemented to coordinate transactions using modern technology (e.g. computerized scheduling of supply and logistics, and instant message communication) otherwise dealing with large numbers of small transactions will be unviable.
Large retail chains	Very high priority because this is becoming the main modern marketing channel for fresh produce, and farmers can collectively access this market through the APs scheme. The AP system are in a good position to develop a system that enables traceability when targeting this channel.
Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes	Very high priority, especially for government-run institutions and food programs.
National Fresh Produce Markets	High priority during the initial phase simply because it is the easiest marketing channel for cabbage to start with, however, priority should soon decrease as contracts via more profitable marketing channels are secured.
Packhouses, vegetable packers, wholesalers and exporters	High priority in areas where packhouses that handle cabbage are situated, and low or no priority in areas where such packhouses are absent. The AP system should develop a system to enable traceability when targeting this channel.
Vegetable processors	High priority because financial and non-financial support provision can be negotiated, and could be a low-risk marketing channel to start with during the initial phases of the AP scheme.

Channel	Priority & gaps/opportunities
Carrots	
Street hawkers and visiting hawkers (bakkie traders)	High priority because it is such an important and profitable channel, however, a system should be implemented to coordinate transactions using modern technology (e.g. computerized scheduling of supply and logistics, and instant message communication) otherwise dealing with large numbers of small transactions will be unviable.
Large retail chains	Very high priority because this is becoming the main modern marketing channel for fresh produce, and farmers can collectively access this market through the APs scheme. The AP system are in a good position to develop a system that enables traceability when targeting this channel.
Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes	Very high priority, especially for government-run institutions and food programs.
National Fresh Produce Markets	High priority during the initial phase simply because it is the easiest marketing channel for carrots to start with, however, priority should soon decrease as contracts via more profitable marketing channels are secured.
Packhouses, vegetable packers, wholesalers and exporters	High priority in areas where packhouses that handle carrots are situated, and low or no priority in areas where such packhouses are absent. The AP system should develop a system to enable traceability when targeting this channel.
Vegetable processors	High priority because financial and non-financial support provision can be negotiated, and could be a low-risk marketing channel to start with during the initial phases of the AP scheme.

Significant points of sale for vegetables produced in the SDM are listed below:

- Johannesburg Fresh Produce Market;
- Tshwane Fresh Produce Market;
- Spring Fresh Produce Market;
- Vereeniging Fresh Produce Market;
- Free State prison;
- Randfontein auction;
- Schools (National School Feeding Programme);
- Prisons;
- Hospitals;
- SPAR (Vegetable Buyers);
- Pick'n Pay; and
- Informal traders (local tuck shops and spaza's).

Significant marketing considerations of vegetables produced in the SDM include:

- Size of outlet, and cost of servicing it;

- Transport availability and cost. Distances, which affects cost, as well as deterioration of the product. Condition of the roads;
- Packaging required, e.g. pre-packs, cartons, boxes, pockets and their relative costs in relation to prices attained;
- Market or consumer preferences;
- Product quality or specifications;
- Contact person or agents;
- Seasonal price trends;
- Market commission and agents' fees;
- Possible delays in payment for consignments; and
- Various other possible requirements for the specified outlet.

The development of sustainable supply and value chains in the vegetable sector from production through processing to markets, where there are unequal power relationships between large retailers/wholesalers and agro processors, and primary vegetable producers is a constraint. Producers are vulnerable to demand volatility and price fluctuations and are "price takers" because of the buyers' market power. The major vegetable processing players in South Africa are tabulated below (Table 24).

Table 24: Competitors within the Vegetable Processing Industry

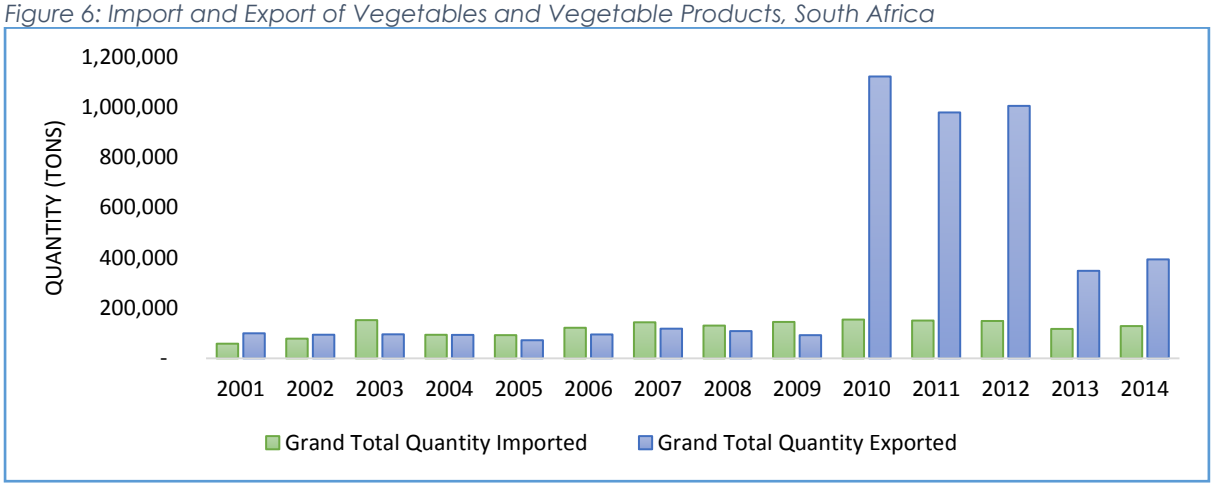
Type of processing activity	Competitor
Fresh Produce	• Johannesburg Fresh Produce Market • Vereeniging • Tshwane • Springs • Rugani Carrots • Fruit and Veg City (Vereeniging)
Canning and Pickling	• Rhodes • Langeberg Food Processors Ltd • Giants Canning - Everyday • Koo • All Gold • SA Fruit & Vegetable Canners' Association (SAFVCA)
Frozen	• McCain Foods SA • Just Veggies • Nature's Choice Products • Lamberts Bay Foods • Tender Harvest • Findus Foods
Slice and Dice	• Retailers own products
Drying and Dehydration	• Just Veggies • Carbocraft (Pty)Ltd

Amongst the above listed competitors are other competitors that are involved in vegetable agro-processing activities, including farmers who have the capacity to process their products.

8.2.3. Markets

Imports and exports are an indicator of South Africa's competitiveness on a global scale, while also contributing to trade balance – whether South Africa is a major exporter, or major 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 nett exporter of agricultural products, importing only deficits in certain commodities, or niche products. Figure 10 indicates the quantity of vegetable products imported and exported by South Africa between 2001 and 2014.

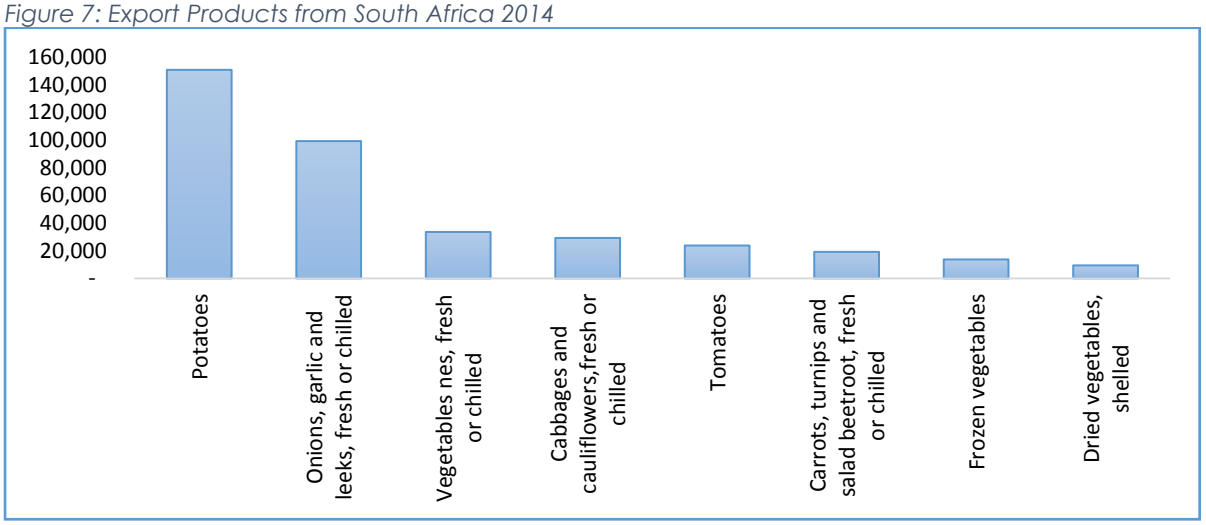
Figure 6: Import and Export of Vegetables and Vegetable Products, South Africa



(ITC, 2015)

Figure 6 suggests that exports of vegetables and vegetable products was significantly higher than exports from 2010 to 2014. Most export figures for 2010 were, however, estimated by ITC Trade Map and could be over-estimated. Figures for 2012, 2013, and 2014 are more exact figures and not estimated. In summary, the figures suggest that recently South Africa has been a major nett exporter of vegetables and vegetable products. Export products are listed in Figure 7.

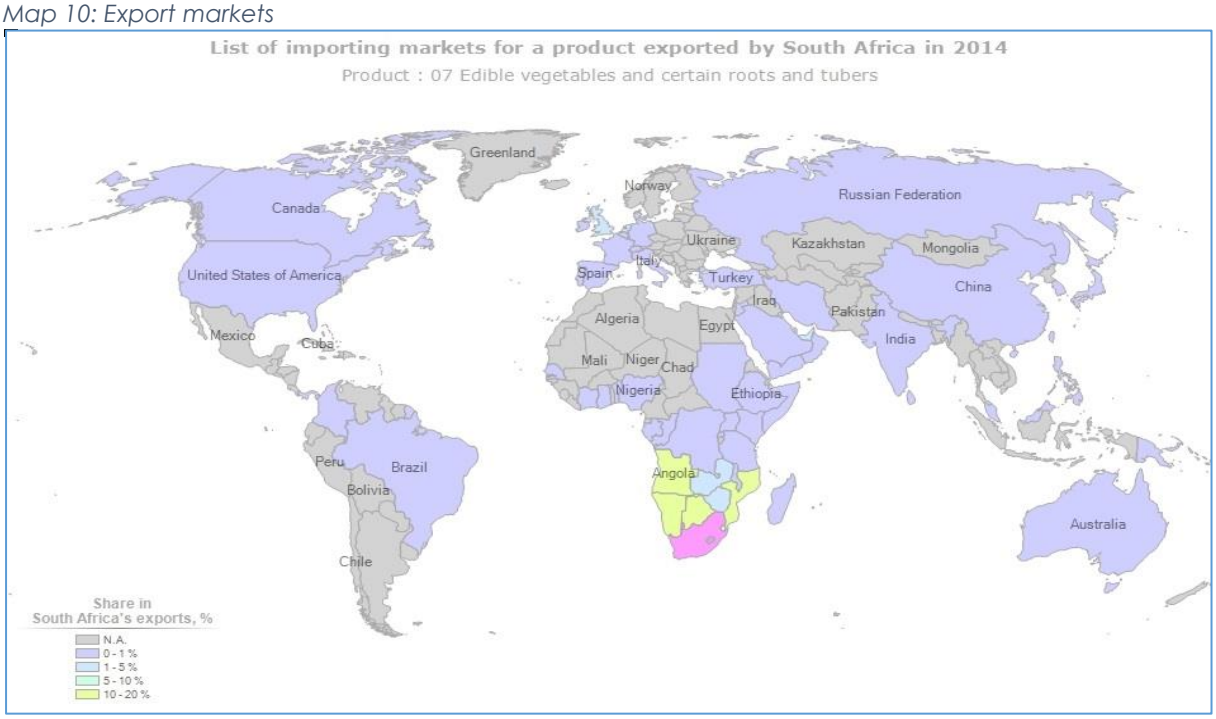
Figure 7: Export Products from South Africa 2014



(ITC, 2015)

It is clear from Figure 11 that potatoes and onions are the major export commodities from South Africa, especially since they are easily stored and transported. The major export destinations for the commodities are South African Development Community (SADC) countries including Namibia, Botswana, Angola and Mozambique as indicated in map 10.

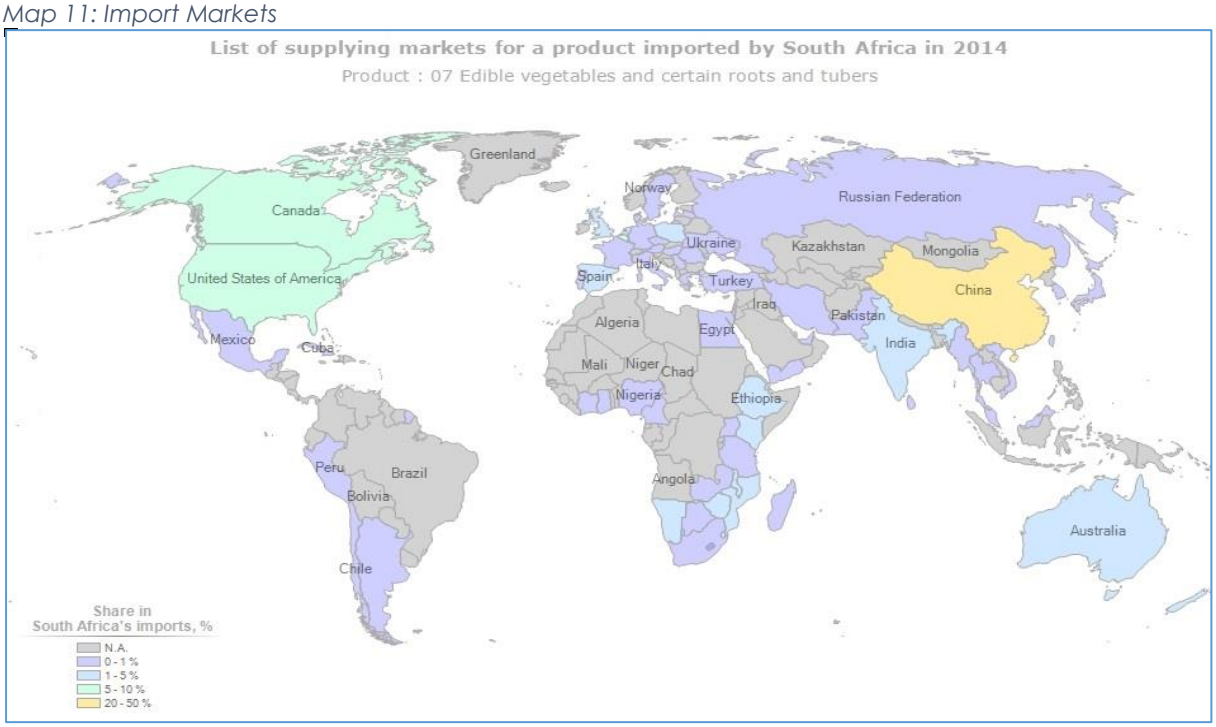
Map 10: Export markets



(ITC, 2015)

South Africa's major import markets for vegetable products include China, Canada and United States of America (USA) as indicated by Map 10. The major import products include dried and frozen vegetables (Map 11).

Map 11: Import Markets



(ITC, 2015)

It is clear from the above import-export analysis that South Africa is a nett exporter of vegetables and vegetable products, with SADC countries being the major markets for these products. The major export commodities include potatoes and onions which can be easily stored and transported to the SADC region with relative ease given the relative proximity and low trade barriers. Of interest is that these

commodities are exported mostly in their primary for and have gone through little processing. Major imported vegetable products include dried vegetables and frozen vegetables with most imports originating from China. Importantly, the imported products have gone through value adding activities.

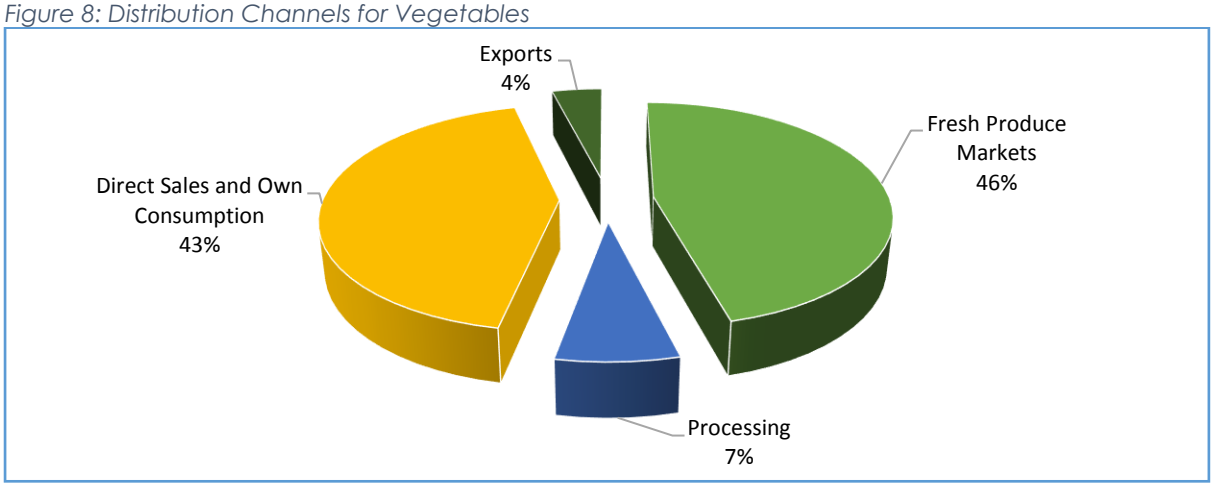
Most commercial producers consider only one or two of the major national markets as marketing outlets, to the exclusion of all other possibilities. The larger producers will supply even some of the far-distant national markets, provided better prices prevail there. Nationally linked information networks 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:

- Direct sales to hawkers or consumers on the farm. Savings may be made on packaging, agents' fees, market commission and transport and so on.
- Farm stalls. Savings as above, but require suitable reliable staff.
- Direct sales to wholesalers, retailers, consumer groups or individual consumers. Delivery costs may be disproportionately high for small consignments.
- Small municipal markets or farmers' markets. Usually not very different to the national markets, more easily glutted, and lower throughput.
- Export.

In South Africa vegetables are sold through 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 – e.g. supermarkets, greengrocers, hawkers, farm gate sales, to processors; and surplus produce is also exported. It was estimated that in 2014 approximately 46% of vegetables were sold via the NFPM's 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 8 indicates the volume of vegetables that are traded through various distribution channels that are available to farmers.

Figure 8: Distribution Channels for Vegetables



(MANSTRAT, 2015)

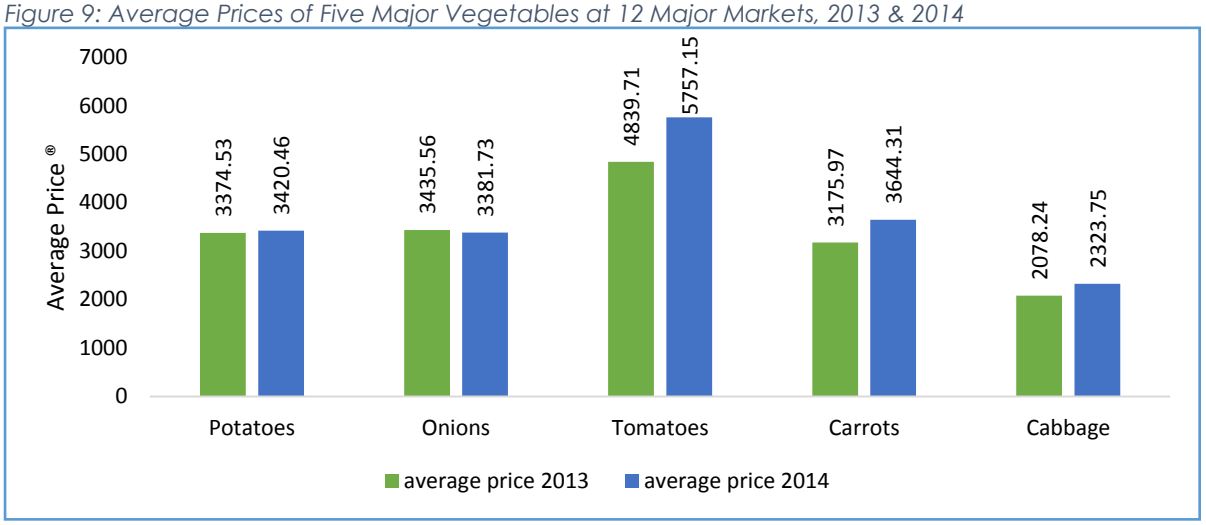
It is clear from Figure 8 that approximately 46% of the volume of vegetables produced is traded on the major fresh produce markets. The total volume of vegetables sold on these markets during 2014 amounted to 2 293.6 thousand tons, compared to the 2 107.8 thousand tons that sold during 2010, an increase of approximately 9%.

A commodity market is a market that trades in primary economic sector rather than manufactured products. Soft commodities are agricultural products such as wheat, coffee, cocoa and sugar

Commodities are generally traded through the South African Futures Exchange (SAFEX) and are long-lasting (i.e. can be stored for a long amount of time). Vegetables are generally a product that is quickly perishable if not stored under the correct conditions and are therefore not traded on SAFEX, but rather through quick access points such as NFPM's like the Johannesburg Fresh Produce Market, Africa's largest of its type.

As was indicated by figure 8 approximately 46% if vegetables in South Africa are traded through NFPM's indicating its relative importance within the industry. There are 19 fresh produce markets that trade in fruit and vegetable on a daily basis nationwide who sell product on to hawkers, retailers and fruit and vegetable stores and other stores. Of the fresh produce markets, the Johannesburg Fresh Produce Market is the largest of the markets, followed by Tshwane. Both are located within the Gauteng province and in close proximity to the SDM. Gauteng is a major marketing point for vegetables given the size of the market and, as such, there are many vegetable farmers that are situated within close proximity. The five major commodities that move through these markets include potatoes, onions, tomatoes, carrots and cabbage, all major staple foods. Figure 9 indicates the average price per ton for the five major commodities.

Figure 9: Average Prices of Five Major Vegetables at 12 Major Markets, 2013 & 2014



(Department of Agriculture, forestry and fishing, 2014)

Tomatoes are clearly the most valued of the five major vegetables with an average price of R5 757 in 2014, a 19% increase over the previous year. Cabbage was valued at an average of R2 323 per ton in 2014, the lowest valued of the major vegetable products. These differences are a result of supply and demand conditions as well as the production potential of the relative crop. Cabbage is a relatively hardy vegetable crop and can be produced with relative ease in comparison to tomatoes that require closer management. The volume and value of trade of the five major commodities are assessed in more detail in Table 25 below.

Table 25: Volumes and Rand Values of Five Major Vegetables Traded, 2013 & 2014

Item	Tons			Rand per ton		
Year	2013	2014	% change	2013	2014	% change
Tshwane	337,698	347,563	2.9%	3,343	3,625	8.4%
Johannesburg	726,847	770,017	5.9%	3,387	3,573	5.5%
Bloemfontein	47,332	45,729	-3.4%	3,347	3,757	12.3%
Kimberley	11,829	12,711	7.4%	3,456	3,699	7.0%
Cape Town	174,239	166,403	-4.5%	3,383	3,616	6.9%
Port Elizabeth	57,301	54,912	-4.2%	3,461	3,711	7.2%
East London	52,693	51,237	-2.8%	3,658	3,971	8.5%
Durban	170,781	177,733	4.1%	3,459	3,858	11.5%
Pietermaritzburg	50,916	49,197	-3.4%	3,254	3,715	14.2%

Item	Tons			Rand per ton		
Year	2013	2014	% change	2013	2014	% change
Welkom	30,128	28,690	-4.8%	3,757	4,195	11.6%
Klerksdorp	48,657	48,851	0.4%	3,584	3,915	9.2%
Vereeniging	26,003	25,993	0.0%	3,026	3,205	5.9%
Springs	59,488	58,830	-1.1%	2,874	3,103	8.0%
Uitenhage	8,739	8,950	2.4%	3,656	3,386	-7.4%
Witbank	11,488	11,192	-2.6%	3,360	3,454	2.8%
Nelspruit	5,764	4,723	-18.1%	1,390	1,147	-17.5%
Mpumalanga	31,465	27,659	-12.1%	2,479	2,345	-5.4%
Kei (Mthatha)	5,459	7,053	29.2%	3,650	3,779	3.5%
George	6,699	5,351	-20.1%	3,186	3,908	22.7%

Table 25 indicates the volume traded and the value (Rand per ton average) for the five major vegetables. It is clear that Johannesburg Fresh Produce Market is the largest trader of vegetables along with Tshwane, making Gauteng the largest market for these vegetables and, by implication, many other vegetables. Gauteng, being a major market is also surrounded by major vegetable farmers who supply the produce.

Food security, also a major objective of the APs model, is an essential component to the livelihood of many South Africans. 60% to 70% of low income households' budgets are spent on staple food products. Therefore, it is essential that the deployment of the APs contributes positively to issues of food security.

The growing of the vegetable industry within the SDM is likely to have a two-fold impact on food security. That is, additional food is produced through increased production, and incomes are created through employment creation, increasing the purchasing power of the consumer. Estimated contribution to food security can therefore be estimated by assessing estimates of production and job creation. Estimated production is summarised in Table 26.

Table 26: Estimated Production

Production	Conservative Yield per Ha (t)	Estimated Production
Cabbage	30	259080
Carrot	20	172720
Onions	15	129540
Tomatoes	30	259080
Potatoes	30	259080
Total Average	**25**	**215900**

The estimated production in table 26 was assessed using the estimated land area that could potentially be brought into production for the APs project within the SDM and conservative vegetable production estimates in open field systems – this discounts production that could be done in a tunnel environment. The estimated production was, therefore, calculated at 215900 tons, on average, per growing season.

In addition, job creation has the capacity to contribute positively to issues of food security through income generation and, therefore, the capacity to spend income on food. The average low-income household spends between 60% and 70% if their income on food items, a proportionately large part of their income compared to higher-income consumers. The estimates of income generation based on the above estimates of employment creation are presented in table 27.

Table 27: Estimated Income Generation

Vegetables	
Multiplier	2.52

Vegetables	
Avg. Annual Income (Rands)	31,680.00
Approximate Income generation per hectare	79,780.80
Portion of income spent on food (65%)	51,857.52

Given a total employment multiplier of 1.52 for every ton of vegetables produced, it is estimated that income generated is approximately R79 780, based on a daily income of R120. Many low income households spend between 60% and 70% if their income on food and, as such, it is estimated that for every additional hectare of vegetables produced R51 857 could be spent on food for every job created.

The above estimates make it clear that the vegetable industry in the SDM has the capacity to contribute positively to food security through food production as well as job creation that allows consumers the power to purchase.

8.2.4. Demand and Needs Analysis

The most important marketing channels and channel related opportunities include National Fresh Produce Markets during the initial start-up phase, street hawkers including bakkie traders, however, it is essential to establish a logistical and supply coordination system, government institutions, as soon as the farmers become reliable suppliers, large retail chains should become major priority after the farmers have gained experience in production and the APs system successfully established quality control and streamlined logistical arrangements, and packhouses (vegetable packers and wholesalers) and processors in case of farms that are situated near packers or processors that handle cabbages.

It is possible to provide an estimate for demand based on historical consumption figures and populations. Table 28 provides a summary on estimated demand on a national and provincial level.

Table 28: Estimated Demand for Vegetables

Area of demand	Commodity	Estimated demand for vegetable (tons)
South Africa	Potatoes	1 917 982
	Vegetables (excluding Potatoes)	2 363 679
Gauteng	Potatoes	460 580
	Vegetables (excluding Potatoes)	567 608
Sedibeng	Potatoes	32 749
	Vegetables (excluding Potatoes)	40 359
West Rand	Potatoes	30 176
	Vegetables (excluding Potatoes)	37 189
Ekurhuleni	Potatoes	120 870
	Vegetables (excluding Potatoes)	148 958
City of Johannesburg	Potatoes	167 845
	Vegetables (excluding Potatoes)	206 849
City of Tshwane	Potatoes	108 937
	Vegetables (excluding Potatoes)	134 252

At an 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 in Gauteng, the demand

for both potatoes and vegetables is nearly a quarter of the total demand – a clear indicator that producers within Gauteng have a market that can be accessed.

8.2.5. Job Creation and Opportunities

Amongst the objectives of the APs Model is to create opportunities for employment within the agricultural sector. Employment, however, may not necessarily be a result of expanding primary production, but also the value adding activities that may occur through the value chain.

Estimates for job creation can be determined through industry standards of employment per hectare Labour input is a key element of the production process and one of the main production factors in any economy. Table 29 below displays the Sectoral labour multipliers applicable to the broiler production industry, i.e. the number of the job opportunities created at different levels for every additional 1 ton that that is brought into production.

Table 29: Vegetable Potential Employment

Sector	Direct	Indirect	Direct + Indirect	Induced	Total
Vegetables	1.9	0.62	2.52	*	*

The total multiplier is disaggregated into direct, indirect and induced components.

Direct Multipliers – 1.9: The direct multiplier measures the direct impact emanating from a particular sector on itself. For instance, the direct multiplier will measure how an increase in the production of a particular sector will affect employment within the same sector. These direct impacts are very closely related to the sector and, as such, are probably the most important impacts from a strategic planning point of view. The multiplier of 1.9 suggests that close to two jobs are created for every additional hectares of production.

Indirect Multipliers – 0.62: Indirect multipliers reflect the impacts that a particular sector will have on all other industries that supply inputs (materials) for the operations taking place in the relevant sector. These 'backward linkages' are important as they measure the broader impact that changes in the direct sector will have on the economy. Frequently, these indirect impacts are significant, and may even exceed the direct impacts themselves. The indirect multiplier (or linkages multiplier) of 0.62 suggests that for every additional hectare of vegetable production, 0.62 jobs are created.

Induced Multipliers: Economic impacts will result from the paying out of salaries and wages to people who are employed in a particular sector, as well as the salaries and wages paid by businesses operating in the sectors indirectly linked to this sector due to the supply of inputs. These additional salaries and wages lead to an increased demand for various consumable goods that need to be supplied by various economic sectors throughout the broader economy. Clearly, these induced impacts can be considerable and are measured by using induced multipliers.

The vegetable industry is typically very labour intensive industry that is an important contributor to employment.

The following table indicates a variety of opportunities that could potentially be created by developing the commodity value chain of red meat. As such the benefits will be presented in the table below:

Table 30: Socio-Economic Benefits

Socio-Economic Benefit	Description
Job Creation	The vegetable enterprise in the AP will create sustainable employment opportunities from the inception of the project, construction and through to the operation of the AP. Jobs created during the construction phase of the project will not be sustainable due to the limited duration of the construction period.

Socio-Economic Benefit	Description
	The vegetable value-chain process will improve the business profitability and therefore operations, similarly the need to increase efficiency and the need capacity additional human resources to operate machines, transportation and food handling. The accessibility of the AP and the vegetable products could increase demand for vegetable products, thus increasing the number people required for logistics, quality assurance, international relations officer for export and imports, trade and merchandising.
Developing skills	Environmental, consumer, and animal health are the most important statutory requirements in food production, management, and standardization. To continually produce healthy, sufficient food products and become profitable one must comply with the rules of the game, therefore developing the skills of the workers, management, and stakeholders to adhere to the standards of the industry and of the AP as contemplated in the service charter will go a long way. Therefore, historically disadvantaged South Africans, women, disabled and the youth will have to be taught and trained in necessary skills (bookkeeping, call center management, safety and health management, and hygiene). Managers will have to be trained in financial, marketing, production and strategic agri-business management courses. Technicians will have to be trained in food quality and safety, equipment calibration techniques.
Spin-off. opportunities	The vegetable enterprise has many potential spin-offs extending beyond the borders of the AP. This includes creating opportunities for packaging material manufacturers; transport industry for efficient transport systems, arts and crafts makers will have access to cheap inputs leather material. The existence of the AP itself contributes the most to the communities around the areas, the transfer of communication and technologies, roads, water and sanitation infrastructure and related services.
Support to emerging farmers	The AP will need to ensure that sufficient quantities and quality meat is supplied at all times. Therefore, will require the department to improve and expand on their extension services to assist local farmers with information, priority needs, and guidance. This relates to issuing of climate change and variability cold temperature, drought signals, water management guidelines and financial support to an extent.

Harvesting, handling, washing, trimming, grading, packing, packaging, labelling and transporting are all important practices aimed at preserving the quality of the produce, and presenting it to the best advantage. Prices achieved, and thus differences in income obtained, 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 31 below highlights a few of the products that can be developed through agro-processing.

Table 31: Agro-Processing Opportunities

Primary Vegetable	Processing Opportunity	
Cabbages	o Fresh packing (smaller varieties or where relevant) and branding o Dicing, salad preparation, packaging and chilling o Freezing o Bottling and lactic acid fermentation o Chutney production o Preserve, jam or jelly production	o Fresh cabbage incl. whole cabbage head or packed small whole or half-cut cabbage heads o Coleslaw (freshly prepared, packaged and chilled) o Frozen cabbage o Sauerkraut o Cabbage chutney o Cabbage jam

Primary Vegetable	Processing Opportunity	
Carrots	○ Fresh packing and branding ○ Peeling, dicing, fresh packaging and chilling ○ Dicing, salad preparation and preserved-packaging. ○ Pickling ○ Freezing after blanching ○ Puréeing and bottling. ○ Peeling, grating and cooking in syrup. ○ Grating and cooking in milk and other ingredients. ○ Grating and added to cake batter ○ Drying ○ Thinly sliced then frying or baking. ○ Juicing	○ Fresh whole carrots ○ Diced carrot, fresh, chilled and packed. ○ Carrot salad (preserved) ○ Canned or bottled pickled carrots ○ Frozen carrots ○ Baby food, bottled. ○ Carrot jam ○ Gajar ka halwa ○ Carrot cake and muffins ○ Dehydrated chips, flakes or powder. ○ Carrot chips or crisps ○ Carrot juice
Potato's	o Sorting o Fresh packing and branding o Slicing and baking or oil-frying. o Slicing, freezing and packaging o Slicing and packaging o Canning after peeling, possibly slicing and mixing with other vegetables. o Freezing and packaging after peeling, possibly slicing and mixing with other vegetables. o Other processing options	o Sorted potatoes ready for marketing or further processing. o Packed fresh potatoes o Crisps o Frozen fries (mainly for household consumption) o Fresh fries (mainly for the restaurant/catering industry) o Canned mixed vegetables o Frozen mixed vegetables o Other frozen and chilled potato products, baby food, dried or reconstructed potato products, potato starch are produced in South Africa on a limited scale.
Tomato's	o Storage, ripening, washing and sorting o Fresh packing and branding o Freezing of whole tomatoes o Puréeing followed by canning or freezing o Soup preparation (peeling, cooking, blending into a puree and addition of vegetable or meat stock and seasoning) followed by canning or freezing o Cook, strain (to remove seeds and peel) and cook again to produce a thick paste. o Juicing of whole tomatoes or tomato paste followed by salt addition (and possibly onion or garlic powder or other seasoning) and bottling. o Drying and packaging o Drying and bottling in oil o Drying and pulverising o Cook tomatoes with large quantity of oil, onions, herbs/spices and other minor ingredients. o Cooking tomatoes with sugar, vinegar, salt, seasoning and spices, followed by bottling.	o Graded and washed tomatoes o Packed fresh tomatoes o Whole frozen tomatoes o Canned or frozen tomato puree o Canned or frozen tomato soup o Tomato paste o Tomato juice o Dried tomatoes o Dried tomatoes in oil o Tomato powder o Tomato cooking sauce or pizza/pasta sauce base (frozen or canned) o Ketchup style tomato sauce o Tomato salsa o Canned/bottled tomatoes (whole or pieces) o Pickled tomatoes o Tomato jam or preserve o Ripe tomato chutney o Green tomato chutney

Primary Vegetable	Processing Opportunity	
	○ Blending tomatoes (cooked tomatoes in case of preserved salsa) with onion, herbs and spices followed by bottling, canning or packaging in pouches. ○ Simple low pressure cooking of whole or cut tomatoes in a can/bottle followed by sealing ○ Pickled tomatoes ○ Tomato jam or preserve ○ Ripe tomato chutney ○ Green tomato chutney	

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.

8.2.6. New Entrants

This subsection indicates the potential emerging farmers that can benefit from the development of vegetables as a commodity. The names of these farmers are presented in Appendix A. The small scale and emerging farmers indicated in the table well represented throughout the whole of the SDM. The list clearly indicates is the viability of using vegetables as commodity due to the number of emerging farmers that already farm in the area. It is further anticipated that as the value chain is further developed, more will benefit from the AP development.

8.2.7. Regulatory Requirements

Local markets are governed by a series of policies that are put in place for various reasons. The most important of these Acts is the Agricultural Product Standards Act 1990 which sets out to establish a set of norms and standards related to the sale, labelling, storage and packaging of vegetables throughout SA. This indicates that all vegetables sold in SA have to comply with the regulations set out in the norms. The vegetable containers have to be labelled correctly with the name of the cultivar, pack house code, grade, weight and number of units must be displayed on the packaging. The act also details the juice content in drinks and how they should be labelled. Finally, the act also outlines offences and penalties.

The various other acts and policies which also apply to the vegetable industry are included in Table 32 below.

Table 32: Polices Affecting the Vegetable Industry

Act	Description
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 Of 1947)	The act provides for the appointment of a Registrar of Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies; for the registration of fertilizers, farm feeds, agricultural remedies, stock remedies, sterilizing plants and pest control operators; to regulate or prohibit the importation, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies and stock remedies; to provide for the designation of technical advisers and analysts; and to provide for matters incidental thereto (Department of Agriculture, Forestry and Fisheries, 1947). **Implication for AP:** The AP must ensure that all regulations regarding the manufacturing, distribution, importation, sale, use and advertisement of any

Act	Description
	fertilizers, animal feeds, pesticides, stock remedies as well as the operation of any sterilizing plants and pest control operators are adhered to. This can be done through the farmer support units which will need to have a programme in place for the above mentioned to be monitored.
Marketing of Agricultural Products Act, 1968 (Act No. 59 Of 1968)	The Act has authorised an establishment and enforcement of regulatory measures to intervene in the marketing of agricultural products, including the introduction of levies on agricultural products (Department of Agriculture, Forestry and Fisheries, 1968). **Implication for AP:** The AP should establish a programmes that will manage the marketing of its own products in order to meet the requirements of the Act.
Agricultural Products Standards Act, 1990 (Act No. 119 Of 1990)	The act controls and promotes specific product standards from mainly a quality point of view for local as well as export purposes. A list of products for which standards have been set through regulations is promulgated under the act by the minister of agriculture (Department of Agriculture, Forestry and Fisheries, 1990) . **Implication for AP:** Food and its associated products will go through various agro-processing activities before being a marketable product. To maintain quality assurance, it is recommended that the AP establishes a team that will be responsible for carrying out activities that will meet the requirements of the Act
Consumer Protection Act	To promote a fair, accessible and sustainable marketplace for consumer products and services and for that purpose establish national standards relating to consumer protection (National Consumer Tribunal, 2009). **Implication for AP:** The act indicates that the AP has a responsibility to provide products which promote a fair, accessible and sustainable marketplace for the consumer
Conservation of Agricultural Resources Act, 1983 (Act No. 43 Of 1983)	This Act provides for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water sources and vegetation, and the combat of weeds and invader plants (Department of agriculture, Forestry and Fisheries, 1963). **Implication for AP:** The AP will be required to implement policies that will maintain and monitor best agricultural practices to ensure the conservation of soil and vegetation, and also combat invader plant species.
Plant Breeders' Right Act, 1976 (Act No. 15 Of 1976)	The Act regulates the granting of certain rights relating to 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 (Departmet of Agriculture, Forestry and Fisheries, 1976). **Implication for AP:** By acquiring the required licence, it would allow AP farmers to use (re-sow) any protected plant on his or her holding should the AP require a protected/ new species of vegetable.
Perishable Products Export Control Act, 1983 (Act No. 9 Of 1983)	This Act provides for the control of 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 (Department of Agriculture, Forestry and Fisheries, 1983). **Implication on AP:** In the event of export, it is imperative that the AP establishes and maintains control over the export products. It is the onus of the AP to establish a team that is responsible for food health and safety regulations.
Agricultural Produce Agents Act, 1992 (Act No. 12 Of 1992)	This Act provides for the establishment of 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 (Department of Agriculture, Forestry and Fisheries, 1992).

Act	Description
	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). **Implication for AP:** The AP should play and intermediary role in moving produce from farm to market. As such, it is important that marketing activities are managed and monitored according to the standards set out by the Act.
Agricultural Credit Act, 1966 (Act No. 28 Of 1966)	The Act provides for a system of assistance to persons carrying on or undertaking to carry on farming operations, and control in respect of assistance rendered (Unknown, 1966). **Implication for AP:** The SDM AP management should provide a service to its producers in the way of easing access to credit. The AP should, on behalf of the producers, assist in accessing credit for agricultural production purposes. Additionally, access to credit will allow producers access to the relevant inputs for agricultural production purposes and, as such, produce necessary products for the Agri-Hub (marketing point)
Agricultural Development Fund Act, 1993 (Act No. 175 Of 1993)	This Act provides for the establishment of and control over an agricultural development fund for the handling of money received for development (Unknown, 1993). **Implication for AP:** Funding is a fundamental cornerstone to the development of the AP and its stakeholder. The AP management should play an intermediary role in accessing and use of such funding.
Agricultural Credit Act, 1966 (Act No. 28 Of 1966)	The Act provides for a system of assistance to persons carrying on or undertaking to carry on farming operations, and control in respect of assistance rendered (Unknown, 1993). **Implication for AP:** The SDM AP management should provide a service to its producers in the way of easing access to credit. The AP should, on behalf of the producers, assist in accessing credit for agricultural production purposes. Access to credit will allow producers access to the relevant inputs for agricultural production purposes and, as such, produce necessary products for the AH (marketing point).
Control of Markets in Rural Areas Ordinance, 1965 (Ord. No. 38 Of 1965)	The Act encompasses the regional Support Service and agricultural economics components. **Implication for AP:** The AP will be required to provide assistance in managing the markets for produce within the APs system.
Subdivision of Agricultural Land Act, 1970 (Act No. 70 Of 1970)	The Act regulates the subdivision of agricultural land and its use for purposes other than agriculture. **Implication for AP:** The APs management will be required to allocate land in a productive manner and ensure strict control over allocated land. Furthermore, the land is to be allocated for agricultural purposes that will contribute to the development of the AP.
Co-Operatives Act, 1981 (Act No. 91 Of 1981)	The Act regulates the formation, registration, management and functioning of various types of cooperatives and winding-up and dissolution of co-operatives. **Implication for AP:** Cooperatives have already been established within the SDM, but it is likely that new ones develop and participate in the APs system. APs management should be responsible for the establishment and registration of auxiliary cooperatives that will participate in the Programme.

8.2.8. Technology

Technology plays a vital role in the development of the agricultural industry and today farmers use technology to assist in producing food for a growing world. High tech advances have been assist in making farming life easier and more profitable. Smaller farmers can hold their own by moulding the technology to fit their management techniques and needs.

The table below indicates the various technologies that the AP can use within the SDM. By utilising the various technologies, the small scale and emerging farmers can improve on the production of the variety of vegetables grown and ultimately increase their profit.

Table 33: Vegetable Technology

Technology and short explanation where needed	Function or benefit to farmer
Mechanisation	
New generation small hand tools	Many farming activities, especially repetitive day-to-day work, can be greatly enhanced by hand tools designed for the particular task, speeding up production and reduce health and safety risk (e.g. back strain, wearing of joints and skin, etc.).
Small-scale implements and tractors: **New generation of farming implements and tractors tailored for small-scale farming.**	Farmers benefit from modern mechanisation and large leaps in productivity even though they farm at small scale, and at a much lower cost compared to conventional implements used by large commercial farmers.
Precision Farming, Integrated Farm Management Systems and Software	
Precision farming: **Gaining real-time or exact information within particular parts of a single field e.g. moisture and nutrient levels, soil type and depth etc, to determine the most appropriate rate of application of water, fertilizer and to adjust implement settings automatically and instantly. Precision farming can also be applied to animal production, aquaculture and agroforestry systems.**	Optimising and tailoring production levels at precise and small-area level so that yield is maximised and inputs are minimised.
Integrated farm management software: **Combines information and management systems from various on- and off-farms sources to coordinate farming activities in a highly efficient manner. Includes a variety of technologies e.g. farm asset tracking systems, cloud computing, record keeping, accounting, mapping, water and soil management, weather forecasting etc.**	Maximise profitability and efficiency automate some management and administrative tasks. Coordinate and simplify management processes.
Plan-A-Head Packhouse System Software Program: **General management and planning of pack house and logistical activity.**	Particular strong features include the program's ability to facilitate traceability.
Plan-A-Head Nursery System Software: **Management of nurseries for flower, vegetable and tree (forestry or even agroforestry) seedlings.**	Integrate with other Plan-A-Head farming software to allow for whole-farm enterprise management. Particular strong features include germination

Technology and short explanation where needed	Function or benefit to farmer
	monitoring and marketing (especially order taking and dispatch).
Plan-A-Head Vegetable Management Software Program with Vegetable Management System: Management system for a vegetable production enterprise.	Integrate with other Plan-A-Head farming software to allow for whole-farm enterprise management. A particular strong feature of the system is the fact that it facilitates precision farming due to excellent monitoring, control and record keeping at field and even sub-field level, and its mapping capability.
SimJunior: **Basic financial management and accounting software for the small-scale farmer.**	Easy to use. Ideal for the small-scale farmer
Accord: **Complete human resource management system for farmers, including payroll, HR record keeping and administration.**	Particular strong features of the system include its simplicity and coverage of basic employment legislation.
Duet: **Fruit and vegetable marketing and distribution software dealing with different products, grades and varieties, prices, market agents, packaging, distribution and even workers involved in these marketing activities.**	Integrated with Technofresh (a market price information provider).
Groundwater Access Via Wells or Boreholes	
Manual well digging or borehole drilling: Although mechanical drilling can reach depths of 150 meters, it is generally too expensive for small-scale farmers. In case the groundwater table are less than 45-meter-deep and the subsoil material are soft, manual drilling or well digging are a cost efficient option.	Gain access to groundwater resources much more cheaply compared to conventional mechanical drilling.
Water Pumping/Lifting	
Treadle pump: **Human-powered (stepping on pedals) suction water pump. Can be fixed (Lowe cost) or portable.**	Enables small-scale irrigation and larger scale animal watering at a very low cost in areas with a shallow water table.
Rope pumps: **Human-powered (usually by hand crank) water pump.**	Enables small-scale irrigation and larger scale animal watering at a very low cost in areas with a deep water table.
Hand piston pump: **Pump water from depths up to 35 meter.**	Relative low cost option to pump small quantities of water from a groundwater depth of up to 35 meter.
Bulk and Long-Term Water Storage In-Ground Storage	

Technology and short explanation where needed	Function or benefit to farmer
Pond lining fabric: **Ponds and earth dams may lose large quantities of water through seepage, or may not be able to hold water at all if the soil is too permeable. Lining will prevent this water loss to occur.**	Can store very large quantity of water at very low cost.
Ferro-cement -lined tank: **In-ground storage tanks made of cement and iron wire mesh.**	Can store fairly large quantity of water at fairly low cost.
Conventional plastic tank:	Can store fairly large quantity of water at moderate cost.
Conventional cement in-ground tank:	Can store fairly to very large quantity of water.
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.**	Provide water for a drip irrigation system at about half the cost compared to conventional in-field tanks. Can store a very small quantity of water but at a very low cost.
Earth mound bag:	Provide water for a drip irrigation system at about half the cost compared to conventional in-field tanks. Can store a moderate quantity of water at very low cost. Can supply a fairly large field of 200m2. Robust and easy to maintain - it can be repaired using same materials, tools and techniques that is required for tyre repair.
Jumbo Thai Jar:	Can store a small quantity of water at a 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.
Irrigation Systems (Water Delivery)	
Pre-punched drip tape: **Tubes comes with holes already provided, therefore easy to install.**	Low water pressure requirement. Very simple and low cost.
Button emitter irrigation: **Button emitters are fitted to irrigation lines, which transport water directly to the root zone.**	Low water pressure requirement.
Baffle pre-punched drip irrigation: **Plastic sleeves/baffles localize water flow from pre-punched holes in the drip line.**	Low water pressure requirement. Use 50 - 70 percent less water compared to conventional drip irrigation.
Mini sprinkler irrigation: **Low flow system that require less pressure and is more water efficient than impact sprinklers and conventional sprinkler irrigation.**	Can irrigate flat and sloping land. Ideal for hilly or sloping terrain or soils prone to water erosion, or areas planted with closely spaced crops but water are too scarce for higher flow irrigation systems such as impact sprinklers.
Impact sprinkler irrigation: **Higher flow system that requires more pressure and water compared to mini sprinkler systems.**	Can irrigate flat, sloping and hilly terrain. Ideal for closely spaced crops on larger fields where water scarcity prohibits flood irrigation.
Veldt Management	

Technology and short explanation where needed	Function or benefit to farmer
Land rehabilitation techniques: **May differ in technological complexity from as simple as brush packing to as complex as biodegradable or long lasting soil cloths and mesh materials.**	Stabilise soil, control or reverse erosion damage and restore degraded land so that it can again be utilised for agricultural purposes.
Soil Improvement and Prevention of Soil Erosion	
Mulching technology: **A variety of new and efficient mulching materials are developed. Mulching material are any material that cover the soil surface. Biodegradable mulches are also available.**	Mulching material minimise or eliminate weed growth and water losses through evaporation, and also control various pests and diseases as well.
Biochar: **Activated carbon ground into a course powder, then worked into the soil.**	Significantly 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.
In-field rainwater harvesting: **Small basins (that can be made with a shovel) capture rainwater, preventing it from immediately running off the field during a rain event. Apart from cultivated fields, micro-basins can also be established on pastures to increase carrying capacity of animals.**	Enable the soil to absorb much more water that would have run off the field. Depending on the type of soil, the additional moisture may benefit the crop for several months and may increase yield significantly.
Farm Energy	
Wind energy: **Wind energy has been used for a long time in South Africa in the form of wind pumps. New generation wind technology allows for uses beyond wind pumping, including electricity generation at micro or farm level scale.**	Wind is a renewable form of energy and some areas in South Africa do have sufficient wind development potential, especially when micro-climatic and small-area topographic factors are considered which is appropriate for very small-scale operations. Less vulnerable to theft compared to solar panels.
Solar technology incl. photovoltaic and thermal panels and solar drying and cooking: There are two main forms of solar energy harvesting, i.e. photovoltaic panels that produces electricity, and thermal solar panels or tubes that heat water. Solar energy is also widely used on farms for solar drying and solar cooling.	Solar is a renewable form of energy and most areas in South Africa do have sufficient wind development potential. In fact, some parts of the southern and western Free State, western Limpopo, Gauteng and especially the Northern Cape and North West have excellent solar power potential even at global standards.
Farm Protection, Security and Visual Monitoring	
Video and photographical technology: **Fixed point photography, security camera systems and remote sensor-triggered photography.**	Valuable to monitor veldt condition, effects of grazing or fire control regime, rehabilitation efforts, and to monitor animal or criminal activity in remote parts of the farm. Some systems notify the farmer by SMS of sensed activity and immediately send the footage by MMS or video clips to the farmer's mobile device (in additional to conventional recording and storage of images or video).
Apps for mobile phones and tablets	

Technology and short explanation where needed	Function or benefit to farmer
Farm Manager: **General farm management and administrative tool.**	Strong features include an emphasis on field level farm management, and management of farm workers. Favourable reviews and cited as user friendly.
AgriApp: **Farmer information tool for crop production.**	Useful general overview from a production perspective.
Horticulture: **General description of horticultural crop production, including apples and vegetables.**	Useful general overview from a production perspective.
Online and Mobile Information Portals	
AgriSuite Online: **Internet based agricultural information system developed and maintained for farmers. Provide a variety of general agricultural information directly to farmers.**	The system can be accessed on a PC or Mac, on tablets and smartphones, in the office or on the farm. Contains the most essential, useful and concise information in a very simple and user-friendly format.
FAO Ecocrop: **Provide detailed crop requirement information for almost any crop that are cultivated throughout the world, including its uses and requirements for temperature, rainfall/water, soil type, soil depth, soil pH, salinity, altitude etc. It also includes hundreds of forage crop species for extensive animal farmers.**	Enable the farmer to select suitable crops to farm with, and to diversify the farm's enterprises.
Other	
Recombinant DNA technology and genetic modified varieties: **The process of natural selection by traditional breeders can be accelerated by deliberate insertion of genes that code for a particular trait into the host organism, thereby it is possible to develop crop varieties that have more desirable traits.**	Large gains in traits such as drought, salt, pest, pathogen or herbicide tolerance, superior yields, nitrogen uptake ability, taste and texture etc. Particularly important to sustain future expanding populations and to compensate for climate change effects are drought and salt tolerance, nitrogen metabolism and even fixation, herbicide tolerance (to facilitate weeding, a major agricultural problem) and general yield improvements.
Drones: **Un-manned aircraft capable of exploring the farm and taking photos from the air.**	Very useful for general inspections, monitoring and mapping. Advanced models can even perform some remote sensing functions.
In-field soil and crop sensors: **Measure a variety of soil factors, most importantly moisture, pH, organic matter, salinity and temperature levels. Crop sensors can sensor water stress, nitrogen and other nutrient levels.**	Know exactly when to irrigate or provide additional fertilizer, and how much water/fertilizer to apply. It may also indicate the best time to harvest.
No-till or conservation tillage: **Land preparation for crop production without tilling the land at all, or just partially breaking up of the soil.**	Significant cost savings in terms of diesel (very energy intensive to lift the soil of an entire field, especially in case of deep tillage). Increased moisture retention. Reduced soil erosion.

Technology and short explanation where needed	Function or benefit to farmer
Remote sensing: **Interpreting satellite images to make farming decisions. Satellite images provide valuable information on biomass production, soil and air mass temperature, soil moisture, plant stress levels, fire warnings etc.**	Enable the farmer to make well informed decisions based on information that otherwise would have been too difficult or expensive to obtain. Provides complete information of the entire farm. Some information is provided daily or instantly.
Integrated weed and pest management incl. biological control agents: **Pests and weeds are major threats to farmers and food security. Chemical control has been effective for some pests and diseases but it is expensive and causes harm to human health and the environment. Consumers and governments locally and to export markets place increasing pressure on farmers to adopt integrated management practices to reduce reliance on only chemical control. Especially important is biological control where the natural enemy of the weed or pest are released locally to control population levels. It is not only applicable to crop farmers but to all extensive and semi-intensive animal farmers as well (pasture or veldt management).**	Usually much more effective and sustainable than chemical control on its own.

The adoption of these technologies will not only make farmers more efficient, but also more competitive in an environment that is dominated by larger commercial enterprises. The technologies are expected to assist farmers in improving production practices and better understand market conditions in order to make appropriate production decisions.

8.2.9. Substitute Products and Services

Substitute goods/products are goods which, 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. Table 34 below lists and describes potential substitutes for chicken and chicken products.

Table 34: Vegetable Substitute Products

Substitute Product/Service	Description
High protein vegetables/grains/legumes	Consumers have a choice of consuming high protein vegetables, grains, or legumes. Examples of high protein products include lentils, soy mince, tofu and samp and beans. Proteins of this nature are considered affordable alternatives and are particularly popular amongst vegetarians.
Other meat	Consumers are likely to substitute price rather than taste, or preference within this category. Low income consumers, therefore, are likely to purchase cheaper meat alternatives when substituting chicken. Examples might include offal, cheaper pork and beef cuts and other meat that are relatively cheap.
Eggs	Eggs are a cheap, and a high protein source and therefore a potential substitute, especially within low income households.

Depending on the availability of a consumer's disposable income, the substitution effect may differ. A high income consumer, for example, will base their purchase decision of taste and preference, while a lower income consumer may base their decision to purchase based on price. As a result, a low income consumer may substitute for cheaper protein products, rather than more expensive protein products such as mutton. The red meat producers' technology cannot be changed to produce alternative products (the producer has an inability to change to alternative production once a broiler house is erected) and, as such, should be aware of substitutability of products before making a decision to produce.

The consumption of vegetables, in general, is of a habitual nature with most consumers eating vegetables as a complement to their meat, or fish dishes. Given that some vegetables are a staple food item and consumed by habit, there is no real substitute for vegetables other than other vegetables due to its broad availability in the market. A consumer, for example, may substitute potatoes with sweet potatoes within the vegetable category.

8.2.10. Societal and Cultural Trends

Societal and cultural trends are trends that relate to the social and cultural values and practices within a society, or culture. These are long term trends (at least two to five years) that explain why people behave the way they do. The South African food industry's direction is affected by the growing influence of demographics, especially with respect to societal and cultural trends.

The trend in rising incomes within South Africa has provided the local consumer with increased purchasing power and, therefore, the ability to increase demand for food. Increased purchasing power has also allowed the consumer increased access to a variety of food, including processed, packaged and frozen vegetables (or convenience foods as described below).

Convenience foods or also known as time-saving foods as they are partially, or completely prepared, are increasing in demand as consumers spending power increases and more value is given to time-saving. Vegetable specific convenience foods include microwave meals and chopped, frozen vegetables.

The increasing demand of quick-food has increased the number of quick-food items available to consumers in the last two decades. The most likely consumers to buy these items include modern families (families that lead an individualistic lifestyle and do not sit down to as many traditional meals), middle- to high-income families, and younger families.

Within SA vegetables are seen as the healthy choice and form part of people's daily diet. They are an important part of healthy eating and are an important source of nutrients, such as fibre, folate, potassium, etc. Vegetables are a good choice of nutrition as they help to reduce the risk of having strokes, cancer, heart disease and type 2 diabetes. Vegetarianism which is the practice of abstaining from the consumption of meat has been adopted for many reasons, and as such have a preference for vegetables. A healthy vegetarian diet should be balanced and contain vegetables, fruit, eggs, beans, some dairy products, etc. Becoming a vegetarian has been associated moral and ethical concerns, religious reasons as well as health issues.

There has been a growing trend in terms of purchasing organically grown food. Organically grown vegetables provides consumers with:

- Free of chemicals, have more nutrients (vitamins, minerals, enzymes, and micronutrients);
- Better taste;
- No GMO (Genetically Modified Organism);
- No hormones, antibiotics and drugs;
- Preserves ecosystem;
- Reduce pollution and protects water and soil;

- Preserves agricultural diversity; and
- Keeps children and future safe.

Non GMO vegetables are growing in popularity. A variety of health risk have been attributed to GMO such as organ damage, fertility, tumors, etc (however these effects were noted under laboratory conditions). There are public concerns regarding GMO in terms of food safety, regulation, labelling as well as environmental impact. Genetically modified crops grown in SA are pre-dominantly white maize, yellow maize, cotton and soya.

Lastly, there is an international campaign started by Paul, Mary and Stella McCartney that advocates a meat free Monday. The reasoning to raise awareness of the detrimental environmental impact of eating meat, slow climate change, preserve precious natural resources and improve their health by having at least one meat free day each week.

8.3. SWOT Analysis

The following table summarises vegetables in terms of its strengths, weaknesses, opportunities and threats within the SDM.

Table 35: SWOT Analysis for Vegetables

Strengths	Weaknesses
• Economic advantages • Highly nutritive products • Contributor to food security • Proximity to major market • Availability of natural resources • Wide variety of vegetables can be grown	• Shortage of skilled workers • Poor farming practices • Non-standard of product • Limited irrigation resources/capacity • Lack of Good Agricultural Practice principles • Short marketing window (perishable product) • Small-scale production not competitive • Lack of access to market • Local emerging farmers can't produce quantity Storage
Opportunities	**Threats**
• Intensive production • Organic production • Employment opportunities • Change in consumer preference (healthy living) • Growing preference for convenience • Increasing demand for fresh produce globally (export market) • Cooperative farming (alliances – economy of scale) • Technological advancement • Agro-processing opportunities	• Increasing input costs • Market limitations • Competition • Extreme weather conditions (drought, hail, frost) • Pest problems • Disease • Barriers to entry • Food safety issues • Aging local farmer population • Regional competition • Retailer consolidation (preference toward particular producers)

There are a variety of strengths and opportunities for vegetables within the SDM which if taken advantage of could prove beneficial to the success of the AP. However, as much as there are strengths and opportunities to play on there are still weaknesses and threats which could prove detrimental to the AP success which not only effect the potential economic gain of producing vegetables but also the loss of opportunity for small scale and emerging black farmers.

Section 9: Commodity Analysis: Red Meat

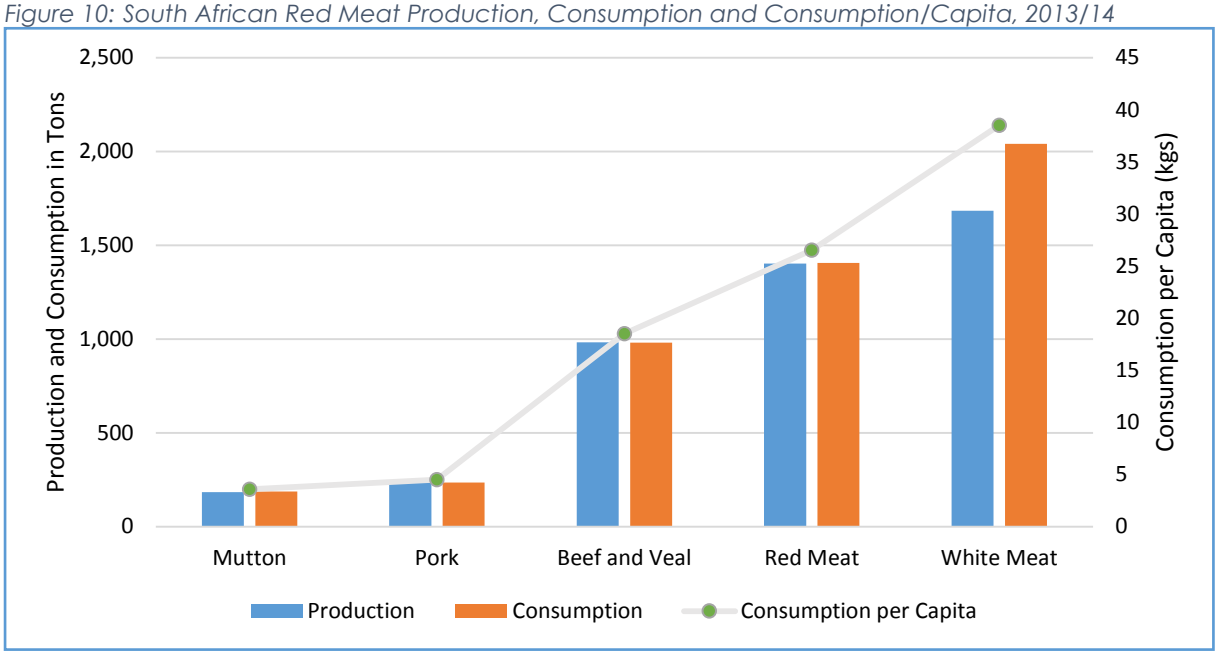
9.1. Introduction

The SA red meat market covers several commodities, such as beef (cattle), lamb (sheep), chevon (goat) and pork (pig). The global red meat production was 191 million tons (including beef, pork, mutton and chevon) in 2013 of which Africa contributed 10 million tons. Approximately 70% of the 80%, of land surface used for agriculture is suitable for livestock production particularly goats, cattle and sheep. SA is, according to international standards, an arid country.

The South African red meat industry is well established and remains one of the most important agricultural sub-sectors in the country. It contributed approximately 14.0% to the gross value of agricultural production in the SA during 2013/14. It is estimated that the total number of cattle, pigs and sheep slaughtered increased by 9.5%, 3.1% and 11.2% respectively from 2012/13 to 2013/14.

South African red meat production is largely in line with red meat consumption, with the short fall imported into the country. This is presented graphically in Figure 10 below. In recent years, the quantity of red meat imported for consumption has been on the decline, especially in the 2013/14. Mutton imports have declined over the 10-year period from 34 800 tons to a mere 7 100 tons, while beef imports have likewise dropped considerably from 56 000 tons to 20 000 tons. Pork import figures were unavailable, however SA produced 300 tons more pork than was consumed in 2013/2014. Imports of red meat decreased from 43 120 tons in 2012/13 to 23 010 tons in 2013/14, a decrease of 46.6%. The following figure will provide an overview of the SA red meat production, consumption and consumption/capita in 2013/2014.

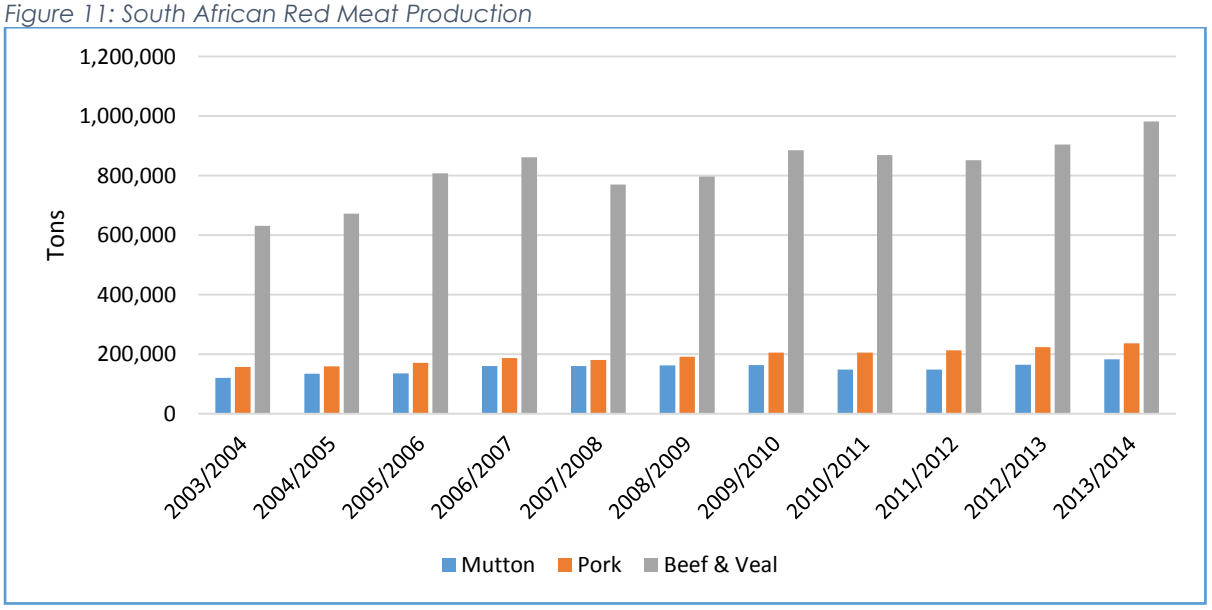
Figure 10: South African Red Meat Production, Consumption and Consumption/Capita, 2013/14



(Department of Agriculture, Forestry and Fisheries, 2015)

Figure 14 illustrates the growth in production of beef, pork and mutton since the 2003/04 season. Red meat production has increased steadily year on year over the 2003/04-2013/14 period, with mutton production increasing by 52.5%, pork production increasing by 50.7%, and beef & veal production increasing by 55.5%.

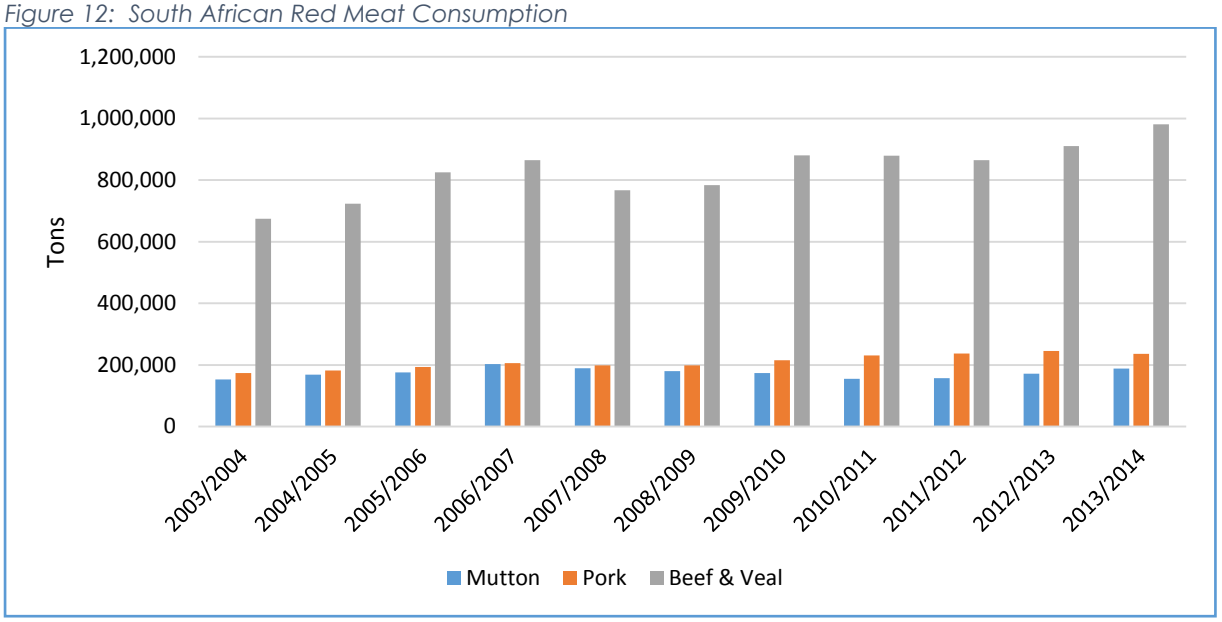
Figure 11: South African Red Meat Production



(Department of Agriculture, Forestry and Fisheries, 2015)

Figure 15 provides an overview of the consumption over a ten-year period. Mutton consumption was higher than production by some 32 700 tons in 2003/04, with consumption increasing to 188 000 tons in 2013/14, with a deficit of only 4 600 tons. Mutton consumption grew 9.9% between 2012/13 and 2013/14, whilst production increased by 11.6% in the same period. Pork production increased by 5.4% over the 2012/13 to 2013/14 period, whilst consumption decreased by 3.7%. Beef & veal production increased by 8.6% whilst consumption grew 7.6% in the same period. Since 2003/04 consumption has grown on all products with mutton, pork, beef & veal growing by 22.9%, 35.6% and 45.3% respectively.

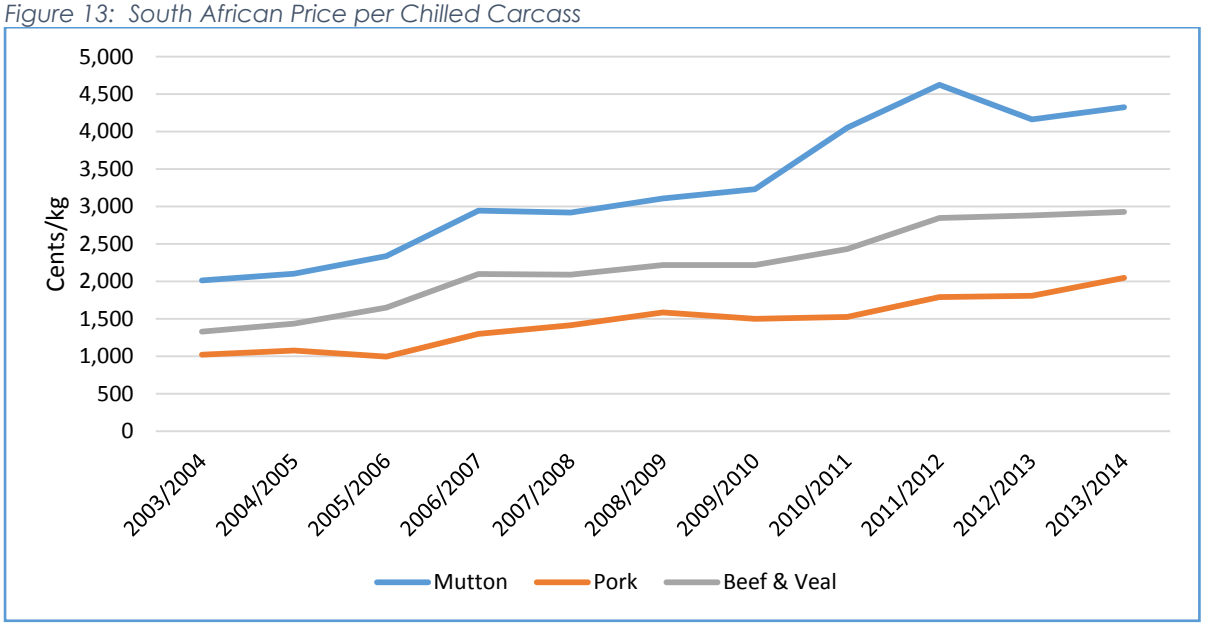
Figure 12: South African Red Meat Consumption



(Department of Agriculture, Forestry and Fisheries, 2015)

The SA market price is measured through the price per kilogram of the chilled carcass post slaughter. As can be seen within the graph below, all three commodities have seen an increase in their price over the 2003/04 to 2013/14 period. Prices increased for all products in 2006/07 and 2011/12. Mutton prices have been the most vulnerable to these price increases. Pork prices are the most stable of the three, with beef and veal prices performing between the two. In terms of total growth, cattle carcasses experienced the greatest increase in value between 2003/04 and 2013/14, increasing by 120.9%. Sheep carcasses increased by 114.8%, while pig carcasses increased by only 100.5% over the same period. In the most recent period, of 2012/13 – 2013/14, the inverse is true, with pork prices increasing by 13.2%, mutton by 4.0%, and beef & veal by only 1.6%.

Figure 13: South African Price per Chilled Carcass



(Department of Agriculture, Forestry and Fisheries, 2015)

9.2. Value Chain Assessment

The following section will diagrammatically represent and provide an analysis of the red meat value chain. The opportunity analysis will identify potential opportunities within the value chain. The development of sustainable supply and value chains in the red meat sector from production through processing to markets is important. The value chain below is for red meat (beef, sheep, pork and goat). The value chain will visually represent the process from the production of the commodity through to the consumer. The following value chain is for the red meat industry.

Figure 14: Beef Value Chain

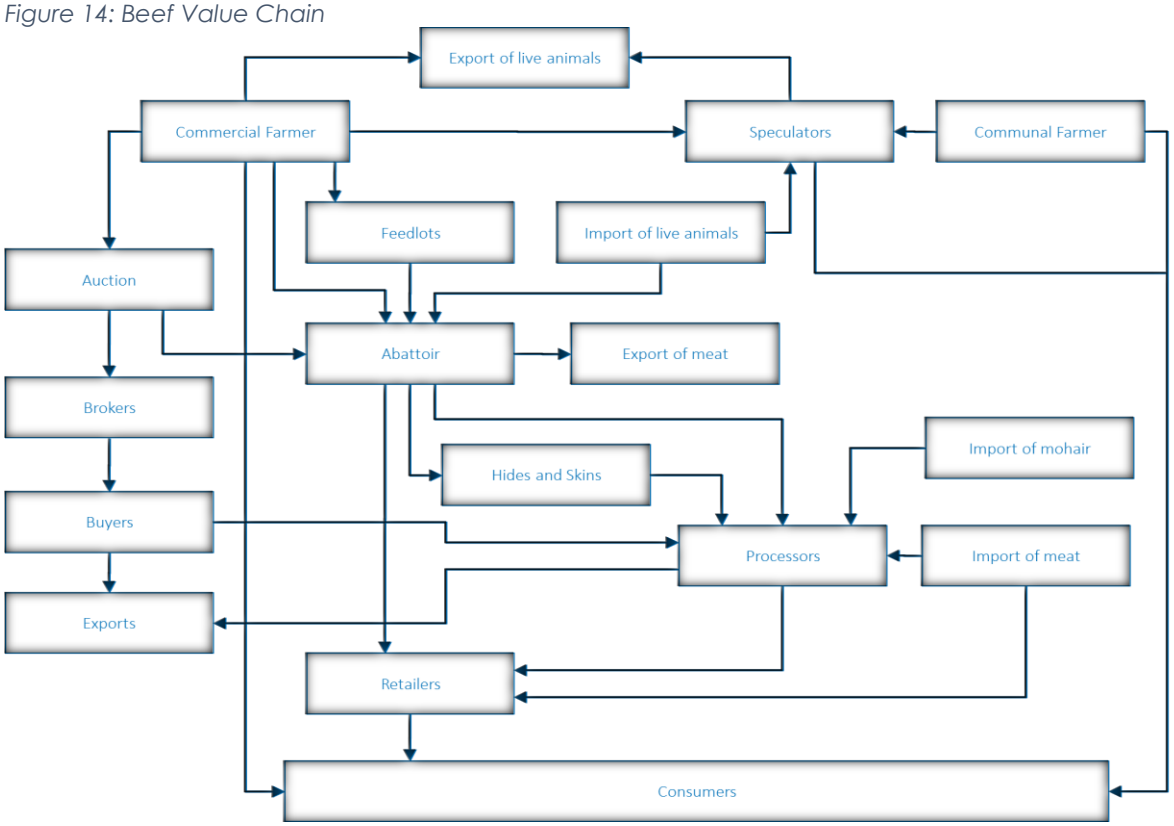


Figure 15: Sheep Value Chain

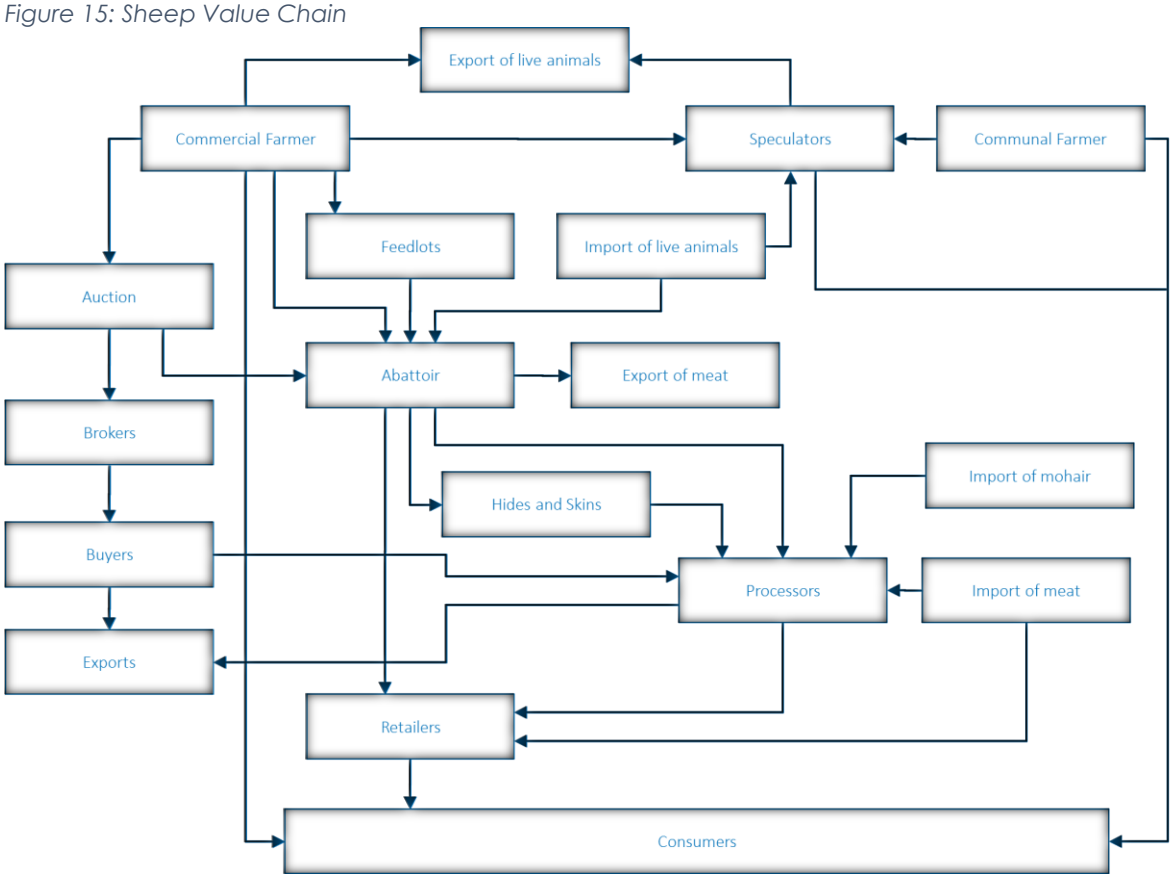
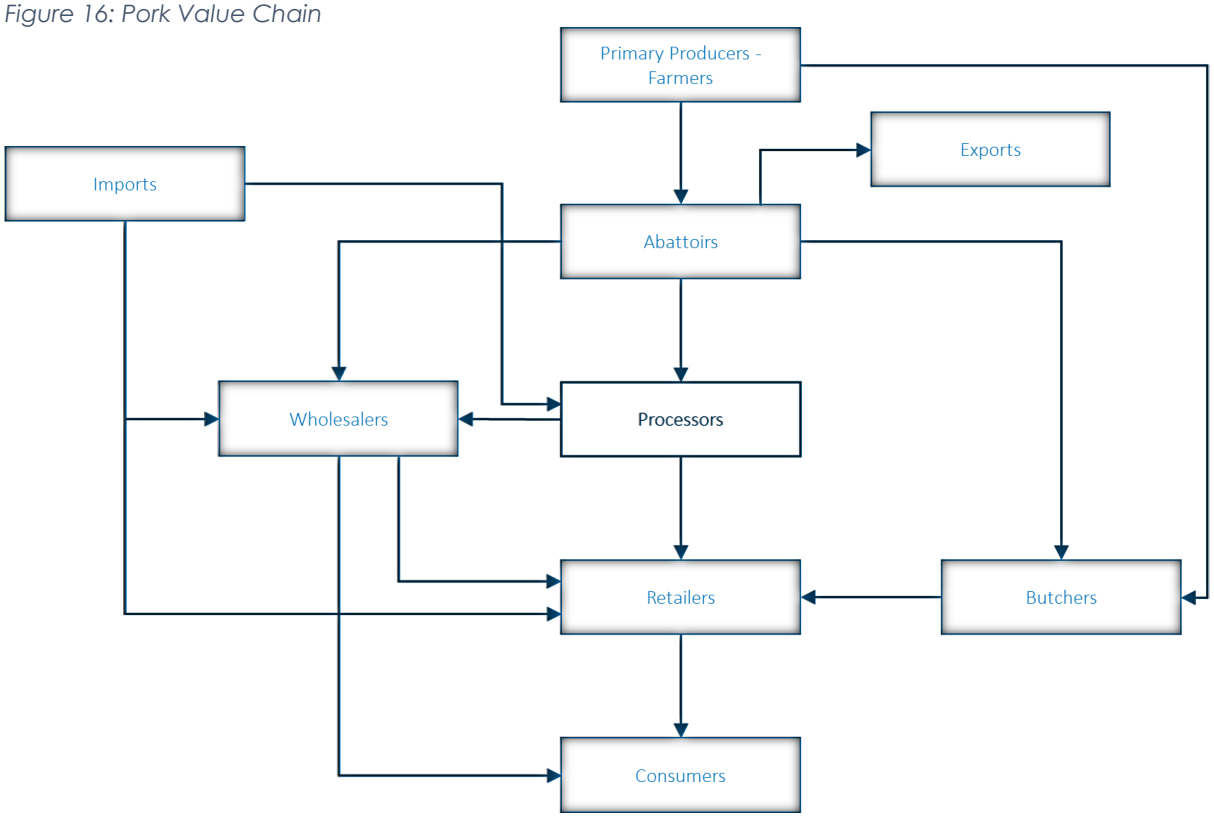


Figure 16: Pork Value Chain



The value –chain for meat products is similar across the different industry segments and is characterised by a high degree of vertical integration, enabling companies to acquire the necessary economies of scale. For example, one company will often operate a farm, feedlot and/ or abattoir, and may own their own butchery and distribution network.

The SDM is well suited for livestock production and there are several factors which impact on its productivity and growth in the sector. These factors include,: growth in the SA economy and rising consumer demand; international trade and trade agreements; the global recession and rise in food prices; the land reform programme; reliance on imports; water availability; changing consumer patterns and demands (e.g. organic food stuffs); rising costs of agricultural inputs ; technological changes and mechanisms; quality standards; farm safety and security; broad based black economic empowerment; skills demand and supply; HIV/AIDS; and changing climate.

Livestock are a highly important commodity in SA. Rainfall, climate and other natural resources is suited for livestock production in the region. Factors influencing production include: expansion of the fast-food industry; higher average income of the population; the rapid rate of urbanization; and the influx of international processing companies. Competition is also very strong for emerging farmers, especially since there are several large vegetable producers in the district.

9.2.1. Upstream Activities

In Gauteng there are approximately 1,192 commercial farms dedicated to animal production and these farms average 265 ha in size, compared to the national average of 2,000 ha (Department of Agriculture, Forestry and Fisheries, 2015). Generally, farmers tend to focus on less land-intensive products (i.e. pork, sheep and poultry). As livestock production is classified as primary production the upstream activities relevant to the value chain are primary the input supplies used in the production system. The major inputs for livestock production include animal genetic resources, feeds and forages, veterinary drugs, vaccines, machinery equipment as well as knowledge. The following table indicates the main input suppliers for livestock.

Table 36: Main Input Suppliers Livestock

Input Suppliers	Services
Addcon Africa Feed & Grain Additives (Pty) Ltd **Allied Nutrition** **Bedson Africa** **Boehringer Ingelheim** **Chemvet** **Meadow Feeds** **Coprex** **Intervet** **Instavet** **Kanhym Estate** **Nutribase CC** **Protein Research Foundation** **Topigs Norsvin** **Virbac** **African Products (PTY) Ltd** **Agrimol Trading (PTY) Ltd** **Alvoer Alrode (PTY) Ltd** **Animal Feed Manufacturers Association** **ASA Products (PTY) Ltd** **Chemunique International (PTY) Ltd** **Farmfeed** **Obaro**	Pork feed manufacturers

Input Suppliers	Services
Prodist Farm City (Pretoria)	
African Products (PTY) Ltd **Agrimol Trading (PTY) Ltd** **Alvoer Alrode (PTY) Ltd** **ALBERTONT** **Animal Feed Manufacturers Association** **ASA Products (PTY) Ltd** **Chemunique International (PTY) Ltd** **Farmfeed** **Obaro** **Prodist Farm City (Pretoria)**	Sheep feed manufacturers
African Products (PTY) Ltd **Agrimol Trading (PTY) Ltd** **Alvoer Alrode (PTY) Ltd** **Animal Feed Manufacturers Association** **ASA Products (PTY) Ltd** **Chemunique Internationa** **Farmfeed** **Obaro** **Prodist Farm City (Pretoria)**	Beef feed manufacturers
Heidelberg Veeartsenykundige Clinic	Animal nutrition and health
South African Veterinary Association	Animal nutrition and health
HF Verwoerdstraat Veterinary Clinic	Animal nutrition and health
Three Rivers Veterinary Clinic	Animal nutrition and health

Across the Province, animal farming is located primarily in rural areas with adequate land availability. Cattle farms are located throughout the province, with the largest farms situated near Heidelberg, Bronkhorstspruit, Cullinan, Nigel and Vereeniging. Pig farms however require less land and are located primarily in Pretoria and the Cullinan region. Sheep farms are concentrated in the eastern regions of the province around Bronkhorstspruit, Nigel and is somewhat common in Vereeniging, Krugersdorp and the wider Pretoria region.

9.2.2. Downstream Activities

The red meat industry evolved from a highly regulated environment to one today that is totally deregulated. Various policies, such as the distinction between controlled and uncontrolled areas, compulsory levies payable by producers, restrictions on the establishment of abattoirs, the compulsory auctioning of carcasses according to grade and mass in controlled areas, the supply control via permits and quotas, the setting of floor prices, removal scheme, etc. characterised the red meat industry before deregulation commenced in the early 1990s. Since the deregulation of the agricultural marketing dispensation in 1997, the prices in the red meat industry are determined by demand and supply forces.

Producing, handling, slaughtering, butchering, portioning, cleaning, grading and transporting are all important practices aimed at preserving the quality of the red meat, and presenting it to the best advantage. Prices achieved, and thus differences in income obtained, can be greatly affected by the emphasis placed on these practices. They must, therefore, be considered as important elements in the marketing strategy.

Most 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 better prices prevail. Nationally linked information networks can supply daily prices to producers. These national markets, in all the big centres, must remain the major outlets for many of the large livestock producers, because of the scale of their operations. Smaller producers may possibly

be able to dispose of the bulk of their produce more profitably through outlets other than the national markets (MANSTRAT, 2015).

Table 37: Livestock Marketing Channels

Marketing Channels		
Beef	**Mutton**	**Pork**
Direct sales (farmer-to-consumer)	Direct sales (farmer-to-consumer)	Direct sales (farmer-to-consumer)
Small independent shops or supermarkets	Street hawkers and visiting hawkers (bakkie traders)	Street hawkers and visiting hawkers (bakkie traders) and informal free markets
Large retail chains	Free markets, wet markets, live animal markets and informal auctions	Butchers
Butchers	Butchers	Restaurants and hospitality businesses
Catering businesses, organisers of events and event-hosting venues	Catering businesses, organisers of events and event-hosting venues	Public and private institutions that provide meals to their residents, inmates, learners or patients, and well-funded food schemes
Livestock speculators	Livestock speculators	Abattoirs and processors
Livestock auctioneers	Livestock auctioneers	
Meat exporters	Meat exporters	
Abattoirs & meat processors	Abattoirs and meat processors	
Leather tanneries	Leather tanneries	
Ad hoc selling of cattle to other livestock farmers for re-stocking, breeding stock, initial or additional animal stock or raising on their pasture or veldt.	Ad hoc selling of sheep to other livestock farmers for re-stocking, breeding stock, initial or additional animal stock or raising on their pasture or veldt.	
Feedlots buying young cattle for "finishing"	Feedlots buying young animals for "finishing"	

The green highlighted outlets in the table above indicate outlets of high priority due to the following reasons.

Table 38: High Priority Marketing Channels

Marketing channel	Description	Priority & gaps/opportunities
Beef		
Large retail chains	Pay an abattoir to process the carcase, then collect and sell the beef directly to large national retail groups, usually by contract. Some large retailer groups buy centrally, while others such as Spar allow local stores to buy independently which makes it easier for small local farmers or newly established farmer groups (e.g. marketing cooperatives or farmers that participate in the APs system) to sell to this	Very high. This could be a primary marketing channel for cattle farmers participating in the APs system. Important to brand the meat as locally produced, and to lobby with government to engage much stronger in "buy-local" campaigns. Although there are gaps or room for significant growth in the market for products such as organic beef, grass-fed beef and hormone and antibiotic free beef, these niche markets are still too

Marketing channel	Description	Priority & gaps/opportunities
	lucrative and growing marketing channel.	small locally, but could be an important niche market in the near future.
Butchers	Sell live cattle directly to butchers who will slaughter the animal then sell the meat to the public. Unlike abattoirs, butchers sell directly to the public (rather than to other butchers or retailers), slaughter at smaller scale and usually do not engage in extensive meat processing. Although cattle are supposed to be slaughtered at abattoirs, many butchers, especially in less developed areas or in the informal sector, do the slaughtering themselves. To sell legally to butchers, a fee can be paid to abattoirs to do the slaughtering, then the meet can be collected and distributed to the butcher.	High potential, however, it is essential to make an arrangement with abattoirs to slaughter the animals for a fee, then it can be collected and sold to butchers. This is a gap in the market because the level of coordination that can be provided through the AP system could make it very profitable to coordinate slaughter by abattoirs and delivery to butchers (i.e. better than the coordination that individual farmers or abattoirs can do on their own). Therefore, profit that would have gone to abattoirs can be retained by AP farmers.
Meat exporters	Sell to exporters often by forward contract, who will distribute the product to various types of foreign buyers, often to foreign wholesalers but increasingly directly to large foreign retail chains. This has the potential to be a very large and lucrative market. Although some farmers (large farmers or small farmers arranged in associations or cooperatives) may sell directly to export agents, exporters generally buy in bulk from other channel members who buy from individual farmers. There is also a growing trend for exporters to own their own feedlots and abattoirs, however, they are likely to remain open to buy from local farmers who can steadily supply high quality animals or carcases.	High potential, specifically for grass-fed beef and organic beef.
Abattoirs & meat processors	Sell to abattoirs, by contract or ad-hock. Abattoirs are a very important and major marketing channel for cattle. They slaughter animals and sell the meat to butchers, other retailers and sometimes operate their own butcheries then sells directly to the public. Abattoirs range in size from very small to very large. Some buy the animal (take ownership), some just provide a slaughtering service for a fee (which may include retaining parts of the animal e.g. hides and offal). Some abattoirs also engage in extensive meat processing. Meat processors usually buy from abattoirs or even have their own farms, feedlots and abattoirs, but some do buy directly from cattle farmers.	High priority during the initial phase, especially in case supply contracts to more profitable marketing channels cannot be secured.

Marketing channel	Description	Priority & gaps/opportunities
Leather tanneries	Sell cattle hides to tanneries, preferably by contract. However, tanneries usually obtain the hide from abattoirs who often take ownership of the hide and offal as part of the slaughter fee. A farmer can obtain (usually by buying back) the hide from the abattoir then sell it to a tannery, or pay the tannery a fee to process the hide.	High priority because the leather industry holds significant potential for further development, however, it is essential to stimulate development of the leather industry as well.
Mutton		
Meat exporters	Sell to exporters often by forward contract, who will distribute the product to various types of foreign buyers, often to foreign wholesalers but increasingly directly to large foreign retail chains. This has the potential to be a very large and lucrative market, especially for niche market mutton. Although some farmers (large farmers or small farmers arranged in associations or cooperatives) may sell directly to export agents, exporters generally buy in bulk from other channel members who buy from individual farmers. There is also a growing trend for exporters to own their own feedlots and abattoirs, however, they are likely to remain open to buy from local farmers who can steadily supply high quality sheep or carcases.	Very high potential, specifically for sheep that were raised on natural vegetation and/or organically produced mutton, and there is huge potential to expand on geographic branding.
Abattoirs and meat processors	Sell to abattoirs, poultry or meat processors, often by contract. Abattoirs are a very important and major marketing channel for livestock. They slaughter animals and sell the meat to butchers, other retailers and sometimes operate their own butcheries then sells directly to the public. Abattoirs range in size from very small to very large. Some buy the animal (take ownership), some just provide a slaughtering service for a fee (which may include retaining parts of the animal e.g. sheep skins and offal). Some abattoirs also engage in extensive meat processing. Meat processors usually buy from abattoirs or even have their own farms, feedlots and abattoirs, but some do buy directly from sheep farmers.	High priority during the initial phase, especially in case supply contracts to more profitable marketing channels cannot be secured.
Feedlots buying young animals for "finishing"	Extensive sheep farmers sell their young animals to large feedlots to fatten them before slaughter at abattoirs, often by forward contract. Feedlots are a very	Moderate priority. Ideal for extensive sheep farmers that are situated in geographically isolated areas and are in relative close proximity to a sheep

Marketing channel	Description	Priority & gaps/opportunities
	important marketing channel for livestock in South Africa.	feedlot. There is a gap in the market to establish sheep feedlots for finishing purposes in areas with high extensive mutton sheep production potential.
Pork		
Restaurants and hospitality businesses-pork	Sell to restaurants, pubs, deli's, fast food outlets, shebeens, hotels, lodges and hospitality businesses who will prepare and serve pork in a ready-to-eat form directly to the public.	Very high potential because of high demand and the fact that farmers organised into the AP-Park system will be able to secure such lucrative contracts.
Public and private institutions that provide meals to their residents, inmates, learners or patients, and well-funded food schemes	Sell to private or government institutions or businesses with a catering unit e.g. some schools, public university residences and dining halls, prisons, hospitals etc, to prepare and serve pork in a ready-to-eat form to their learners, residents, inmates or patients. This also includes well-funded government or NGO food schemes with formal and strong food buying contracts. The sales arrangement is almost always by contract.	High priority for government managed institutions and food programs because sourcing from Black farmers (especially those that are organised as in the APs scheme) is an important government priority, therefore it may be fairly easy to secure large contracts.
Abattoirs and processors	Sell to abattoirs or processors, often by contract. Abattoirs are a very important and major marketing channel for pigs. They slaughter the animals and sell the meat to butchers, retailers and sometimes operate their own butcheries or meat processing plants (especially in the case of pork). Processors usually buy from abattoirs or even have their own piggeries and abattoirs, but some processors do buy directly from farmers. Processors are a particular important channel for pigs because pork are extensively processed, more than the meat of other animals.	High priority during the initial phase only because it is an easy channel to start with, but more profitable channels e.g. large retailers and butchers should be focussed upon later.

Other marketing outlets indicated which of low to moderate potential are provided in appendix A. There are numerous marketing considerations for livestock produced include:

- Size of outlet, and cost of servicing it;
- Transport availability and cost. Distances, which affects cost, as well as deterioration of the product. Condition of the roads;
- Packaging required, e.g. pre-packs, cartons, boxes, pockets and their relative costs in relation to prices attained;
- Market or consumer preferences;
- Product quality or specifications;
- Contact person or agents;
- Seasonal price trends;
- Market commission and agents' fees;
- Possible delays in payment for consignments; and
- Various other possible requirements for the specified outlet.

The development of sustainable supply and value chains in the red meat sector from production through processing to markets, where there are unequal power relationships between large retailers/wholesalers and agro processors, and primary red meat producers is a constraint. Producers are vulnerable to demand volatility and price fluctuations and are "price takers" because of the buyers' market power. The major red meat players in GP are indicated below.

Table 39: Competitors

Company	Type
Karan Beef;	Feedlot
Beefcor and Chamdor Meat Packers	Feedlot and Abattoir
Chalmar;	Feedlot and Abattoir
Manjoh Ranch	Feedlot
Cavalier Foods	Feedlot and Abattoir
Enterprise	Feedlot
Eskort	Feedlot
Lynca Meats	Feedlot
Kellerman Boerdery	Feedlot
Kameeldrift Voerkraal	Feedlot
Theron Boerdery	Feedlot
Kellerman Boerdery	Feedlot
Vereeniging Meat Packers	Unknown
RTV Abattoir	Unknown
Boschkop Abattoir	Abattoirs
Comet Varsvleis Abattoir	Abattoirs
Eskort Bacon Abattoir	Abattoirs
Rietspruit Abattoir	Abattoirs
Holfontein Lammers Abattoir	Abattoirs
Lynca Vark Abattoir	Abattoirs
N and N Vark Abattoir	Abattoirs
Rietpoort Pig Abattoir	Abattoirs
Vereeniging Abattoir	Abattoirs
Groenpoent Abattoir	Abattoirs
Holfontein Sheep Abattoir	Abattoir
Hannitan Leather CC	Tannery
Seton Tannery South Africa	Tannery
Kwiktan Tannery	Tannery
Oasis Tanning Company	Tannery
Zenda Tannery South Africa	Tannery

Processing facilities in Gauteng and its surrounds have an advantage than can be attributed to two factors:

- Proximity to SAs grain and feed production areas; and
- Accessibility of large domestic and export markets.

The meat industry is highly concentrated, dominated by a handful of producers in each market segment. Several of these producers are based in Gauteng (i.e. Karan Beef, Cavalier Foods, Enterprise, Eskort and Lynca Meats), while others maintain some operations in the Province (i.e. Astral Foods). Market entry by black-owned and small scale meat processors is increasingly common in those market segments with lower capital cost (i.e. local butcheries, shisanyamas). There is also interest among large-scale producers (i.e. Cavalier Foods) to partner with emerging farmers, traditional authorities and black owned processors as part of an integrated BEE approach.

The market players in the beef industry are generally vertically integrated. They have their own feedlots, abattoirs, processors and distributors (Department of Agriculture, Forestry and Fisheries, 2014). In terms of pork the local market is split at almost 50:50 between the fresh meat market and the processing meat market. The pork industry evolved from a highly regulated environment to one that is totally deregulated today (Department of Agriculture, Forestry and Fisheries, 2014). Various policies, such as the distinction between controlled and uncontrolled areas, compulsory levies payable by producers, restrictions on the establishment of abattoirs, the compulsory auctioning of carcasses according to grade and mass in controlled areas, the supply control via permits and quotas, the setting of floor prices, removal scheme, etc., characterised the pork industry before deregulation commenced in the early 1990s. Additionally SA is home to many more sheep farmers than beef farmers. Generally, the sheep slaughtered at the abattoir are procured from farmers where after the mutton products are then distributed to private butcheries, wholesalers and local supermarkets.

9.2.3. Markets

Imports and exports are an indicator of SA's competitiveness on a global scale, while also contributing to trade balance – whether SA is a major exporter, or major importer. Exports, in general, indicate that SA 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. SA has historically been a nett exporter of agricultural products, importing only deficits in certain commodities, or niche products. The importance of global markets is it creates the opportunity for a new and growing target market as well as product opportunities overseas.

In terms of export/ import for the red meats (beef, sheep and pork) the following can be ascertained.

Beef: In recent years (2013) beef exports have been mainly to SADC and other African countries (6 000 tons) and Asia (1 800 tons) with Europe in the third place. Within SADC Mozambique is the largest importer (73% of total exports) followed by Angola and Mauritius. Other African countries to whom we export are Egypt, Nigeria and DRC (Department of Agriculture, Forestry and Fisheries, 2014). SA imported approximately 4 400 tons of beef in 2013 at an estimated value of R 97 million. The import quantity decreased by 36% in 2013 compared to 2012, this might be due to the outbreak of Foot and Mouth Disease (FMD) which made SA to be self-sufficient in beef and global economic meltdown which pushed consumers to switch to low priced protein content meat like chicken meat. For the period 2004 to 2013 the quantity of beef imports has decreased by 73 per cent (with imports peaking in 2005 at 20 000 tons).

Sheep: SA is a very small player in the world of mutton exports with very small quantities exported. SA mutton was mainly exported to Angola and Mozambique in SADC during the early 2000's and in more recent years Mozambique (36%) and the Democratic Republic of Congo (21%), are the largest African importers of mutton. The highest quantities exported (approximately 400 ton) were reached in 2005 and this figure declined to approximately 360 tons in 2013 *(Profile of Mutton Market Value Chain, 2014)*. SA is a net importer of mutton with the amount of mutton imported being much higher than the amount exported. SA imported an average of 16 000 tons per annum of mutton during the past decade (Department of Agriculture, Forestry and Fisheries, 2015). According to AMT, imports from Namibia of 4 700 tons of mutton, (including live animals) was also recorded in 2013.

Pork: SA exported approximately 31.8 million kilograms of pork between 2004 and 2013, yielding an export value of R 270 million over the same period. South African pork is exported within the continent, mostly to SADC countries, which constitutes 89% of the total pork exported. Mozambique is the greatest commander of South African pork, followed by Angola, United Arab Emirates from Asia, Senegal from Western Africa, and Mauritius (Department of Agriculture, Forestry and Fisheries, 2014). Imports of pork amounted to 34 431 tons, an increase of 3, 1% on the 33 395 tons imported during 2011/12 and 17, 5% more than the five-year average of 29 312 tons up to 2012/13. The highest pork imports were recorded during the periods 2005, 2009, 2011, 2012 and 2013. This is mostly driven by the increased demand of pork ribs in SA. The most imported product is frozen ribs which sold 151 million Kilograms at a value of R 2.6 billion during the period under analysis. Pork imports to SA during the past decade were dominated by France and Germany. France remained the biggest supplier from 2004 to 2008. Germany took over as the main supplier from 2009 to 2013. Belgium was the second greatest supplier from 2004 to 2005 and it was replaced by Denmark from 2006 to 2007. Spain became the second highest supplier during 2008 and from 2011 to 2013.

Locally, the most significant development in the red meat industry has been vertical integration, occurring through feedlots entering the red meat market; the marketing regime; and the major expansion of the abattoir industry. Vertical integration has characterised the industry over recent years, mainly through larger feedlots establishing their own abattoirs. In the local market there are various markets that can be considered for the sale of red meat.

Under the previous marketing regime, wholesalers mostly bought carcasses through the auction system. Currently, many wholesalers source live slaughter animals directly from farmers or feedlots on a bid and offer basis, i.e. they take ownership of the animal before the animal is slaughtered. The animal is then slaughtered at an abattoir of the wholesaler's choice, there after the carcass is distributed to retailers. In some instances, the public can also buy carcasses directly from wholesalers. Outlets where red meat can be sold include the following:

- Direct sales to hawkers or consumers on the farm. Savings may be made on packaging, agents' fees, market commission and transport and so on;
- Free markets, wet markets, live animal markets and informal auctions;
- Butchers, catering businesses, organisers of events and event hosting venues;
- Livestock speculators, auctioneers and exporters;
- Abattoirs and meat processors;
- Leather tanneries and feedlots; and
- Ad hoc selling of sheep to other livestock farmers for re-stocking, breeding stock, initial or additional animal stock or raising on their pasture or veldt.

In SA red meat is sold through different marketing channels such as fresh meat markets and processing meat market, via wholesalers such as Tems Fresh Meat Wholesalers, direct sales to retailers (in both the formal and informal sectors – e.g. supermarkets, greengrocers, hawkers, farm gate sales, to processors; and surplus produce is also exported.

The abattoir industry has expanded tremendously in number and in capacity. In this regard, it is important to note that this industry can be divided into those abattoirs that (I) are linked to the feedlot sector and the wholesale sector, or are owned by municipalities and (ii) those that are mainly owned by farmers and SMME's. The former abattoirs are mainly class A and B abattoirs, whereas the latter are usually classified as C, D and E class abattoirs.

A commodity market is a market that trades in primary economic sector rather than manufactured products. Soft commodities are agricultural products such as wheat, coffee, cocoa and sugar. Commodities are generally traded through the South African Futures Exchange (SAFEX) and are long-lasting (i.e. can be stored for a long amount of time). Red meat is generally a product is a perishable product if not stored under the correct conditions and as such is not traded through SAFEX.

Livestock and livestock products are an important source of food to most of rural and urban households. Meat as a food product is derived from the livestock such cattle, sheep, and pork from one or both of the livestock operators, namely the agricultural household and the commercial agrarian producers. Recently demand for livestock, cattle meat has increased due to urbanisation, population pressures and increasing levels.

- **Cattle as a source of beef meat -** beef represent a share of mostly preferred and consumed meat product in Africa and around the world at a record of about 5 million tonnes and is expected to increase in future. Even though demand for beef meat has increased, records show that the farming community, beef producers in particular have not adjusted to increases in demand pressures. Firstly, the increase in agricultural livestock production particularly meat based products increases supply and drives prices down for local consumers and increase access to decent and protein based diet. Similarly, shortage in supplies drives prices upward trending and reduces the ability of consumers' access to meat.

- **Mutton and pork as a reliable source of food -** Mutton and pork as meat source derived from sheep and pigs contributes to world food security, through various means directly as a food source and indirectly by creation jobs in varying sectors such as textiles and clothing manufacturing. Sheep and pork products include mutton/ pork cuts, chops and offal which are used as meat and food source. Mutton and pork is important component of nutrition and balanced diet, it provides with protein and fats which are important for human growth. The increased demand for meat related products are in effect increasing incomes and urbanisation as many people are and can afford to buy meat products and other value-added products like mutton and pork chops to supplement the nutrient and protein demand. Sheep and pork can contribute to income of farming communities, therefore adjusting their incomes and affordability of other food products sold outside their intermediate production systems.

- **Livestock as a sources of sustainable farming** - Livestock also plays an important role of consuming crop residues that cannot be used for human consumption, converts them to the meat and milk products. In subsistent communities and smallholder farming areas livestock is used as a medium to generate indirect income and used as a source for manure that are used to fertilise crops, the sales thereof increase crop income. Livestock manure also improves soil structure and soil suitability for some crops; therefore, it is an important of instrument of sustainable farming.

SA has the Zero Hunger programme from a South African context is a strategy to reduce incidences of food insecurity through improving the capabilities of all South Africans to access nutritious food. The development of the red meat commodity will not only address food insecurity, but also hunger and poverty through increasing food production, trade, job opportunities, improvement of nutrition security, development of market channels and fostering partnerships with stakeholders within the food supply chain.

Food security, as a major objective of the AP model, is an essential component to the livelihood of many South Africans. Approximately 60% to 70% of low income households' budgets are spent on staple food products. Therefore, it is essential that the deployment of the APs contributes positively to issues of food security.

The red meat industry within the SDM is likely to have a two-fold impact on food security. That is, additional food is produced through increased production, and incomes are created through employment creation, increasing the purchasing power of the consumer. Estimates for income per hectare spent on food products is indicated in Table 40.

Table 40: Estimates for Income per Hectare of Red Meat Production

Red Meat	
Multiplier	3.68
Avg. Annual Income (Rands)	31,680.00
Approximate Income generation per hectare (Rands)	R116,582.40
Portion of income spent on food (65%)	R75,778.56

Given a total employment multiplier of 3.68 for every additional hectare of livestock, it is estimated that income generated is approximately R116,582.40, based on a daily income of R120. Many low income households spend between 60% and 70% if their income on food and, as such, it is estimated that for every additional hectare of red meat is R75,778.56 would be spent on food for every job created.

9.2.4. Demand and Needs Analysis

The most important marketing channels and channel related opportunities include custom processing arrangements with red meat abattoirs combined with contract farming directly for government institutions, hospitality industry and especially large retailers. Gaps in the market for red meat products are mainly limited to simple value adding techniques, including improved slaughtering, portioning, branding (huge scope for further development), packaging and freezing, and to some degree market development for red meat offal products. Extensive processing is not recommended during the establishment phase due to global competition and high capital expenditure.

It is possible to provide an estimate for demand based on historical consumption figures and populations. Table 41 provides a summary on estimated demand on a national and provincial level.

Table 41: Estimated Demand for Red Meat

Area of demand	Commodity	Estimated demand for red meat (tons)
South Africa	Beef	967234.54
	Mutton	181356.47
	Pork	252799.93
Gauteng	Beef	23226.96
	Mutton	43550.56
	Pork	60706.84
Sedibeng	Beef	16515.32
	Mutton	30966.24
	Pork	43165.06
West Rand	Beef	15218.03
	Mutton	28533.38
	Pork	39774.40
Ekurhuleni	Beef	609549.77
	Mutton	114290.58
	Pork	159314.14
City of Johannesburg	Beef	846442.60
	Mutton	158707.98
	Pork	221229.31
City of Tshwane	Beef	549370.62
	Mutton	103006.99
	Pork	143585.50

At an average per capita consumption for beef at 17.6kg, mutton at 3.3kg and pork at 4.6kg, there is a clear demand for red meat products in South Africa. Demand for red meat (beef, mutton and pork) on a national level, is approximately 1,401,390 million tons. In Gauteng, the demand for red meat (beef, mutton and pork) is approximately 127,484.36 tons which is approximately 9% of the total demand in SA – a clear indicator that producers within Gauteng have a market that can be accessed.

9.2.5. Job Creation and Opportunities

Amongst the objectives of the AP Model is to create opportunities for employment within the agricultural sector. Employment, however, may not necessarily be a result of expanding primary production, but also the value adding activities that may occur through the value chain.

Labour input is a key element of the production process and one of the main production factors in any economy. Table 42 below displays the Sectoral labour multipliers applicable to the red meat industry, i.e. the number of the job opportunities created at different levels for every additional R1-million production. The Figure below indicates that livestock creates 2.07 direct on farm jobs, 1.61 indirect jobs and 1.88 induced jobs for every R1 million produced.

Table 42: Red Meat Potential Employment

Sector	Direct	Indirect	Direct + Indirect	Induced	Total
Red Meat	2.07	1.61	3.68	1.88	5.57

The total multiplier is disaggregated into direct, indirect and induced components.

Direct Multipliers – 2.07: The direct multiplier measures the direct impact emanating from a particular sector on itself. For instance, the direct multiplier will measure how an increase in the production of a particular sector will affect employment within the same sector. These direct impacts are very closely related to the sector and, as such, are probably the most important impacts from a strategic planning point of view. The multiplier of 2.07 suggests that just over two employment opportunities are created for every R1 million capital injection into livestock production activities.

Indirect Multipliers – 1.61: Indirect multipliers reflect the impacts that a particular sector will have on all other industries that supply inputs (materials) for the operations taking place in the relevant sector. These 'backward linkages' are important as they measure the broader impact that changes in the direct sector will have on the economy. Frequently, these indirect impacts are significant, and may even exceed the direct impacts themselves. The indirect multiplier (or linkages multiplier) of 1.61 indicates that for every R2 million capital injection into livestock production, just over three employment opportunities are created in the value add component of the value chain.

Induced Multipliers: Economic impacts will result from the paying out of salaries and wages to people who are employed in a particular sector, as well as the salaries and wages paid by businesses operating in the sectors indirectly linked to this sector due to the supply of inputs. These additional salaries and wages lead to an increased demand for various consumable goods that need to be supplied by various economic sectors throughout the broader economy. Clearly, these induced impacts can be considerable and are measured by using induced multipliers.

Livestock farming is not labour intensive at small-scale production, however, the cattle commodity specifically does have an extensive value chain with job opportunities at production, processing, retailing and service level.

The following table indicates a variety of opportunities that could potentially be created by developing the commodity value chain of red meat. As such the benefits will be presented in the table below:

Table 43: Socio-Economic Benefits

Socio-Economic Benefit	Description
Job Creation	The livestock enterprise in the AP will create sustainable employment opportunities from the inception of the project, construction and through to the operation of the AP. Jobs created during the construction phase of the project will not be sustainable due to the limited duration of the construction period.

Socio-Economic Benefit	Description
	The livestock value-chain process will improve the business profitability and therefore operations, similarly the need to increase efficiency and the need capacity additional human resources to operate machines, transportation and food handling. The accessibility of the AP and the meat products could increase demand for meat products, thus increasing the number people required for logistics, quality assurance, international relations officer for export and imports, trade and merchandising.
Developing skills	Environmental, consumer, and animal health are the most important statutory requirements in food production, management, and standardization. To continually produce healthy, sufficient food products and become profitable one must comply with the rules of the game, therefore developing the skills of the workers, management, and stakeholders to adhere to the standards of the industry and of the AP as contemplated in the service charter will go a long way. Therefore, historically disadvantaged South Africans, women, disabled and the youth will have to be taught and trained in necessary skills (bookkeeping, call center management, Safety and Health management, Hygiene), Managers will have to be trained in financial, marketing, production and strategic agri-business management courses. Technicians will have to be trained in food quality and safety, equipment calibration techniques and butchers and meat handlers will need to know how to classify carcass, label, washing and cutting.
Spin-off. opportunities	The livestock enterprise has many potential spin-offs extending beyond the borders of the AP. This includes creating opportunities for packaging material manufacturers; transport industry for efficient transport systems, arts and crafts makers will have access to cheap inputs leather material. The existence of the AP itself contributes the most to the communities around the areas, the transfer of communication and technologies, roads, water and sanitation infrastructure and related services.
Support to emerging farmers	The AP will need to ensure that sufficient quantities and quality meat is supplied at all times. Therefore, will require the department to improve and expand on their extension services to assist local farmers with information, priority needs, and guidance. This relates to issuing of climate change and variability cold temperature, drought signals, water management guidelines and financial support to an extent.

Handling, slaughtering, washing, portioning, grading, packing, packaging, labelling and transporting are all important practices aimed at preserving the quality of the produce, and presenting it to the best advantage. Prices achieved, and thus differences in income obtained, 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.

The SDM AP could potentially take advantage of the following agro-processing opportunities for red meat. Table 44 below highlights the processes and products that could be developed through agro-processing at the AP.

Table 44: Red Meat Agro Processing Opportunities

Processing Option, Method or Product	Processing Opportunity	
Beef	○ Slaughtering ○ Packaging and branding ○ Freezing and packaging of slaughtered meat cuts ○ Canning/bottling and pickling	o Beef carcass quarters and retail beef cuts o Packaged and branded meat cuts o Frozen beef cut packs o Canned/bottled and pickled beef

Processing Option, Method or Product	Processing Opportunity	
	○ Drying, including biltong and jerky ○ Dry-curing and smoking ○ Curing whole beef cuts in brine ○ Curing small beef cuts in brine, further cutting, pressing and canning. ○ Mincing, mixing with seasoning and binders, patty forming, packaging and freezing. ○ Fresh sausage making ○ Cooked and smoked sausage making ○ Dry and semi-dry sausage making ○ Speciality and other diverse sausage making ○ Offal marketing ○ Tanning ○ Rendering ○ Jugging	o Drying, including biltong and jerky o Semi-dried, cured and smoked beef (dried beef) o Salt beef o Corned beef (bully beef) o Patties (frozen) o Fresh sausages o Cooked and smoked sausages o Dry and semi-dry sausages o Speciality and other diverse sausages o Various offal products of high value o Leather o Rendering products originating from slaughter waste o Perpetual stew
Sheep (Mutton)	o Tanning o Rendering o Jugging o Slaughtering o Packaging and branding o Freezing and packaging of slaughtered meat cuts o Canning/bottling and pickling o Drying o Fresh sausage making o Offal marketing o Sheep skin processing o Rendering	o Leather o Rendering products originating from slaughter waste o Perpetual stew o o Sheep carcass and retail mutton cuts o Packaged and branded meat cuts o Frozen mutton/lamb cut packs o Canned/bottled and pickled mutton/lamb o Pastirma and mutton jerky o Fresh sausages (sheep wors) o Various offal products of high value o Sheep skin processing o Rendering products originating from slaughter waste
Pork	o Slaughtering o Packaging and branding o Freezing and packaging of slaughtered meat cuts o Canning/bottling and pickling o Curing (dry salt or brine exposure) and possibly smoking. o Cooking, curing (usually dry-salt exposure), maturing and possibly smoking of large pork parts. o Salt-cured and lightly smoked neck, loin or rib cuts. o Dry-salting and air-drying of pork belly.	o Pork carcass and retail pork cuts o Packaged and branded meat cuts o Frozen pork cut packs o Canned/bottled and pickled pork o Bacon o Ham or gammon o Kassler o Pancetta o Eisbein o Fresh sausages o Cooked and smoked sausages o Dry and semi-dry sausages o Speciality and other diverse sausages o Rousong o Candied bacon

Processing Option, Method or Product	Processing Opportunity	
	• Salt-curing and possibly smoking of pig knuckle/hock. • Grinding fresh meat (raw and uncured), blend with seasoning and possibly binders, and force into a casing. • Grinding fully/partially cooked and/or cured meat, blend with seasoning and possibly binders, and force into a casing (or cook/cure afterwards). • Grinding cured meat, blend with seasoning and possibly binders, force into a casing and dry afterwards. • Speciality sausage making • Drying by dry-cooking pork that has been pre-cooked in sweet soy sauce. • Baking sugar-coated bacon • Offal marketing • Rendering	• Various offal products of high value • Rendering products originating from slaughter waste

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.

9.2.6. New Entrants

This subsection indicates the potential emerging farmers that can benefit from the development red meat as a commodity. The names of these farmers are presented in Appendix A. The small scale and emerging farmers indicated in the table well represented throughout the whole of the SDM. The list clearly indicates is the viability of using red meat as commodity due to the number of emerging farmers that already farm in the area with cattle, sheep and pigs. It is further anticipated that as the value chain is further developed, more will benefit from the AP development.

9.2.7. Regulatory Requirements

There are numerous legislation documents governing the production of red meat. These range from regulations as to the production inputs (National Water Act), to those governing production (Meat Safety Act) and to production standards and consumption. The most pertinent of the acts are contained in table 44 below.

Table 45: Regulatory Requirements

Act	Description
Conservation of Agricultural Resources Act, 1983 (Act No. 43 Of 1983)	This Act provides for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water sources and vegetation, and the combat of weeds and invader plants (Department of agriculture, Forestry and Fisheries, 1963).

Act	Description
	Implication for AP: The AP will be required to implement policies that will maintain and monitor best agricultural practices to ensure the conservation of soil and vegetation, and also combat invader plant species.
Animal Diseases Act, 1984 (Act No. 35 Of 1984)	The Act provides for control measures for the prevention of diseases and parasites and for schemes to promote animal health (Department of Agriculture, Forestry and Fisheries, 1983). **Implication for AP:** The AP needs to be aware of various animal diseases and the relative prevention measures necessary. The AP will be required to implement an animal health and monitoring programme to ensure the health of the broilers.
Abattoir Hygiene Act, 1992 (Act No. 121 Of 1992)	This Act provides for the maintenance of proper standards of hygiene in the slaughtering of animals and in the handling of meat and animal products (Department of Agriculture, Forestry and Fisheries, 1992). **Implication for AP:** The AP will be required to implement a hygiene and monitoring programme to ensure hygiene standards are met in the abattoir facility.
Livestock Brands Act, 1962 (Act No. 87 Of 1962)	The Act regulates the registration of a brand in the name of an owner of livestock for the purpose of identifying the livestock (Unknown, 1993). **Implication for AP:** It will be the responsibility of the AP management to register a brand in the name of the AP in order to identify livestock within the programme.
Animals Protection Act, 1962 (Act No. 71 of 1962)	The act encompasses the prevention of cruelty towards animals. The act further encompasses the code of best practices for the handling and transport of livestock (Unknown, 1962). ***Implication for AP:*** The AP must ensure that no cruelty towards it livestock occurs through their handling (transport, feeding, housing, etc).
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)	The act provides for the appointment of a Registrar of Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies; for the registration of fertilizers, farm feeds, agricultural remedies, stock remedies, sterilizing plants and pest control operators; to regulate or prohibit the importation, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies and stock remedies; to provide for the designation of technical advisers and analysts; and to provide for matters incidental thereto (Department of Agriculture, Forestry and Fisheries, 1947). **Implication for AP:** The AP must ensure that all regulations regarding the manufacturing, distribution, importation, sale, use and advertisement of any fertilizers, animal feeds, pesticides, stock remedies as well as the operation of any pest control operators are adhered to. This can be done through the farmer support units which will need to have a programme in place for the above mentioned to be monitored.
Occupational Health and Safety Act, 1993 (Act No.85 of 1993)	The act aims to provide for the health and safety of persons at work and the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety (Department of Labour, 1993). **Implication for AP:** The AP must ensure that a safe working environment is established for all workers and must adhere to all the duties as listed in the occupational health and safety act.
Basic Conditions of Employment Act, 1983 (Act No. 3 of 1983)	The act encompasses those regulations associated with fair labour practices (Depart of Labour, 1983).

Act	Description
	Implication for AP: The AP must ensure that fair labour practices are followed to ensure that the basic conditions of employment are met, such as leave, working time, termination of employment etc.
Marketing Act, 1968 (Act No. 59 of 1968)	The Act has authorised an establishment and enforcement of regulatory measures to intervene in the marketing of agricultural products, including the introduction of levies on agricultural products (Department of Agriculture, Forestry and Fisheries, 1968). **Implication for AP:** The AP should establish a programmes that will manage the marketing of its own products in order to meet the requirements of the Act.
Agricultural Products Standards Act, 1990 (Act No. 119 of 1990)	The act controls and promotes specific product standards from mainly a quality point of view for local as well as export purposes. A list of products for which standards have been set through regulations is promulgated under the act by the minister of agriculture (Department of Agriculture, Forestry and Fisheries, 1990). **Implication for AP:** Food and its associated products will go through various agro-processing activities before being a marketable product. To maintain quality assurance, it is recommended that the AP establishes a team that will be responsible for carrying out activities that will meet the requirements of the Act
Consumer Protection Act (Act No68 of 2008)	To promote a fair, accessible and sustainable marketplace for consumer products and services and for that purpose establish national standards relating to consumer protection (National Consumer Tribunal, 2009). **Implication for AP:** The act indicates that the AP has a responsibility to provide products which promote a fair, accessible and sustainable marketplace for the consumer
Conservation of Agricultural Resources Act, 1983 (Act No. 43 Of 1983)	This Act provides for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water sources and vegetation, and the combat of weeds and invader plants (Department of agriculture, Forestry and Fisheries, 1963). **Implication for AP:** The AP will be required to implement policies that will maintain and monitor best agricultural practices to ensure the conservation of soil and vegetation, and also combat invader plant species.
Perishable Products Export Control Act, 1983 (Act No. 9 Of 1983)	This Act provides for the control of 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 (Department of Agriculture, Forestry and Fisheries, 1983). **Implication on AP:** In the event of export, it is imperative that the AP establishes and maintains control over the export products. It is the onus of the AP to establish a team that is responsible for food health and safety regulations.
Agricultural Produce Agents Act, 1992 (Act No. 12 Of 1992)	This Act provides for the establishment of 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 (Department of Agriculture, Forestry and Fisheries, 1992). 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).

Act	Description
	Implication for AP: The AP should play and intermediary role in moving produce from farm to market. As such, it is important that marketing activities are managed and monitored according to the standards set out by the Act.
Agricultural Development Fund Act, 1993 (Act No. 175 Of 1993)	This Act provides for the establishment of and control over an agricultural development fund for the handling of money received for development (Unknown, 1993). **Implication for AP:** Funding is a fundamental cornerstone to the development of the AP and its stakeholder. The AP management should play an intermediary role in accessing and use of such funding.
Agricultural Credit Act, 1966 (Act No. 28 Of 1966)	The Act provides for a system of assistance to persons carrying on or undertaking to carry on farming operations, and control in respect of assistance rendered (Unknown, 1993). **Implication for AP:** The SDM AP management should provide a service to its producers in the way of easing access to credit. The AP should, on behalf of the producers, assist in accessing credit for agricultural production purposes. Access to credit will allow producers access to the relevant inputs for agricultural production purposes and, as such, produce necessary products for the AH (marketing point).
Livestock Improvement Act, 1977 (Act No. 25 Of 1977)	The Act regulates the collection and sale of semen and ova and the artificial insemination and inoculation of certain animals, establishment of a system for the evaluation and certification of the performance of certain animals, quality control with regard to the importation and exportation of certain animals, semen, ova and eggs, incorporation of livestock breeders' societies and the maintenance of the legal personality of livestock breeders' societies, and granting of certain exclusive powers relating to the registration of pedigrees of certain livestock to the South African Stud Book and Livestock Improvement Association (Unknown, 1993). **Implication for AP:** Improving livestock, in particular broilers, is integral in terms of production efficiency. It is thus recommended that the AP establishes committees and programmes that address issues of livestock improvement in order to maintain standards as set out by the Act.
South African Abattoir Corporation Act, 1992 (Act No. 120 Of 1992)	This Act provides for the privatisation of the South African Abattoir Corporation. At the incorporation of the Corporation as a company the Abattoir Industry Act, 1976 (Act No. 54 of 1976) will be repealed (Unknown, 1993). **Implication for AP:** The chicken abattoir is likely to be privatised through the farmer ownership model.
Societies for The Prevention of Cruelty to Animals Act, 1993 (Act No. 169 Of 1993)	The Act provides for control over societies for the Prevention of Cruelty to Animals. **Implication for AP:** It is the onus of the APs management to ensure that the animals are treated fairly through best agricultural management practices.
Control of Markets in Rural Areas Ordinance, 1965 (Ord. No. 38 Of 1965)	The Act encompasses the regional Support Service and agricultural economics components. **Implication for AP:** The AP will be required to provide assistance in managing the markets for produce within the APs system.
Subdivision of Agricultural Land	The Act regulates the subdivision of agricultural land and its use for purposes other than agriculture.

Act	Description
Act, 1970 (Act No. 70 Of 1970)	**Implication for AP:** The APs management will be required to allocate land in a productive manner and ensure strict control over allocated land. Furthermore, the land is to be allocated for agricultural purposes that will contribute to the development of the AP.
Co-Operatives Act, 1981 (Act No. 91 Of 1981)	The Act regulates the formation, registration, management and functioning of various types of cooperatives and winding-up and dissolution of co-operatives. **Implication for AP:** Cooperatives have already been established within the SDM, but it is likely that new ones develop and participate in the APs system. APs management should be responsible for the establishment and registration of auxiliary cooperatives that will participate in the Programme.

9.2.8. Technology

Technology plays a vital role in the development of the agricultural industry and today farmers use technology to assist in producing food for a growing world. High tech advances have been assist in making farming life easier and more profitable. Smaller farmers can hold their own by moulding the technology to fit their management techniques and needs.

The table below indicates the various technologies that the AP can use within the SDM. By utilising the various technologies, the small scale and emerging farmers can improve on the production of the variety of livestock farmed and ultimately increase their profit.

Table 46: Livestock Technology

Technology and short explanation where needed	Function or benefit to farmer
Mechanisation	
Small-scale implements and tractors: **New generation of farming implements and tractors tailored for small-scale farming.**	Farmers benefit from modern mechanisation and large leaps in productivity even though they farm at small scale, and at a much lower cost compared to conventional implements used by large commercial farmers.
Precision Farming, Integrated Farm Management Systems and Software	
Precision farming: **Gaining real-time or exact information within particular parts of a single field e.g. moisture and nutrient levels, soil type and depth etc, to determine the most appropriate rate of application of water, fertilizer and to adjust implement settings automatically and instantly. Precision farming can also be applied to animal production, aquaculture and agroforestry systems.**	Optimising and tailoring production levels at precise and small-area level so that yield is maximised and inputs are minimised.
Integrated farm management software: Combines information and management systems from various on- and off-farms sources to coordinate farming activities in a highly efficient manner. Includes a variety of technologies e.g. farm asset tracking systems, cloud computing, record keeping, accounting, mapping, water and soil management, weather forecasting etc.	Maximise profitability and efficiency automate some management and administrative tasks. Coordinate and simplify management processes.

Technology and short explanation where needed	Function or benefit to farmer
Plan-A-Head Sheep Management Software Program with Sheep Management System: *(Sheep only)* **Complete management solution for a mutton or wool sheep enterprise.**	Integrate with other Plan-A-Head farming software to allow for whole-farm enterprise management. A particular strong feature of the system is reproductive monitoring. The light edition is particularly suitable for small-scale farmers. Applicable to both wool and mutton sheep.
SimJunior: **Basic financial management and accounting software for the small-scale farmer.**	Easy to use. Ideal for the small-scale farmer
Accord: **Complete human resource management system for farmers, including payroll, HR record keeping and administration.**	Particular strong features of the system include its simplicity and coverage of basic employment legislation.
Agribeef: (*Cattle only*) **Complete beef cattle herd (commercial as well as stud) management system).**	Approved by most breeder societies. Particularly strong in record keeping and reproduction management.
Feedlot: *(Cattle and sheep only)* **Feedlot management system for camp groups, sales groups and purchase groups.**	Particularly strong in record keeping.
Studmaster Beef: (*Cattle only*) **A comprehensive computer program for the management of beef cattle of any breed, focusing more on the breeding side of the herd than the financials. Fully incorporates registration and performance testing.**	Particularly strong in animal breeding.
Studmaster Sheep: *(Sheep only)* **A comprehensive computer program for the management of mutton and woollen sheep, and goats. Caters for registration, mutton and wool performance testing, focusing more on the breeding side of the herd than the financials.**	Particularly strong in animal breeding. Covers all small livestock including mutton and wool sheep and goats.
Groundwater Access Via Wells or Boreholes	
Manual well digging or borehole drilling: Although mechanical drilling can reach depths of 150 meters, it is generally too expensive for small-scale farmers. In case the groundwater table are less than 45-meter-deep and the subsoil material are soft, manual drilling or well digging are a cost efficient option.	Gain access to groundwater resources much more cheaply compared to conventional mechanical drilling.
Animal Reproduction	
Artificial insemination (AI): **Introduction of the sperm (often stored and transported in a frozen form) into a female animal's uterus (in-vivo fertilization).**	A farmer can cost efficiently introduce generically superior traits into his/her herd or flock without having to buy these superior animals.
Laparoscopic artificial insemination: *(Sheep only)* **Sub-surgical procedure that involves entering the abdominal cavity and deposition of semen directly into the uterus of an ewe in oestrous.**	Accelerate reproduction, increase reproductive success and has a high return on investment.
Oestrous synchronization: *(Sheep only)*	Pregnant cows and later their calves can be handled in a single cohort, thereby increasing

Technology and short explanation where needed	Function or benefit to farmer
Using hormone treatment to ensure that female dairy and beef cattle becomes pregnant at approximately the same time.	efficiencies of scale and decrease cost and effort performing procedures through the different life stages.
Animal Handling	
Hydraulic cattle clamps: *(Beef only)* Silent, less stressful and precise clamping of cattle at the neck to allow for safe handling of the animal.	During cattle handling, the traditional clamp causes significant stress to the animal and the clamp often fit too loose or too tight. The new generation hydraulic clamps fits more precisely and does not produce a stress-causing noise.
Cattle hip-clamp: *(Beef only)* Instrument that allows for easy lifting of cattle.	Allows for convenient, stress and injury free lifting of sick cattle or cattle that need assistance to stand upright again.
Automated dipping systems for sheep: *(Sheep only)* Sensors determine when a sheep enters and exit, spraying from numerous nozzles covering the entire body.	The entire animal is covered using a minimum quantity of dip, therefore wastage is minimized while efficiency is maximized. Use minimal labour and dip animals quickly.
Triple nozzle dip sprayer: *(Sheep only)* Dip sheep for external parasites simply by spraying them with 3 nozzles while walking through a bend in the chute or walkway.	Dip large numbers of sheep in a short time (1200 sheep in one hour) using minimal labour and cause minimal stress to the animals.
Peak Handler: *(Sheep only)* Fast and convenient machine for restraining and handling (shearing etc.) of sheep.	Use the principle of counter-weight to lift sheep easily to a comfortable-to-handle height and position. Can be operated by any handler without need for specialised training. Cause minimal stress to sheep and minimal strain on the worker. Large number of sheep can be handled by one worker in a short time.
Blitskraal: *(Sheep only)* Portable sheep handling kraal that can fit onto a bakkie, transported to any part of the farm, assembled by a single worker in less than 10 minutes, and handle up to 300 sheep	Large number of sheep can be handled by one worker in a short time. Highly portable therefore can be easily shared amongst a group of small-scale farmers.
Animal Feeding	
Rolling molasses lick: *(Cattle only)* A tank filled with molasses with wheels that rotate through the molasses at the bottom of the tank as the cattle lick the fresh molasses at the top of the tank.	Ensuring a fresh supply of molasses as needed by the animals.
Feed mixers with advanced feed circulation capability: *(Beef and sheep only)* The new generation feed mixers are capable of circulating material that needs to be milled into a feed mix towards the centre of the container.	Requires significantly less energy and time compared to conventional hammer mills.
Animal Watering	
Auto-refill watering troughs: Water troughs fitted with a small reservoir and low pressure floating valves to enable automated re-filling.	Not only steady and easy to clean, but also re-fill automatically from a small build-in reservoir which minimizes contamination and risk of wastage.
Animal Health	

Technology and short explanation where needed	Function or benefit to farmer
Vaccination: **Vaccines contains inactive parts (usually the capsid) or molecules that resembles surface proteins of a pathogenic virus or bacterium, which are introduced into the animal's blood stream so that antibodies can be developed. This will enable the animal to develop immunity and to be protected against the pathogen when and if exposed to it later in life. New vaccines are constantly developed therefore it is important to consult with an animal health professional on the most appropriate vaccination program.**	Vaccines have a highly positive effect on disease control and even eradication. Very high return on investment.
Antibiotics: **Have two main applications in agriculture: 1) To treat infections, which is an important technology but will not be discussed in detail because it is a specialised field that are taken care of by animal health professionals, and 2) As a routine feed supplement to animals in intensive farming systems (feedlots, piggeries, chicken houses, fisheries etc.) which can be considered a dangerous and unsustainable practice.**	Increased growth rate and resistance against disease in case of routine feeding supplementation, however, the cost to society could be large and devastating.
Veldt Management	
Bush-to-feed converter: *(Cattle and sheep only)* **Unit that produce feed pellets from shrubs and trees, including species responsible for bush encroachment.**	Converts a liability (bushes that reduce the carrying capacity of the veldt) into a valuable asset (feed for game and cattle). Could be an effective method of bush encroachment control.
Land rehabilitation techniques: *(Cattle and sheep only)* **May differ in technological complexity from as simple as brush packing to as complex as biodegradable or long lasting soil cloths and mesh materials.**	Stabilise soil, control or reverse erosion damage and restore degraded land so that it can again be utilised for agricultural purposes.
Farm Energy	
Wind energy: **Wind energy has been used for a long time in South Africa in the form of wind pumps. New generation wind technology allows for uses beyond wind pumping, including electricity generation at micro or farm level scale.**	Wind is a renewable form of energy and some areas in South Africa do have sufficient wind development potential, especially when micro-climatic and small-area topographic factors are considered which is appropriate for very small-scale operations. Less vulnerable to theft compared to solar panels.
Solar technology incl. photovoltaic and thermal panels and solar drying and cooking: **There are two main forms of solar energy harvesting, i.e. photovoltaic panels that produces electricity, and thermal solar panels or tubes that heat water. Solar energy is also widely used on farms for solar drying and solar cooling.**	Solar is a renewable form of energy and most areas in South Africa do have sufficient wind development potential. In fact, some parts of the southern and western Free State, western Limpopo, Gauteng and especially the Northern Cape and North West have excellent solar power potential even at global standards.
Biogas fermenters: **Biogas can be produced from a variety of on-farm sources, especially animal dung of animals kept**	Enable the farmer to become independent of imported and increasingly expensive mineral or natural gas. Especially suitable for intensive livestock, pig and poultry farmers which produce

Technology and short explanation where needed	Function or benefit to farmer
in confined areas. Can be used in the same way as conventional petroleum derived or natural gas.	large quantities of animal waste. New techniques enable even small farmers with just a few animals to produce gas in a viable manner.
Farm Protection, Security and Visual Monitoring	
Low voltage electrified fences incl. solar electrified systems: *(Sheep only)* **Fence electrification is important for extensive small livestock enterprises because predator animals can cause significant profit losses. One unit can electrify as much as 50 km of fence line.**	Deter predators from entering camps without killing them. An SMS is sent to the farmer and in case there are any activity along the fence line.
Video and photographical technology: **Fixed point photography, security camera systems and remote sensor-triggered photography.**	Valuable to monitor veldt condition, effects of grazing or fire control regime, rehabilitation efforts, and to monitor animal or criminal activity in remote parts of the farm. Some systems notify the farmer by SMS of sensed activity and immediately send the footage by MMS or video clips to the farmer's mobile device (in additional to conventional recording and storage of images or video).
Apps for Mobile Phones and Tablets	
THE MERCK VETERINARY MANUAL: **Mobile App, available for both Android and Apple. It contains guidelines for the diagnosis, treatment, and prevention of animal disorders and diseases.**	Comprehensive animal health and reproduction reference not only to vets but to farmers as well.
Cattle breeds: *(Cattle only)* **Overview of the world's more important beef and dairy cattle breeds and their characteristics.**	Useful for the new farmer to help in breed selection.
Online and Mobile Information Portals	
AgriSuite Online: **Internet based agricultural information system developed and maintained for farmers. Provide a variety of general agricultural information directly to farmers.**	The system can be accessed on a PC or Mac, on tablets and smartphones, in the office or on the farm. Contains the most essential, useful and concise information in a very simple and user-friendly format.
FAO Ecocrop: *(Cattle and sheep only)* **Provide detailed crop requirement information for almost any crop that are cultivated throughout the world, including its uses and requirements for temperature, rainfall/water, soil type, soil depth, soil pH, salinity, altitude etc. It also includes hundreds of forage crop species for extensive animal farmers.**	Enable the farmer to select suitable crops to farm with, and to diversify the farm's enterprises.
Other	
Drones: *(Cattle and sheep only)* **Un-manned aircraft capable of exploring the farm and taking photos from the air.**	Very useful for general inspections, monitoring and mapping. Advanced models can even perform some remote sensing functions.
Remote sensing: *(Cattle and sheep only)* **Interpreting satellite images to make farming decisions. Satellite images provide valuable information on biomass production, soil and air**	Enable the farmer to make well informed decisions based on information that otherwise would have been too difficult or expensive to obtain. Provides complete information of the

Technology and short explanation where needed	Function or benefit to farmer
mass temperature, soil moisture, plant stress levels, fire warnings etc.	entire farm. Some information is provided daily or instantly.
Integrated weed and pest management incl. biological control agents: *(Cattle and sheep only)* Pests and weeds are major threats to farmers and food security. Chemical control has been effective for some pests and diseases but it is expensive and causes harm to human health and the environment. Consumers and governments locally and to export markets place increasing pressure on farmers to adopt integrated management practices to reduce reliance on only chemical control. Especially important is biological control where the natural enemy of the weed or pest are released locally to control population levels. It is not only applicable to crop farmers but to all extensive and semi-intensive animal farmers as well (pasture or veldt management).	Usually much more effective and sustainable than chemical control on its own.
Radio frequency identification technology: *(Cattle and sheep only)* Used to track and identify animals.	Know where the animal is at all times, and to identify a particular animal instantly for record keeping and management purposes. Especially useful to extensive farming systems and game farmers.

The adoption of these technologies will not only make farmers more efficient, but also more competitive in an environment that is dominated by larger commercial enterprises. The technologies are expected to assist farmers in improving production practices and better understand market conditions in order to make appropriate production decisions.

9.2.9. Substitute Products and Services

Substitute goods/products are goods which, 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. Table 47 below lists and describes potential substitutes for chicken and chicken products.

Table 47: Red Meat Substitute Products

Substitute Product/Service	Description
High protein vegetables/grains/legumes	Consumers have a choice of consuming high protein vegetables, grains, or legumes. Examples of high protein products include lentils, soy mince, tofu and samp and beans. Proteins of this nature are considered affordable alternatives and are particularly popular amongst vegetarians.
Other meat	Consumers are likely to substitute price rather than taste, or preference within this category. Low income consumers, therefore, are likely to purchase cheaper meat alternatives when substituting chicken. Examples might include offal, cheaper pork and beef cuts and other meat that are relatively cheap.
Eggs	Eggs are a cheap, and a high protein source and therefore a potential substitute, especially within low income households.

Depending on the availability of a consumer's disposable income, the substitution effect may differ. A high income consumer, for example, will base their purchase decision of taste and preference, while a lower income consumer may base their decision to purchase based on price. As a result, a low income consumer may substitute for cheaper protein products, rather than more expensive protein products such as mutton.

The red meat producers' technology cannot be changed to produce alternative products (the producer has an inability to change to alternative production once a broiler house is erected) and, as such, should be aware of substitutability of products before making a decision to produce.

9.2.10. Societal and Cultural Trends

Societal and cultural trends are trends that relate to the social and cultural values and practices within a society, or culture. These are long term trends (at least two to five years) that explain why people behave the way they do. The South African food industry's direction is affected by the growing influence of demographics, especially with respect to societal and cultural trends. The trend in rising incomes within South Africa has provided the local consumer with increased purchasing power and, therefore, the ability to increase demand for food. Increased purchasing power has also allowed the consumer increased access to a variety of food, including processed, packaged and frozen red meat (or convenience foods as described below).

Convenience foods or also known as time-saving foods as they are partially, or complete prepared are increasing in demand as consumers spending power increases and more value is given to time-saving. Red meat specific convenience foods include microwave meals and already prepared dishes for the oven. The increasing demand of quick-food has increased the number of quick-food items available to consumers in the last two decades. The most likely consumers to buy these items include modern families (families that lead an individualistic lifestyle and do not sit down to as many traditional meals), middle- to high-income families, and younger families.

There has been a growing trend in terms of purchasing organically grown food. Organically grown red meat provides consumers with:

- Less fat;
- More flavour;
- No GMO (Genetically Modified Organism);
- No hormones, antibiotics and drugs;
- Preserves ecosystem;
- Keeps children and future safe.
- Keeps children and future safe.

Non GMO red meat is growing in popularity. A variety of health risk have been attributed to GMO, such as organ damage, fertility, tumors, etc (however these effects were noted under laboratory conditions). There are public concerns regarding GMO in terms of food safety, regulation, labelling as well as environmental impact. Genetically modified crops grown in SA are pre-dominantly white maize, yellow maize, cotton and soya. Livestock (cattle, beef and pork) play a vital role in terms of economic, social and cultural in communities. Their significance includes contribution to food security, job creation, income, nutrition, "live banks" for immediate cash needs, draught power provision, milk, manure, traditional ceremonies, rituals and social status to small scale and emerging farmers. This is especially true in marginal and remote areas with poor agricultural lands and minimal economic opportunities.

Small scale and emerging farmers in the informal market are generally supplied by communal farmers who in terms of location are far from any formal market. Informal markets include farmer-to-farmer or farmer-to-consumer and/ or farmer to unregistered buyer sales. Key players in the informal food chain include communal area farmers, auctioneers, speculators and local traders. Two important reasons for keeping cattle for example were income generation and for family consumption. Young small scale farmers indicated that preference was given to selling of livestock through abattoirs and auctions rather

than through private sales and speculators, while older small scale farmers who have low education and mistrust the carcass classification system shun abattoirs as a result. The sustainability of livestock based livelihoods is threatened by the competition for natural resources such as land and water, and decreasing grazing areas, as well as challenges such as poor nutrition, poor management practices, inadequate knowledge, not keeping up with current technology, inability to obtain and understand the formal market information (Soji, et al., 2015).

In SA offal is eaten by South Africans of different backgrounds. Offal refers to the internal organs and entrails of a butchered animal, however in SA sheep heads are very popular and are referred to as "Skopo" (township colloquial term meaning head) and smiley (refers to the expression of the head when cooked). Additionally, in SA Halaal food has become increasingly popular due to the growing Muslim population. Halaal food implies that for any food to be considered halaal it must comply with the religious ritual and observance of Sharia law.

9.3. SWOT Analysis

The following table summarises red meat in terms of its strengths, weaknesses, opportunities and threats within the SDM.

Table 48: Red Meat SWOT Analysis

Strengths	Weaknesses
o SA traditions and customs o Food safety o Quality assurance o Good animal disease status o Highly consumed product o Good livestock industry infrastructure o Established meat producing and processing industry in SA	o Small scale livestock farmers do not have sufficient access to credit, transport and storage infrastructure as well as markets o High transport costs and processing costs o Lack of funds for small scale and emerging black farmers o Farm and livestock management o Limited access to formal markets o Poor marketing infrastructure o Inadequate access to market information and extension services o Insufficient herd size
Opportunities	**Threats**
o Find more animal friendly ways of farming o Emerging commercial farmers o Organic production o Production of premium cuts and prepared meats o Skills development programmes o Spin off opportunities for further agro-processing facilities, such as bone for fertilizer, hides, etc. o Availability of emerging farmers o Export opportunities	o Affordability o Fluctuating prices o Disease o Change in consumer preference o Increasing competition o Natural resources: limited land, pollution, drought, availability of water o Animal health o Increase in food prices o Tariffs (Import)

There are a variety of strengths and opportunities for red meat within the SDM which if taken advantage of could prove beneficial to the success of the AP. However, as much as there are strengths and opportunities to play on there are still weaknesses and threats which could prove detrimental to the AP success which not only effect the potential economic gain of producing red meat but also the loss of opportunity for small scale and emerging black farmers

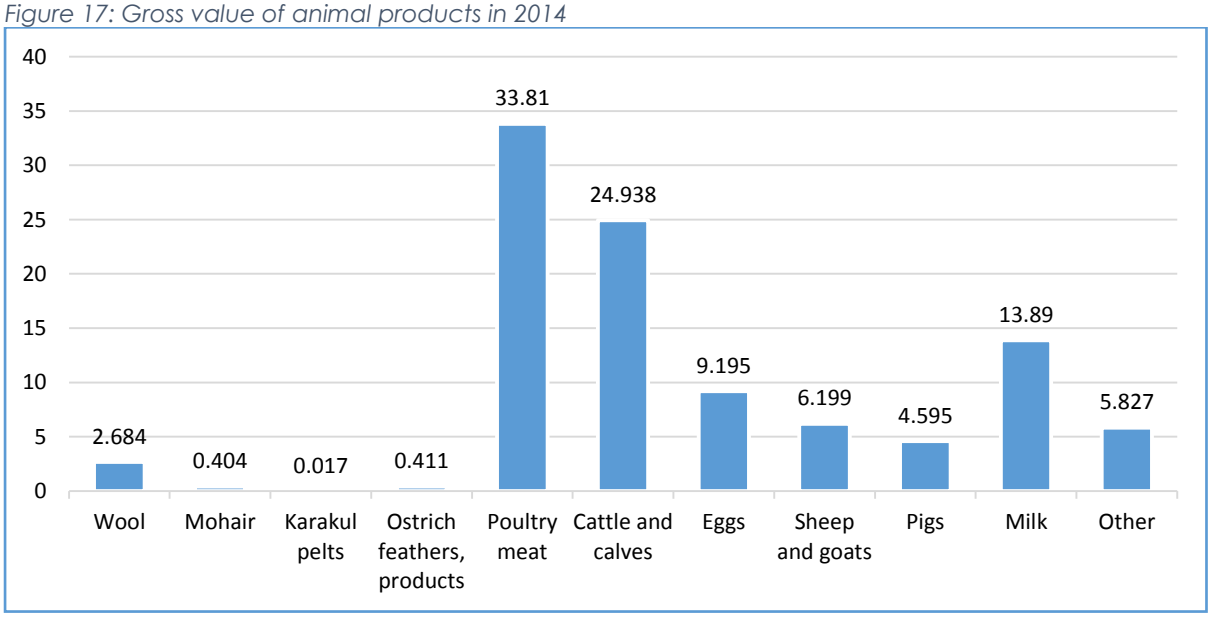
Section 10: Commodity Analysis: Poultry (Broilers)

10.1. Introduction

The poultry industry prides itself on being an industry that feeds the nation, as more poultry products are consumed every annum than all other animal products combined (South African Poultry Association, 2014). The South African poultry industry is an important contributor to the economy of SA as well as to food security.

Figure 17 below indicates that in 2014, the gross value obtained from primary agricultural production from poultry meat was R33.810 billion. The total gross value of animal products during 2014 was R101.970 billion, which contributed towards the total gross value of agricultural products which was approximately R218.045 billion. Animal products contributed a total of 46.8% towards the gross value of total agricultural products.

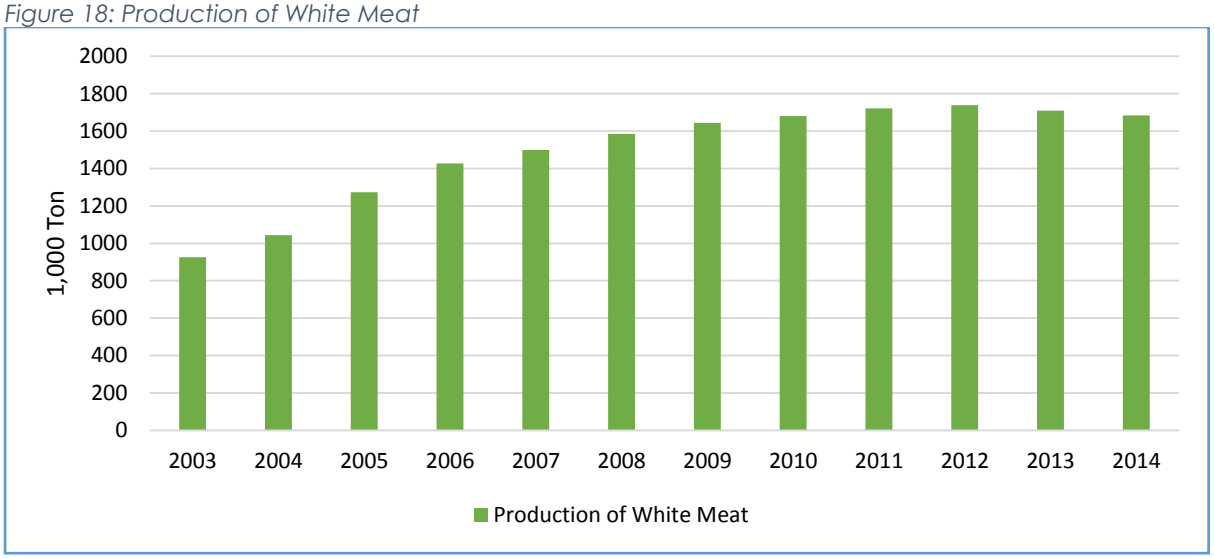
Figure 17: Gross value of animal products in 2014



(South African Poultry Association, 2014)

The production of poultry meat in SA is represented in *figure 23*. The below figure indicates that there has been an increase in the production of white meat between 2003 and 2014. In 2003, 925 000 tons' white meat was produced and increased by an average annual rate of 6% to almost 1 700 000 tons in 2014. (South African Poultry Association, 2014).

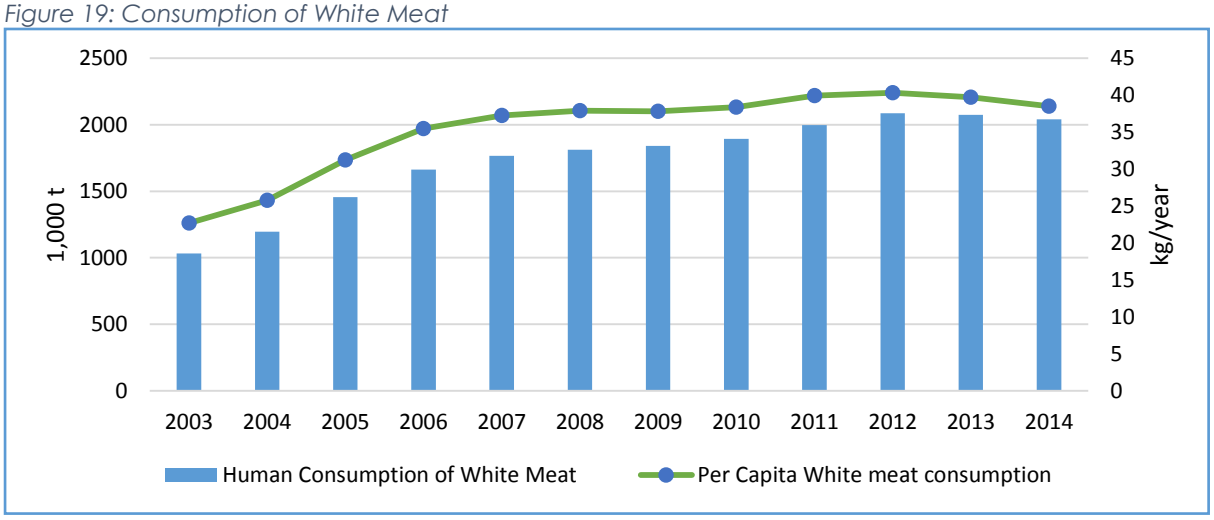
Figure 18: Production of White Meat



(Department of Agriculture, Forestry and Fisheries, 2015)

The consumption of white meat is indicated in the *figure 19* below.

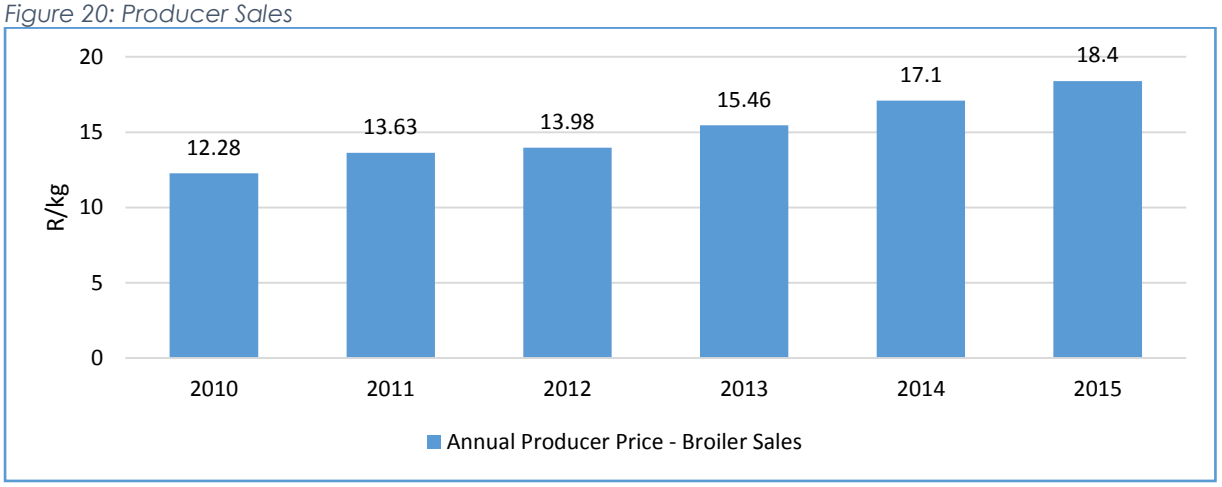
Figure 19: Consumption of White Meat



(Department of Agriculture, Forestry and Fisheries, 2015)

The consumption of chicken meat is great source of protein as well as providing a leaner less fatty meat for individuals looking to eat healthy or lose weight. From *figures 19* it can be seen that the consumption of white meat has increased from approximately 1 000 000 tons in 2003 to 2 000 000 tons in 2014 with an increase in per capital consumption from 22 kg per year in 2003 to 39 kg per year in 2014. The following figure indicates the yearly average producer price since 2010.

Figure 20: Producer Sales



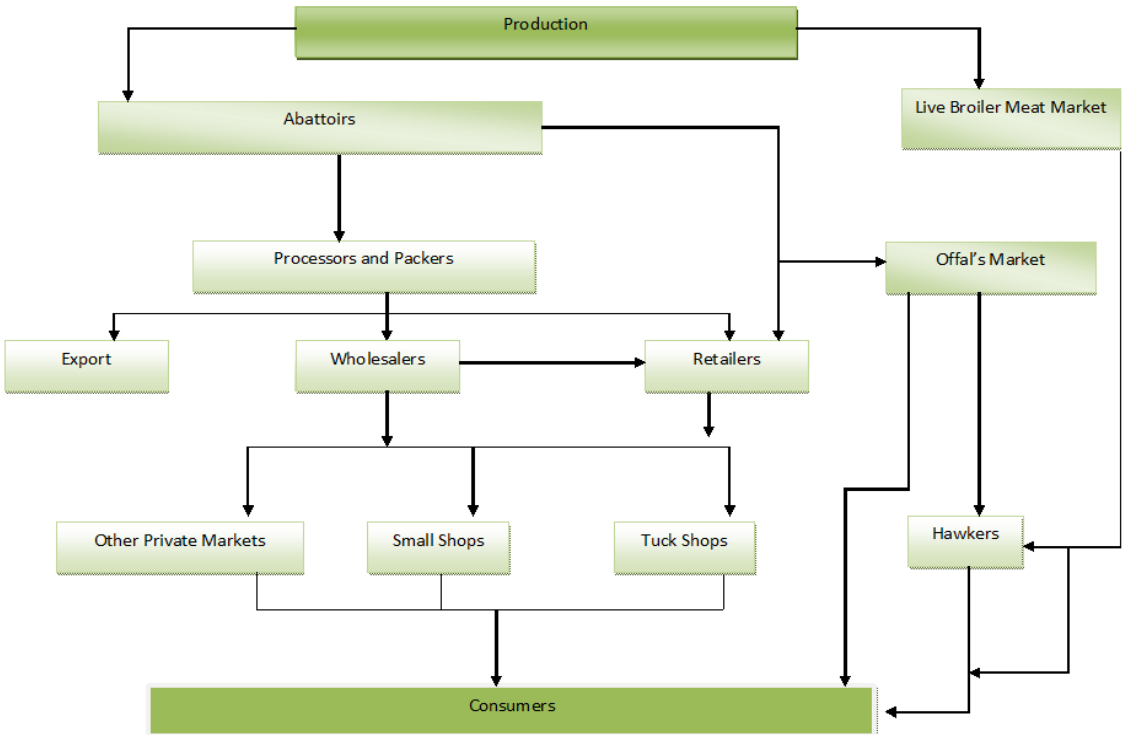
(South African Poultry Association, 2014)

In *figure 20* the annual producer price for broiler sales has shown a steady increased since 2010 by an average rate of 8% per annum, from R12.28 per kg to R18.40 per kg. The increase in chicken meat prices could be attributed to higher import duties and tariffs, duties such as anti-dumping duties.

10.2. Value Chain Assessment (Broilers)

The following section will diagrammatically represent and provide an analysis of the broiler value chain. The opportunity analysis will identify potential opportunities within the value chain. The development of sustainable supply and value chains in the vegetable sector from production through processing to markets is important. The value chain below is for broilers. The value chain will visually represent the process from the production of the commodity through to the consumer. The following value chain is for the broiler industry.

Figure 21: Broiler Value Chain



The SDM is well suited for broiler production and there are several factors which impact on their productivity and growth in the sector. These factors include,: growth in the SA economy and rising consumer demand; international trade and trade agreements; the global recession and rise in food prices; the land reform programme; reliance on imports; water availability; changing consumer patterns and demands (e.g. organic food stuffs); rising costs of agricultural inputs ; technological changes and mechanisms; quality standards; farm safety and security; broad based black economic empowerment; skills demand and supply; HIV/AIDS; and changing climate.

Broiler is a highly important commodity in SA. Favourable climate and natural resources are suited for broilers production in the region. Most of the production of broilers in Gauteng is geared toward the local market in Gauteng, given that is SA's largest market.

Factors influencing production include: expansion of the fast-food industry; higher average income of the population; the rapid rate of urbanization; and the influx of international processing companies.

10.2.1. Upstream Activities

As broiler 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 broilers are vaccinations, feed, equipment, point of lay hens, etc. The table below tabulates the various types of inputs that broiler and laying farm will require for its day-to-day operations.

Table 49: Main Input Suppliers to the Broiler Industry

Name of Company	Type	Service
Dicla Farm & Seed	Agricultural equipment supplier	Animal nutrition and Equipment
AFGRI Feeds	Agricultural feed supplier	Animal nutrition
Alfa Chicks	Day old chick supplier	Day old chicks
Meadow feeds	Agricultural feed supplier	Animal nutrition
South African Veterinary Association	Veterinary Association	Animal nutrition and health

Input suppliers within the SDM include:

- Poultry equipment suppliers: Cumberland Poultry Equipment, Poltek, and Big Dutchmen
- Egg Producers: Ross Poultry Breeders Hatchery (PTY) Ltd.

The above input suppliers are accessible within the SDM and in conjunction with the fairly good transport infrastructure suppliers should be able to deliver the required inputs without much issues. Additionally, the main input suppliers should be able to supply all the inputs required for the production of broiler meat.

10.2.2. Downstream Activities

Handling, slaughtering, washing, portioning, grading, packing, packaging, labelling and transporting are all important practices aimed at preserving the quality of the produce, and presenting it to the best advantage. Prices achieved, and thus differences in income obtained, 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.

Most 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 better prices prevail there. Nationally linked information networks can supply daily prices to producers. These national markets, in all the big centres, must remain the major outlets for many of the large broiler meat producers, because of the scale of their operations. 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 for broilers are as follows:

Table 50: Broiler Marketing Channels

Marketing channel
Direct sales (farmer-to-consumer)
Street hawkers and visiting hawkers (bakkie traders)
Free markets, wet markets and live animal markets
Small independent shops or supermarkets
Large retail chains
Butchers
Restaurants and hospitality businesses
Public and private institutions that provide meals to their residents, inmates, learners or patients, and well-funded food schemes
Poultry abattoirs and processors

The green highlighted outlets in the table above indicate outlets of high priority due to the following reasons.

Table 51: High Priority Marketing Channels

Marketing channel	Description	Priority & gaps/opportunities
Large retail chains	A farmer may supply directly to large national or global retail groups, usually by contract. Some large retailer groups buy centrally, while others such as Spar allow local stores to buy independently which makes it easier for small local farmers to sell to this lucrative and growing marketing channel. Will not buy live chickens from farmers, however, the farmer may arrange for custom processing by a chicken abattoir, then sell this value added product to retailers.	High priority because retailers are the most important channel to reach poultry consumers of all income groups.
Restaurants and hospitality businesses	Sell to restaurants, pubs, deli's, fast food outlets, shebeens, hotels, lodges and hospitality businesses who will prepare and serve chicken in a ready-to-eat form directly to the public.	Very high potential because of high demand and the fact that farmers organised into the AP-Park system will be able to secure such lucrative contracts.
Public and private institutions that provide meals to their residents, inmates, learners or patients, and well-funded food schemes	Sell to private or government institutions or businesses with a catering unit e.g. some schools, public university residences and dining halls, prisons, hospitals etc, to prepare and serve chicken in a ready-to-eat form to their learners, residents, inmates or patients. This also includes well-funded government or NGO food schemes with formal and strong food buying contracts. The sales arrangement is almost always by contract.	High priority for government managed institutions and food programs because sourcing from Black farmers at are organised as in the APs scheme is an important government priority, therefore it may be fairly easy to secure large contracts.
Poultry abattoirs and processors	Sell to poultry abattoirs or processors, often by contract. Abattoirs are a very important and major marketing channel for broilers. They slaughter the birds and sell the meat to butchers, retailers and sometimes operate their own butcheries or poultry meat processing plants.	High priority during the initial phase only because it is an easy channel to start with, but more profitable channels e.g. large retailers and fast food chains should be focussed upon later.

Marketing channel	Description	Priority & gaps/opportunities
	Poultry processors usually buy from poultry abattoirs or even have their own poultry farms and abattoirs, but some processors do buy directly from poultry farmers.	

Significant marketing considerations of livestock produced include:

- Size of outlet, and cost of servicing it;
- Transport availability and cost. Distances, which affects cost, as well as deterioration of the product. Condition of the roads;
- Packaging required, e.g. pre-packs, cartons, boxes, pockets and their relative costs in relation to prices attained;
- Market or consumer preferences;
- Product quality or specifications;
- Contact person or agents;
- Seasonal price trends;
- Market commission and agents' fees;
- Possible delays in payment for consignments; and
- Various other possible requirements for the specified outlet.

The development of sustainable supply and value chains in the broiler sector from production through processing to markets, where there are unequal power relationships between large retailers/wholesalers and agro processors, and primary red meat producers is a constraint. Producers are vulnerable to demand volatility and price fluctuations and are "price takers" because of the buyers' market power. The major poultry players in GP are indicated below.

Table 52: Main Competitors in the Broiler Industry

Company	Type
Rainbow Chicken Ltd	Rainbow Chicken is considered an integrated broiler producer. It has its own feed mill called Epos Feeds, which it uses to feed its chickens. Rainbow Chicken also breeds chicks, processes, distributes and markets value added chickens. Rainbow Chicken farms are located throughout SA, however, the main production areas are Rustenburg in the North West Province, Pietermaritzburg and Durban in KwaZulu-Natal, and Cape Town in the Western Cape. The four main processing farms slaughter approximately 4.7 million chickens per week (Rainbow Chicken, 2015)
Country Bird Holdings	Supreme Chicken, Ross Africa, Master Farmer and Nuti Feed are subsidiaries of Country Bird Holdings. Supreme Chicken is located in the Free State and the North West Province. The holding also producers feed and chicks. Approximately 1.5 million broiler chickens are slaughtered per week (Country Bird Holding, 2015).
Pioneer Foods Poultry Division	The agribusiness segment of Pioneer Foods is divided into three poultry related segments, namely: Tydstroom Poultry, Nova Feeds, and Nulaid Eggs. Tydstroom is located in Durbanville in the Western Cape. Approximately 1 million chickens are slaughtered per week (Pioneer Foods, 2015).
Day Break Farms (AFGRI Poultry)	The leading agricultural solutions and industrial foods company, AFGRI, sold its poultry farms to AFPO Consortium Proprietary Limited in 2015. The poultry farms were named Day Break thereafter. The Daybreak Farms is situated in Sundra in Mpumalanga. Day Break has a subsidiary company called MidWay Chicks that producers day-old chicks. Feed is supplied by AFGRI. Day break slaughters approximately 650 000 broilers per week (Day Break Farms, 2015).
Astral Food	Astra Foods has a sub-division called Astral Poultry. Astral poultry is the second largest producer of broiler chickens in SA. It also producers feed and feed premixes, which it uses and sells to the market. Astral has operations in Swaziland,

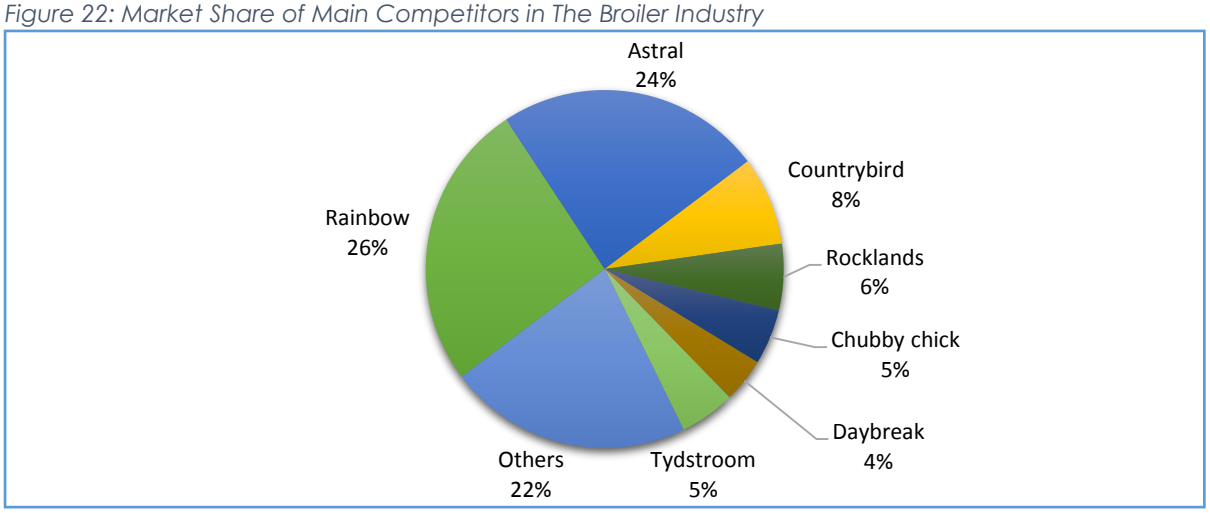
Company	Type
	Mozambique, Zambia, and SA. The three major production areas are Camperdown in KwaZulu-Natal, Boschkop in Pretoria, and Manzini in Swaziland. Astral slaughters approximately 4.125 million broiler chickens per week.
Sovereign Foods	Sovereign Foods was established in 1948. Its broiler farms are located in the Rocklands Valley in the Eastern Cape. Sovereign Foods slaughters approximately 1 million broilers per week.

Competitors within the SDM include:

- Poultry producers and abattoirs: OBC Chicken and Meat, Henliet Abattoir, Kiki Agri, All Sorts Poultry, Rugare Poultry, Kancane Farm, Qamar' Chicken T/a Qamar's Farm, Randvaal Chicken, Gauchix (Highpoint farm) abattoir, A.P.G Poultry, Klipkop abattoir, Rafiq's poultry, HN Pluimvee, Andies, and Bolniks.

It is important to note that the broiler meat industry in SA is dominated by Rainbow Limited and Astral Foods, which together produce 46% of the total broiler meat in SA. Figure 22 illustrates the relative market shares of the major producers.

Figure 22: Market Share of Main Competitors in The Broiler Industry



Rainbow produces approximately 235 million broilers per annum and Astral Food produces about 220 million broilers per annum. Country Bird is the third largest company producing 68 million broilers per year. The other 4 medium-sized producers (Tydstroom, Daybreak, Fouries Poultry Farms and Rocklands) produce more than 50 million broilers per year and collectively they supply 22% of the market. These major producers supply about 75% of total South African broiler meat with the remaining 25% is supplied by hundreds smallholder producers.

10.2.3. Markets

The industry's ability to compete within the global context and the implications for its long term sustainability has been questioned in light of growing imports to meet domestic demand. From 2001 to 2012, chicken consumption in SA increased by 74%, almost 800 thousand tons. Of the additional meat consumed over this period, 65% was produced domestically, with imports accounting for the balance. Since 2010 however, almost 200 thousand tons of additional chicken has been consumed, yet only 35% was produced domestically, with imports accounting for 65%.

In light of these numbers, questions have been raised regarding the South African producers' competitiveness in the global context. Based on technical efficiency indicators, South African producers

compete well against international counterparts. When the cost of production is considered however, the picture changes, largely as a result of feed cost differentials. South African feed costs on a per ton basis is significantly higher than the US and Brazil. Feed accounts for up to 70% of variable production costs per cycle, hence differences in feed costs are considered the main driver behind differences in production costs across these regions.

In order to ensure its competitiveness, a number of trade measures are applied within the industry. In 2013, an application for an increase in the general duty applied on imported products was approved, yet the composition as well as the origin of imports diminished the impact of these duties on domestic prices, as products originating from the European Union (EU) remained duty free under the Trade, Development and Cooperation agreement (TDCA). Furthermore, antidumping duties have been applied to bone-in portions originating from the United States (US) for more than a decade and in 2014, the industry applied successfully for additional anti-dumping duties on bone-in portions originating from the United Kingdom, the Netherlands and Germany. Beyond the level of tariffs however, the underlying reasons behind the lack of competiveness will need to be addressed in order to ensure the long run sustainability of the sector (Bureau for Food and Agricultural Policy, 2015 - 2024)

Broiler production, consumption, exports and imports from 2004 to 2013 are summarised in table 53 below.

Table 53: Broiler production, consumption, exports and imports (2004 – 2013)

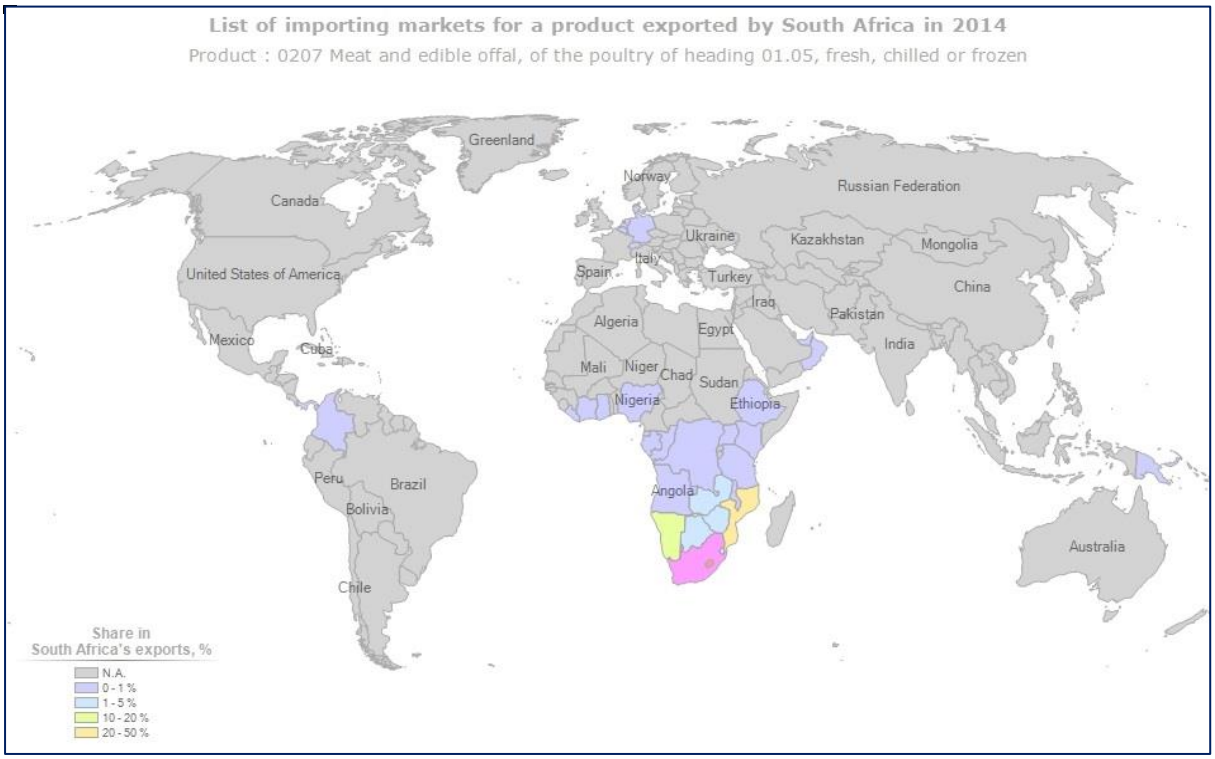
Years	Production	Broilers slaughtered	Consumption	Exports	Imports
	'000 Tons		Million Birds	(Million Kilograms)	
2004	928	701 605	1 082	4	182
2005	1 019	769 379	1 204	2	214
2006	1 143	831 441	1 383	2	294
2007	1 200	864 962	1 470	2	276
2008	1 276	924 072	1 508	3	220
2009	1 358	931 443	1 558	19	231
2010	1 430	968 796	1 645	17	265
2011	1 478	978 873	1 753	10	349
2012	1 499	950 366	1 836	7	403
2013	1 529	947 421	1 899	15	391

(Department of Agriculture, Forestry and Fisheries, 2012)

The above table shows that SA imports broiler meat to satisfy the domestic demand, while also exporting smaller quantities. It further shows that the imported quantities exceeded the demand due to the dumping of certain parts of broiler meat from Brazil and United States of America. SA imposed anti-dumping duties to USA and increased the general tariff on imported broiler meat to minimize imports from Brazil as this dumping was posing a threat to local producers.

As indicated in table 53 above, SA also exports a small amount of broiler meat to neighbouring countries. Mozambique and Zimbabwe has been competing for dominance throughout the decade. Further evidence of exports is provided in map 12.

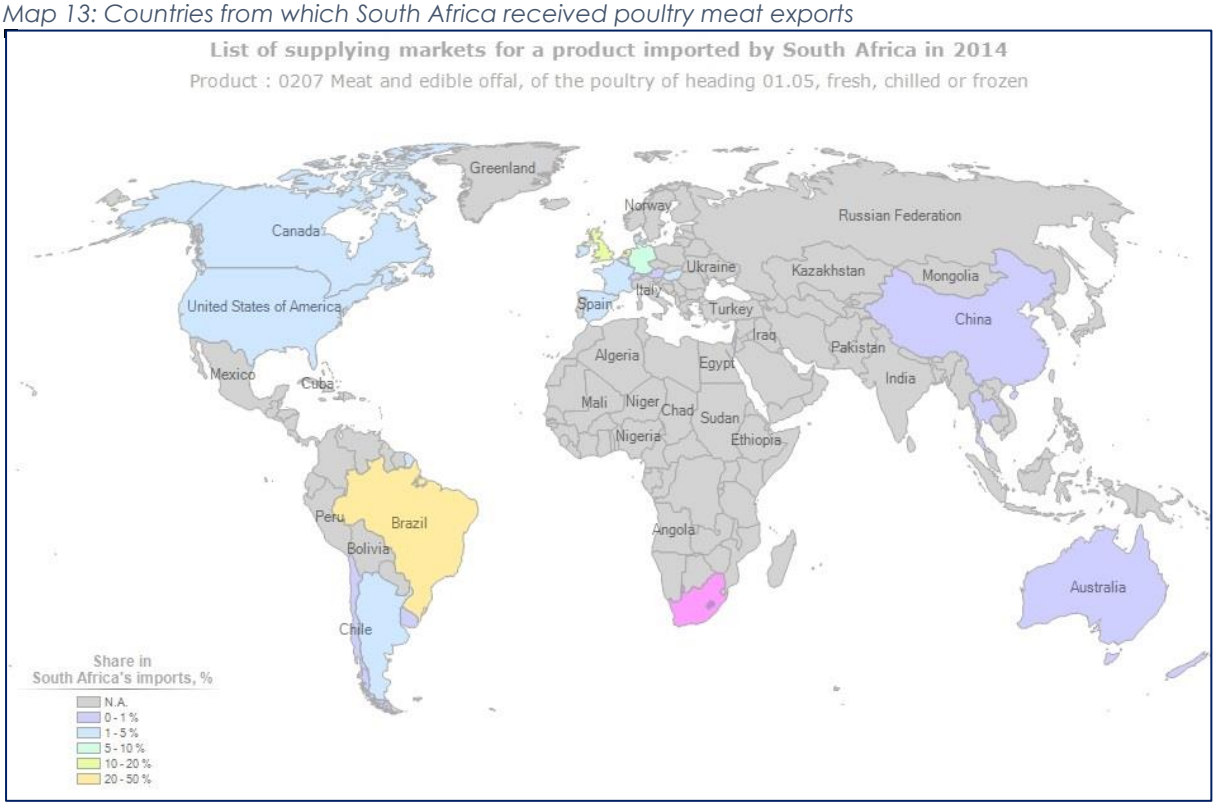
Map 12: Export destinations for South Africa's poultry meat and other by-products



(ITC, 2015)

Map 12 illustrates that Mozambique and Namibia are major export destinations for South African poultry meat. Between 20% and 50% of exports landed in Mozambique, while between 10% and 20% of exports land in Namibia. Other export destinations include Botswana, Zambia and Zimbabwe, where between 1% and 5% of poultry products are exported respectively.SA imported approximately 400 million kilograms of broiler meat in 2013 at an estimated value of R 4 billion. The imports quantity and value showed significant increases of 163% and 539% respectively compared to 2003. This drastic increase might have been caused by the alleged dumping of certain pieces of broiler meat from Brazil and Unites States. Map 13 indicates the countries from which SA received imports.

Map 13: Countries from which South Africa received poultry meat exports



(ITC, 2015)

Map 13 clearly indicates that Brazil is responsible for most of the chicken products imported by SA with between 20% and 50% of the import share. The United Kingdom and other European countries are also responsible for a major portion of the imports in SA, while the USA, Canada and Argentina import shares are between 1% and 5% respectively. Interestingly, SA does not import chicken meat products from other African countries.

Locally, the broiler meat industry in SA is dominated by two large producers, namely Rainbow Limited and Astral Foods. Together these two companies produce 46% of the total broiler meat production. Rainbow produces approximately 235 million broilers per annum and Astral Food produces about 220 million broilers per annum. Country Bird is the third largest producing 68 million broilers per year. The other 4 medium-sized producers (Tydstroom, Daybreak, Fouries Poultry Farms and Rocklands) produce more than 50 million broilers per year and collectively they supply 22% of the market. These top 7 companies supply about 75% of total South African broiler meat and 25% is supplied by hundreds smallholder producers. The domestic market consists of approximately 265 formal abattoirs. These abattoirs sell mainly to 5 main retailers (Pick n Pay, Shoprite-Checkers, Spar, Woolworths and Massmart) and SMME's in the retail sector. These retailers buy the largest share of domestic production.

Growing the local poultry industry is likely to have a two-fold impact on food security. That is, additional food is produced through increased production, and incomes are created through employment creation, increasing the purchasing power of the consumer.

Table 54 provides an estimated figure on the contribution to food security through job creation.

Table 54: Estimated contribution to food security

Broiler	
Multiplier	0.0365
Avg. Annual Income (Rands)	31,680.00
Approximate Income generation per ton (Rands)	1,156.32
Portion of income spent on food (65%)	751.61

Given a total employment multiplier of 0.0365 for every ton of broilers produced, it is estimated that income generated is approximately R1,156.32, based on a daily income of R120. Many low income households spend between 60% and 70% if their income on food and, as such, it is estimated that for every additional ton of broiler produced R751.61 would be spent on food for every job created.

10.2.4. Demand and Needs Analysis

The most important marketing channels and channel related opportunities include custom processing arrangements with poultry abattoirs combined with contract farming directly for government institutions, hospitality industry and especially large retailers.

Gaps in the market for processed chicken products are mainly limited to simple value adding techniques, including improved slaughtering, portioning, branding (huge scope for further development), packaging and freezing, and to some degree market development for chicken offal products. Extensive processing is not recommended during the establishment phase due to global competition and high capital expenditure.

It is possible to provide an estimate for demand based on historical consumption figures and populations. Table 55 provides a summary on estimated demand on a national and provincial level.

Table 55: Estimated demand for white meat

Area of demand	Commodity	Estimated demand for vegetable (tons)
South Africa	White meat	2 115 825
Gauteng	White meat	508 089
Sedibeng	White meat	36 127
West Rand	White meat	33 289
Ekurhuleni	White meat	133 339
City of Johannesburg	White meat	185 159
City of Tshwane	White meat	120 174

At an average per capita consumption of white meat at 38.5kg, there is a clear demand for chicken in SA. Demand for chicken, or white meat, on a national level, is approximately 2.1 million tons. In Gauteng, the demand for chicken is approximately a quarter of the total demand – a clear indicator that producers within Gauteng have a market that can be accessed.

10.2.5. Job Creation and Opportunities

Amongst the objectives of the APs Model is to create opportunities for employment within the agricultural sector. Employment, however, may not necessarily be a result of expanding primary production, but also the value adding activities that may occur through the value chain.

Labour input is a key element of the production process and one of the main production factors in any economy. Table 56 below displays the Sectoral labour multipliers applicable to the broiler production industry, i.e. the number of the job opportunities created at different levels for every additional 1 ton that that is brought into production.

Table 56: Broiler potential employment

Sector	Direct	Indirect	Direct + Indirect	Induced	Total
Broiler	0.0222	0.0143	0.0365	*	*

The total multiplier is disaggregated into direct, indirect and induced components.

Direct Multipliers – 0.0222: The direct multiplier measures the direct impact emanating from a particular sector on itself. For instance, the direct multiplier will measure how an increase in the production of a particular sector will affect employment within the same sector. These direct impacts are very closely related to the sector and, as such, are probably the most important impacts from a strategic planning point of view. The multiplier of 0.0222 suggests that an additional 45 tons of broilers would need to be produced to create an additional one permanent job.

Indirect Multipliers – 0.0143: Indirect multipliers reflect the impacts that a particular sector will have on all other industries that supply inputs (materials) for the operations taking place in the relevant sector. These 'backward linkages' are important as they measure the broader impact that changes in the direct sector will have on the economy. Frequently, these indirect impacts are significant, and may even exceed the direct impacts themselves. The indirect multiplier (or linkages multiplier) of 0.0143 suggests that an additional 70 tons of broilers would need to be produced to create an additional one permanent job.

Induced Multipliers: Economic impacts will result from the paying out of salaries and wages to people who are employed in a particular sector, as well as the salaries and wages paid by businesses operating in the sectors indirectly linked to this sector due to the supply of inputs. These additional salaries and wages lead to an increased demand for various consumable goods that need to be supplied by various economic sectors throughout the broader economy. Clearly, these induced impacts can be considerable and are measured by using induced multipliers.

The broiler industry is typically not very labour intensive given the availability of labour saving technologies, but it is the size of the industry that contributes to much labour absorption.

The following table indicates a variety of opportunities that could potentially be created by developing the commodity value chain of poultry. As such the benefits will be presented in the table 57 below:

Table 57: Socio-Economic Benefits

Socio-Economic Benefit	Description
Job Creation	The poultry enterprise in the AP will create sustainable employment opportunities from the inception of the project, construction and through to the operation of the AP. Jobs created during the construction phase of the project will not be sustainable due to the limited duration of the construction period. The poultry value-chain process will improve the business profitability and therefore operations, similarly the need to increase efficiency and the need capacity additional human resources to operate machines, transportation and food handling. The accessibility of the AP and the poultry products could increase demand for poultry products, thus increasing the number people required for logistics, quality assurance, international relations officer for export and imports, trade and merchandising.
Developing skills	Environmental, consumer, and animal health are the most important statutory requirements in food production, management, and standardization. To continually produce healthy, sufficient food products and become profitable one must comply with the rules of the game, therefore developing the skills of the workers, management, and stakeholders to adhere to the standards of the industry and of the AP as contemplated in the service charter will go a long way. Therefore, historically disadvantaged South Africans, women, disabled and the youth will have to be taught and trained in necessary skills (bookkeeping, call center management, Safety and Health management, Hygiene), Managers will have to be trained in financial, marketing, production and strategic agri-business management courses. Technicians will have to be trained in food quality and safety, equipment calibration techniques and butchers and meat handlers will need to know how to classify carcass, label, washing and cutting.

Spin-off. opportunities	The poultry enterprise has many potential spin-offs extending beyond the borders of the AP. This includes creating opportunities for packaging material manufacturers; transport industry for efficient transport systems, arts and crafts makers will have access to cheap inputs leather material. The existence of the AP itself contributes the most to the communities around the areas, the transfer of communication and technologies, roads, water and sanitation infrastructure and related services.
Support to emerging farmers	The AP will need to ensure that sufficient quantities and quality meat is supplied at all times. Therefore, will require the department to improve and expand on their extension services to assist local farmers with information, priority needs, and guidance. This relates to issuing of climate change and variability cold temperature, drought signals, water management guidelines and financial support to an extent.

Handling, slaughtering, washing, portioning, grading, packing, packaging, labelling and transporting are all important practices aimed at preserving the quality of the produce, and presenting it to the best advantage. Prices achieved, and thus differences in income obtained, 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.

The SDM AP could potentially produce the following products from broilers, all of which can be made available fresh or frozen. Table 58 below highlights a few of the products that can be developed through agro-processing.

Table 58: Agro-processing opportunities for broilers

Primary Product	Processing Opportunity	Final Product
Broiler	o Slaughtering, portioning, filleting, de boning, mincing, brining, flavouring, packaging (incl. branding), chilling and freezing. o Freezing and packaging of slaughtered meat cuts o Canning/bottling and pickling o Salting and possibly smoking of chicken meat. o Grinding fully/partially cooked and/or cured chicken meat, blend with seasoning and possibly binders, and force into a casing (or cook/cure afterwards). o Mincing, mixing with seasoning and binders, shaping, possibly crumbling, packaging (incl. labelling) and freezing. o Offal cleaning, packaging (incl. branding), chilling, freezing and marketing. o Rendering	o Whole bird carcass and retail chicken cuts incl. breast fillets, drumbeat sticks, leg quarters, minced chicken, mixed portions, chicken strips, schnitzel, single packs, thighs, wings, drummettes, forequarters etc. o Frozen whole bird carcase or cut packs o Canned/bottled and pickled chicken o Cured and smoked chicken incl. chicken ham. o Cooked and possibly smoked chicken sausages including Bologna (chicken polony) and chicken frankfurter. o Chicken burger patties, meatballs, nuggets and sticks/fingers (frozen) o Various offal products (some of which having potential to be marketed as high value products) incl. chicken feet, fat, skin, gizzards, necks, hearts, liver, bones, tails, intestines etc.

		○ Rendering products originating from slaughter waste

The above table displays all the main products that can be produced by the AP poultry abattoir. Chicken cuts and offal can be packaged according to weights similar to that found within the current market. The main chicken cuts can be packaged according to weight and specifications (for example, skin removed vs. skin intact). All forms of offal can be packaged in 500 gram tubs. Chicken bones can be sold in 1 kilogram packages, bones are typically used to make chicken broth/stock

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.

10.2.6. New Entrants

This subsection indicates the potential emerging farmers that can benefit from the development red meat as a commodity. The names of these farmers are presented in the Appendix A. The small scale and emerging farmers indicated in the table well represented throughout the whole of the SDM. The list clearly indicates is the viability of using red meat as commodity due to the number of emerging farmers that already farm in the area with cattle, sheep and pigs. It is further anticipated that as the value chain is further developed, more will benefit from the AP development.

10.2.7. Regulatory Requirements

There are numerous legislation documents governing the production of red meat. These range from regulations as to the production inputs (National Water Act), to those governing production (Meat Safety Act) and to production standards and consumption. The most pertinent of the acts are contained in

Table 59: Regulatory Requirements

Regulation	Description
Conservation of Agricultural Resources Act, 1983 (Act No. 43 Of 1983)	This Act provides for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water sources and vegetation, and the combat of weeds and invader plants (Department of agriculture, Forestry and Fisheries, 1963). **Implication for AP:** The AP will be required to implement policies that will maintain and monitor best agricultural practices to ensure the conservation of soil and vegetation, and also combat invader plant species.
Animal Diseases Act, 1984 (Act No. 35 Of 1984)	The Act provides for control measures for the prevention of diseases and parasites and for schemes to promote animal health (Department of Agriculture, Forestry and Fisheries, 1983). **Implication for AP:** The AP needs to be aware of various animal diseases and the relative prevention measures necessary. The AP will be required to implement an animal health and monitoring programme to ensure the health of the broilers.
Abattoir Hygiene Act, 1992 (Act No. 121 Of 1992)	This Act provides for the establishment of and control over an agricultural development fund for the handling of money received for development (Unknown, 1993). **Implication for AP:** Funding is a fundamental cornerstone to the development of the AP and its stakeholder. The AP management should play an intermediary role in accessing and use of such funding.

Regulation	Description
Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 Of 1947)	The act provides for the appointment of a Registrar of Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies; for the registration of fertilizers, farm feeds, agricultural remedies, stock remedies, sterilizing plants and pest control operators; to regulate or prohibit the importation, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies and stock remedies; to provide for the designation of technical advisers and analysts; and to provide for matters incidental thereto (Department of Agriculture, Forestry and Fisheries, 1947). **Implication for AP:** The AP, specifically through the farmer support units will need to have a programme in place that will monitor the acquisition, sale and disposal of various agricultural inputs. The programme will be necessary to ensure compliance with
Livestock Brands Act, 1962 (Act No. 87 Of 1962)	The Act regulates the registration of a brand in the name of an owner of livestock for the purpose of identifying the livestock (Unknown, 1993). **Implication for AP:** It will be the responsibility of the AP management to register a brand in the name of the AP in order to identify livestock within the programme.
Agricultural Credit Act, 1966 (Act No. 28 Of 1966)	The Act provides for a system of assistance to persons carrying on or undertaking to carry on farming operations, and control in respect of assistance rendered (Unknown, 1993). **Implication for AP:** The SDM AP management should provide a service to its producers in the way of easing access to credit. The AP should, on behalf of the producers, assist in accessing credit for agricultural production purposes. Access to credit will allow producers access to the relevant inputs for agricultural production purposes and, as such, produce necessary products for the AH (marketing point).
Marketing Act, 1968 (Act No. 59 Of 1968)	The Act has authorised an establishment and enforcement of regulatory measures to intervene in the marketing of agricultural products, including the introduction of levies on agricultural products (Department of Agriculture, Forestry and Fisheries, 1968). **Implication for AP:** The AP should establish a programmes that will manage the marketing of its own products in order to meet the requirements of the Act.
Livestock Improvement Act, 1977 (Act No. 25 Of 1977)	The Act regulates the collection and sale of semen and ova and the artificial insemination and inoculation of certain animals, establishment of a system for the evaluation and certification of the performance of certain animals, quality control with regard to the importation and exportation of certain animals, semen, ova and eggs, incorporation of livestock breeders' societies and the maintenance of the legal personality of livestock breeders' societies, and granting of certain exclusive powers relating to the registration of pedigrees of certain livestock to the South African Stud Book and Livestock Improvement Association (Unknown, 1993). **Implication for AP:** Improving livestock, in particular broilers, is integral in terms of production efficiency. It is thus recommended that the AP establishes committees and programmes that address issues of livestock improvement in order to maintain standards as set out by the Act.
Veterinary and Para-Veterinary Professions Act, 1982 (Act No. 19 Of 1982)	This Act provides for the establishment, powers and functions of the South African Veterinary Council, registration of persons practising veterinary and para-veterinary professions and control over the practising of veterinary and para-veterinary professions.

Regulation	Description
	Implication for AP: The APs animal health programme will be required to ensure veterinary services are provided and comply with the requirement as set out in
Perishable Products Export Control Act, 1983 (Act No. 9 Of 1983)	This Act provides for the control of 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. **Implication on AP:** In the event of export, it is imperative that the AP establishes and maintains control over the export products. It is the onus of the AP to establish a team that is responsible for food health and safety regulations.
Agricultural Pests Act, 1983 (Act No. 36 Of 1983)	The Act introduces measures for the prevention and combatting of agricultural pests. **Implication for AP:** Best agricultural practices will be necessary to maintain control over pests. APs management should develop programmes/schedules to ensure the control of pests.
Agricultural Product Standards Act, 1990 (Act No. 119 Of 1990)	This Act provides for 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. **Implication for AP:** Food and food products will go through various agro-processing activities before being a marketable product. To maintain quality assurance, it is recommended that the AP establishes a team that will be responsible for carrying out activities that will meet the requirements of the Act.
Agricultural Produce Agents Act, 1992 (Act No. 12 Of 1992)	This Act provides for the establishment of 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 (Department of Agriculture, Forestry and Fisheries, 1992). 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). **Implication for AP:** The AP should play and intermediary role in moving produce from farm to market. As such, it is important that marketing activities are managed and monitored according to the standards set out by the Act.
South African Abattoir Corporation Act, 1992 (Act No. 120 Of 1992)	This Act provides for the privatisation of the South African Abattoir Corporation. At the incorporation of the Corporation as a company the Abattoir Industry Act, 1976 (Act No. 54 of 1976) will be repealed. **Implication for AP:** The chicken abattoir is likely to be privatised through the farmer ownership model.
Societies for The Prevention of Cruelty to Animals Act, 1993 (Act No. 169 Of 1993)	The Act provides for control over societies for the Prevention of Cruelty to Animals. **Implication for AP:** It is the onus of the APs management to ensure that the animals are treated fairly through best agricultural management practices.
Agricultural Development Fund Act, 1993	This Act provides for the establishment of and control over an agricultural development fund for the handling of money received for development.

Regulation	Description
(Act No. 175 Of 1993)	**Implication for AP:** Funding is a fundamental cornerstone to the development of the AP and its stakeholder. The AP management should play an intermediary role in accessing and use of such funding.
Occupational Health and Safety Act, 1993 (Act No.85 of 1993)	The act aims to provide for the health and safety of persons at work and the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety (Department of Labour, 1993). **Implication for AP:** The AP must ensure that a safe working environment is established for all workers and must adhere to all the duties as listed in the occupational health and safety act.
Basic Conditions of Employment Act, 1983 (Act No. 3 of 1983)	The act encompasses those regulations associated with fair labour practices (Depart of Labour, 1983). **Implication for AP:** The AP must ensure that fair labour practices are followed to ensure that the basic conditions of employment are met, such as leave, working time, termination of employment etc.
Agricultural Products Standards Act, 1990 (Act No. 119 of 1990)	The act controls and promotes specific product standards from mainly a quality point of view for local as well as export purposes. A list of products for which standards have been set through regulations is promulgated under the act by the minister of agriculture (Department of Agriculture, Forestry and Fisheries, 1990). **Implication for AP:** Food and its associated products will go through various agro-processing activities before being a marketable product. To maintain quality assurance, it is recommended that the AP establishes a team that will be responsible for carrying out activities that will meet the requirements of the Act
Consumer Protection Act (Act No68 of 2008)	To promote a fair, accessible and sustainable marketplace for consumer products and services and for that purpose establish national standards relating to consumer protection (National Consumer Tribunal, 2009). **Implication for AP:** The act indicates that the AP has a responsibility to provide products which promote a fair, accessible and sustainable marketplace for the consumer
Fencing Act, 1963 (Act No. 31 Of 1963)	The Act regulates matters with respect to Boundary fences of farms and provides for the obligatory contribution to the erection and maintenance of boundary fences (Unknown, 1963). **Implication for AP:** The AP must comply with requirements as set out in the act in order to ensure that fences meet required standards and are kept in good repair.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 Of 1983)	This Act provides for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water sources and vegetation, and the combat of weeds and invader plants (Department of agriculture, Forestry and Fisheries, 1963). **Implication for AP:** The AP will be required to implement policies that will maintain and monitor best agricultural practices to ensure the conservation of soil and vegetation, and also combat invader plant species.
South African Abattoir Corporation Act, 1992 (Act No. 120 Of 1992)	This Act provides for the privatisation of the South African Abattoir Corporation. At the incorporation of the Corporation as a company the Abattoir Industry Act, 1976 (Act No. 54 of 1976) will be repealed (Unknown, 1993).

Regulation	Description
	Implication for AP: The chicken abattoir is likely to be privatised through the farmer ownership model.
Control of Markets in Rural Areas Ordinance, 1965 (Ord. No. 38 Of 1965)	The Act encompasses the regional Support Service and agricultural economics components. **Implication for AP:** The AP will be required to provide assistance in managing the markets for produce within the APs system.
Subdivision of Agricultural Land Act, 1970 (Act No. 70 Of 1970)	The Act regulates the subdivision of agricultural land and its use for purposes other than agriculture. **Implication for AP:** The APs management will be required to allocate land in a productive manner and ensure strict control over allocated land. Furthermore, the land is to be allocated for agricultural purposes that will contribute to the development of the AP.
Co-Operatives Act, 1981 (Act No. 91 Of 1981)	The Act regulates the formation, registration, management and functioning of various types of cooperatives and winding-up and dissolution of co-operatives. **Implication for AP:** Cooperatives have already been established within the SDM, but it is likely that new ones develop and participate in the APs system. APs management should be responsible for the establishment and registration of auxiliary cooperatives that will participate in the Programme.

10.2.8. Technology

Technology plays a vital role in the development of the agricultural industry and today farmers use technology to assist in producing food for a growing world. High tech advances have been assist in making farming life easier and more profitable. Smaller farmers can hold their own by moulding the technology to fit their management techniques and needs.

The table below indicates the various technologies that the AP can use within the SDM. By utilising the various technologies, the small scale and emerging farmers can improve on the production of the poultry farmed and ultimately increase their profit.

Table 60: Poultry Technology

Technology and short explanation where needed	Function or benefit to farmer
Mechanisation	
Small-scale implements and tractors: **New generation of farming implements and tractors tailored for small-scale farming.**	Farmers benefit from modern mechanisation and large leaps in productivity even though they farm at small scale, and at a much lower cost compared to conventional implements used by large commercial farmers.
Precision Farming, Integrated Farm Management Systems and Software	
Precision farming: **Gaining real-time or exact information within particular parts of a single field e.g. moisture and nutrient levels, soil type and depth etc, to determine the most appropriate rate of application of water, fertilizer and to adjust implement settings automatically and instantly. Precision farming can also be applied to animal production, aquaculture and agroforestry systems.**	Optimising and tailoring production levels at precise and small-area level so that yield is maximised and inputs are minimised.

Technology and short explanation where needed	Function or benefit to farmer
Integrated farm management software: Combines information and management systems from various on- and off-farms sources to coordinate farming activities in a highly efficient manner. Includes a variety of technologies e.g. farm asset tracking systems, cloud computing, record keeping, accounting, mapping, water and soil management, weather forecasting etc.	Maximise profitability and efficiency automate some management and administrative tasks. Coordinate and simplify management processes.
Plan-A-Head Poultry Layer Management Software System: **Complete management solution for a layer enterprise.**	Integrate with other Plan-A-Head farming software to allow for whole-farm enterprise management. A particular strong feature of the system is input control such as feed, bedding material, medicines and other inputs. The light edition is particularly suitable for small-scale farmers.
Plan-A-Head Poultry Broiler Management Software System: **Complete management solution for a broiler enterprise.**	Integrate with other Plan-A-Head farming software to allow for whole-farm enterprise management. A particular strong feature of the system is broiler growth monitoring. The light edition is particularly suitable for small-scale farmers.
SimJunior: **Basic financial management and accounting software for the small-scale farmer.**	Easy to use. Ideal for the small-scale farmer
Accord: **Complete human resource management system for farmers, including payroll, HR record keeping and administration.**	Particular strong features of the system include its simplicity and coverage of basic employment legislation.
Groundwater Access Via Wells or Boreholes	
Manual well digging or borehole drilling: Although mechanical drilling can reach depths of 150 meters, it is generally too expensive for small-scale farmers. In case the groundwater table are less than 45-meter-deep and the subsoil material are soft, manual drilling or well digging are a cost efficient option.	Gain access to groundwater resources much more cheaply compared to conventional mechanical drilling.
Animal Watering	
Auto-refill watering troughs: **Water troughs fitted with a small reservoir and low pressure floating valves to enable automated re-filling.**	Not only steady and easy to clean, but also re-fill automatically from a small build-in reservoir which minimizes contamination and risk of wastage.
Animal Health	
Vaccination: **Vaccines contains inactive parts (usually the capsid) or molecules that resembles surface proteins of a pathogenic virus or bacterium, which are introduced into the animal's blood stream so that antibodies can be developed. This will enable the animal to develop immunity and to be protected against the pathogen when and if exposed to it later in life. New vaccines are constantly developed therefore it is important to consult with an animal health professional on the most appropriate vaccination program.**	Vaccines have a highly positive effect on disease control and even eradication. Very high return on investment.

Technology and short explanation where needed	Function or benefit to farmer
Antibiotics: **Have two main applications in agriculture: 1) To treat infections, which is an important technology but will not be discussed in detail because it is a specialised field that are taken care of by animal health professionals, and 2) As a routine feed supplement to animals in intensive farming systems (feedlots, piggeries, chicken houses, fisheries etc.) which can be considered a dangerous and unsustainable practice.**	Increased growth rate and resistance against disease in case of routine feeding supplementation, however, the cost to society could be large and devastating.
Farm Energy	
Wind energy: **Wind energy has been used for a long time in South Africa in the form of wind pumps. New generation wind technology allows for uses beyond wind pumping, including electricity generation at micro or farm level scale.**	Wind is a renewable form of energy and some areas in South Africa do have sufficient wind development potential, especially when micro-climatic and small-area topographic factors are considered which is appropriate for very small-scale operations. Less vulnerable to theft compared to solar panels.
Solar technology incl. photovoltaic and thermal panels and solar drying and cooking: **There are two main forms of solar energy harvesting, i.e. photovoltaic panels that produces electricity, and thermal solar panels or tubes that heat water. Solar energy is also widely used on farms for solar drying and solar cooling.**	Solar is a renewable form of energy and most areas in South Africa do have sufficient wind development potential. In fact, some parts of the southern and western Free State, western Limpopo, Gauteng and especially the Northern Cape and North West have excellent solar power potential even at global standards.
Biogas fermenters: **Biogas can be produced from a variety of on-farm sources, especially animal dung of animals kept in confined areas. Can be used in the same way as conventional petroleum derived or natural gas.**	Enable the farmer to become independent of imported and increasingly expensive mineral or natural gas. Especially suitable for intensive livestock, pig and poultry farmers which produce large quantities of animal waste. New techniques enable even small farmers with just a few animals to produce gas in a viable manner.
Farm Protection, Security and Visual Monitoring	
Video and photographical technology: **Fixed point photography, security camera systems and remote sensor-triggered photography.**	Valuable to monitor veldt condition, effects of grazing or fire control regime, rehabilitation efforts, and to monitor animal or criminal activity in remote parts of the farm. Some systems notify the farmer by SMS of sensed activity and immediately send the footage by MMS or video clips to the farmer's mobile device (in additional to conventional recording and storage of images or video).
Apps for Mobile Phones and Tablets	
THE MERCK VETERINARY MANUAL: **Mobile App, available for both Android and Apple. It contains guidelines for the diagnosis, treatment, and prevention of animal disorders and diseases.**	Comprehensive animal health and reproduction reference not only to vets but to farmers as well.
Layer Farm Manager: **Poultry management software to monitor commercial egg production performance. Provides a comprehensive analysist egg production performance against breeding standard and among the other farms.**	Concise overview of the layer industry.

Technology and short explanation where needed	Function or benefit to farmer
Poultry: **The app helps you to learn all about poultry farming. This is a complete guide with tools to run a successful poultry farm. The app also has a question, answer tab, to get clarifications from experts.**	Good tool for the new or prospective farmer to gain a better understanding of the poultry industry from a general production perspective.
Online and mobile information portals	
AgriSuite Online: **Internet based agricultural information system developed and maintained for farmers. Provide a variety of general agricultural information directly to farmers.**	The system can be accessed on a PC or Mac, on tablets and smartphones, in the office or on the farm. Contains the most essential, useful and concise information in a very simple and user-friendly format.

The goal of the AP model is to uplift the small scale farmers in SA so they can compete with commercial farmers in future. For the small scale farmer to competitive it is important that they have the latest technologies available. It is thus necessary that the above mentioned technology be considered for the AP.

10.2.9. Substitute Products and Services

Substitute goods/products are goods which, 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. Table 61 below lists and describes potential substitutes for chicken and chicken products.

Table 61: Poultry Substitute Products

Substitute Product/Service	Description
High protein vegetables/grains/legumes	Consumers have a choice of consuming high protein vegetables, grains, or legumes. Examples of high protein products include lentils, soy mince, tofu and samp and beans. Proteins of this nature are considered affordable alternatives and are particularly popular amongst vegetarians.
Other meat	Consumers are likely to substitute price rather than taste, or preference within this category. Low income consumers, therefore, are likely to purchase cheaper meat alternatives when substituting chicken. Examples might include offal, cheaper pork and beef cuts and other meat that are relatively cheap.
Eggs	Eggs are a cheap, and a high protein source and therefore a potential substitute, especially within low income households.

Depending on the availability of a consumer's disposable income, the substitution effect may differ. A high income consumer, for example, will base their purchase decision of taste and preference, while a lower income consumer may base their decision to purchase based on price. As a result, a low income consumer may substitute for cheaper protein products, rather than more expensive protein products such as mutton.

The red meat producers' technology cannot be changed to produce alternative products (the producer has an inability to change to alternative production once a broiler house is erected) and, as such, should be aware of substitutability of products before making a decision to produce.

10.2.10. Societal and Cultural Trends

Societal and cultural trends are trends that relate to the social and cultural values and practices within a society, or culture. These are long term trends (at least two to five years) that explain why people

behave the way they do. The South African food industry's direction is affected by the growing influence of demographics, especially with respect to societal and cultural trends.

It is important that the AP positions itself to take advantage of such trends by meeting the demands of society through the processing of relevant products. The following, chicken specific, cultural and societal trends have been identified and described.

The trend in rising incomes within South Africa has provided the local consumer with increased purchasing power and, therefore, the ability to increase demand for food. Increased purchasing power has also allowed the consumer increased access to a variety of food, including processed, packaged and frozen poultry (or convenience foods as described below).

Convenience foods or also known as time-saving foods as they are partially, or complete prepared are increasing in demand as consumers spending power increases and more value is given to time-saving. Poultry specific convenience foods include microwave meals and ready prepared chicken dishes for the oven. The increasing demand of quick-food has increased the number of quick-food items available to consumers in the last two decades. The most likely consumers to buy these items include modern families (families that lead an individualistic lifestyle and do not sit down to as many traditional meals), middle- to high-income families, and younger families.

Within SA poultry (white meat) is seen as the healthier choice to red meat and form part of people's daily diet. They are an important part of healthy eating and contain less cholesterol, saturated fats and is low fat if eaten without the skin. Eaten chicken can help reduce the risk of cancer, lower cholesterol, reduce blood pressure and lose weight.

There has been a growing trend in terms of purchasing organically grown and free range food. Organically grown poultry provides consumers with produce free of:

- Less fat;
- More flavour;
- No GMO (Genetically Modified Organism);
- No hormones, antibiotics and drugs;
- Preserves ecosystem;
- Keeps children and future safe.

Organic chicken is growing in popularity. Organic chicken contains no GMO and a variety of health risk have been attributed to GMO, such as organ damage, fertility, tumors, etc (however these effects were noted under laboratory conditions). There are public concerns regarding GMO in terms of food safety, regulation, labelling as well as environmental impact.

10.3. SWOT Analysis

The following table summarises vegetables in terms of its strengths, weaknesses, opportunities and threats within the SDM.

Table 62: SWOT analysis for Broilers

Strengths	Weaknesses
• Highly nutritive products • Contributor to food security • Proximity to major market • Maximal soil usage • Vertically integrated • Growing consumer purchasing power • Access to transport routes for transport in and out	• Shortage of skilled workers • Poor farming practices • Non-standard of product • Lack of Good Agricultural Practice (GAP) principles • Small-scale production not competitive • Lack of access to market • Few parent stock operations

• Growing urban consumer population • Relatively low energy costs • Extension services • Relatively good infrastructure (roads, water, power, rail access) • Unused capacity for expansion • Relatively cheap protein source	• Sourcing feed ingredients • High cost of capital • Old technology in some enterprises • Technical staff need training • Information systems require strengthening • Weak association • Weak technical know-how • Weak information systems ○ Access to adequate laboratory testing facility
Opportunities	**Threats**
• Major economic advantages • Intensive production • Free range production • Local labelling (food labelling) • Employment opportunities • Change in consumer preference • Cooperative farming (alliances – economy of scale) • Technological advancement • Investment in new technologies to increase productivity (e.g. incubators, added value processing equipment) • Consumer education • Industry promotion to expand demand • Reduce day-old-chick costs by investing in parent stock • Public financing available • Possibility to lower costs through improved management systems • Export potential to neighbouring countries	• Increasing input costs • Market limitations • Consumer habit • Competition • Extreme weather conditions (drought, hail, frost) • Pest problems • Disease: Avian Influenza scare lowers demand • Barriers to entry • Food safety issues • Regional competition • Retailer consolidation (preference toward particular producers) • International feed ingredient price fluctuations

There are a variety of strengths and opportunities for poultry (broilers) within the SDM which if taken advantage of could prove beneficial to the success of the AP. However, as much as there are strengths and opportunities to play on there are still weaknesses and threats which could prove detrimental to the AP success which not only effect the potential economic gain of producing poultry (broilers) but also the loss of opportunity for small scale and emerging black farmers.

Section 11: Agri-Park Development Concept

11.1. Agri-Park Concept Development

Investment strategies for the development of APs generally imply the use of a wide range of partnerships, approaches, and tools in order to integrate the production chain and collaborate accordingly. In developing and emerging economies, the concept of APs has gained momentum as innovative attempts aimed at apply spatial planning principles and have begun to yield positive 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 which builds upon a collection of economic activities and people in co-operation with transport infrastructure (Nogales, 2014).

The APs concept makes use of economic corridors, in this section the AP concept will be evaluated along with the APs alignment to economic corridors. The section will also cover the proposed number of RUMCs, and FPSUs for the West Rand district and the product flows for each of the selected commodities.

11.2. Introduction to the Agri-Park Concept

The AP 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 (RUMC).

In order to state how many FPSUs, Agri-Hubs, and RUMCs are required per district, it is important to identify whether or not a particular district is considered an area of low or high population density. An area which has more than 42 individuals per km^2 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. The SDM is therefore considered an area of high population density with approximately 225 individuals per km2. Thus, the proposed catchment area for the FPSUs, Agri-Hubs, and RUMCs in areas of high population density are as follows:

- FPSUs catchment area: 10km;
- Agri-Hubs catchment area: 60km; and
- RUMCs catchment area: 150km.

The SDM has an area of approximately 4 630 km^2 and taking into consideration the proposed catchment areas, as a suggestion, the SDM will need approximately:

- 15 FPSUs;
- One Agri-Hub; and
- One RUMC.

The key role and function of the FPSU is to provide to the farmers input supplies; extension support; mechanisation support; local logistics support; primary produce collection; limited grading; and through-put to Agri-Hubs. 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.

11.3. Proposed Development Concept of Vegetables

The following table outlines the proposed development concept of the identified commodity "vegetables".

Table 63: Vegetable Development Concept

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
Key Role & Function	The key role and function of the primary producers is the production of various vegetables. Some of the functions that the small-scale/emerging farmers will be required to undertake include: o Land preparation; o Watering; and o Weeding. The commercial farmers should be responsible for their own production. Additionally, farmers will play a role in the management of the AP.	The key role and function of the FPSU is to provide: input supplies; extension support; mechanisation support; local logistics support; primary produce collection; limited grading; and through-put to AH. 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 AH.	Key roles and functions of the AH include: o Training; o Logistics; o Processing; o Storage/warehousing; o Packaging; o Product distribution; o Branding of products (optional); and o Grading. The AH plays an important role in value adding activities and moving product to market.	The key function of the RUMC is to provide market intelligence, assist farmers, and processors in managing a nexus of contracts.
Location	Distributed throughout the SDM.	Given that the district is a relatively high density district it is recommended that 15 FPSU's are established in the SDM.	The AH is to be located in Rietkuil.	It is proposed that there should be only **one RUMC** for all the Agri-Parks in the Gauteng Province. However, if the SDM's Agri-Park develops into a feasible business venture, and there is a demand for an RUMC in ten years, an ideal location would be selected at a district level.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
				Given the proximity to the City of Johannesburg, it is recommended that the RUMC be based on the periphery of Johannesburg.
Human Resources	The core HR personnel that the SHF would require are: o Farm manager; o Farm workers; and o Administrators. It is estimated that vegetable production will create 1.9 direct jobs for every hectare that is brought into production.	The FPSU will provide the following HR/HR facilities: o Agricultural extension officer's / support office; o Machine operators/ Local mechanisation centre and workshops; o Agronomists; o Researchers; and o Voluntary/Established commercial farmers. It is estimated that vegetable production will create 0.62 indirect jobs for every hectare that is brought into production.	The AH will provide the following HR: o Administrative staff; o Quality control personnel; o Processing/floor staff; o Research and demonstration; personnel; and o Training personnel. Additional staff would include the following: o Administration officers o Processing operators o Security guards o Cleaners o Drivers o Mechanical operator It is estimated that vegetable production will create 0.62 indirect jobs for every hectare that is brought into production.	The RUMC will provide the following HR: o IT expert/personnel; o Administrative staff; o Training personnel; and o Marketing personnel. It is estimated that vegetable production will create 0.62 indirect jobs for every hectare that is brought into production.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
Training	The farmers will need the following training: o Best production practices; o Fertiliser application; o Irrigation application; o Weed and pest control; and o Administration. The small holder / emerging farmers would require training on: *best farm practices*, use of tools and equipments, training on how to interpret market information and ICT. Extension officiers through the DAFF can also organise Agri-shows, where farmers can express their concerns, and where training can be provided. Also, well establsihed commercial livestock farmers can also provide some training to the smallholders through a mentorship programme.	One of the key function of the FPSU would be to provide training and extension support on various farm practices, to the SHF. o Marketing; o Phytosanitary requirements; o Regulatory standards and requirements training; o Health and safety training; o Management skills; o Agriculture computer programme skills; and o Computer literacy.	Some training would also be required at the hub, including: o Training of processing staff; o Training on best practices, based on changing demand and supply; and o Training on new innovations as they surface.	Training of personnel on how to disseminate information to the SHF, AH and the FPSU.
Key product/activities	The key product from primary production are fresh vegetables. The core activities of the small holder farmers are: o Land preparation (land clearing, bed making); o Vegetable farming (planting, fertlization,	The core activities of the FPSU are: o Logistics; o Training; o Planting; o Harvesting; o Extension;	The core activities of the AH are: o Collection of fresh vegetables; o Grading and sorting; o Further quality control; o Packaging; o Processing of fresh vegetables;	The core activities of the RUMC are: o Dissemination of information; and o Maketing and distribution of final products to different wholesalers and major retail outlets.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
	disease control, irrigation etc.); o Harvesting of fresh vegetables; and o Bagging of vegetables/ loading into trucks.	o Production planning/scheduling; and o Farmer production management.	o Storage of products; o Some marketing; and o Transportion of products to the markets.	
Infrastructure/Equipment	The smallholder farmer may require the following equipment: o Tunnels; and o Irrigation. All planting and other equipment and machinery requirements will be supplied through the FPSU on an agreement basis. Commercial farmers participating in the programme will supply their own machinery and equipment required for production.	The FPSU would require the following equipment & infrastructure: o Tractor; o Bed former; o Planter; o Spray equipment; o Fertiliser applicator; o Pack house Transport (e.g Bakkie or pick-up vehicles); o Storage facility; o Weighing and packaging equipment; o Simple processing technologies; and o Retail outlet The FPSU is obligated to provide machinery and equipment services to farmers.	The AH would require to put in place the following equipment/infrastructure: o Administrative facilities; o Agro-Processing facilities; o Packaging facilities; o Quality control facilities; o Agricultural input distribution and sales centre; o Retail facility; o Training centre; o Student and staff housing; o Logistics and transport facility; o Large warehouses/ holding facilities; o Cold storage facilities; and o Administrative offices.	The RUMC would require to put in place the following equipment/infrastructure: o Facilities/ information centre; o ICT.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
Logistics	A logistics plan will be necessary for the transport of input and harvested products. Farmers will need to be grouped and scheduled into the production plan accordingly. Pick up and drop off points will need to demarcated for each group accordingly in order to streamline the logistical process. The farmers will then be required to pick up and drop off products at this point at scheduled times.	The FPSU will be required to develop a logistics plan to move input products to the farmers and final products to the AH. Central pick up and drop off points should be demarcated by the FPSU. The logistics schedule should be planned according to the production plan developed by the FPSU.	The AH will be required to liaise closely with the RUMC in developing a logistics plan. The AH will be responsible for the distribution of the final processed product to the market.	The RUMC is responsible for marketing and distribution plans. The responsibilities include: o Production and processing quantities; o Liasing with buyers; o Distribution/logistics plans; and o Determining input quantities required for output quantites.
Technology/ICT	In order to boost their production efficiency, the SHF would require: o Modern tools; and o Mobile devices for subscription to Apps., to enable them receive information from the RUMC on weather forecast, disease control and other relevant information.	The following technology/ICT can be used by the FPSU: o Production planning software o Logistics planning software o Vehicle tracking devices	In order to remain conversant with the trends in the global, national and local market, so as to make necessary adjustments in the production line, the RUMC would also require subscription to certain Apps from the RUMC. This will enable the AH to remain informed.	The RUMC will provide information technologies that all the various basic units of the AP can subscribe to.

Catalytic Project

A catalytic project relating to local vegetable farming is the development of a vegetable pack house and processing facility for the washing, sorting, grading and packaging of local produce. Some retail activities and basic processing (chopping, peeling, etc.) can take place as well. The packhouse and processing facility should be integrated with the proposed FPSUs.

11.4. Proposed Development Concept of Broilers

The following table outlines the proposed development concept of the identified commodity "broilers".

Table 64: Broiler Development Concept

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
Key Role & Function	The primary responsibility of the farmer will be the grow-out of broilers.	The FPSU will play the following key functions: o Input supplies (breeding stock, weaners, feed, feed supplements, veterinary drugs, grazing land, equipment/infrastructure e.t.c.); o Training and extension support; o Veterinary services; o Mechanisation support; o Local logistics support; The FPSUs will have limited sorting, packaging, storage, and processing for local markets with through-put of excess products to Agri-hubs.	Key roles and functions include: o Training; o Logistics; o Feedlots; o Processing; o Branding (where necessary; o Storage/warehousing; o Packaging; and o Product distribution.	Need to provide market intelligence, assist farmers, and processors in managing a nexus of contracts, with large warehousing and cold storage facilities to enable market management.
Location	These farmers will be distributed throughout the district.	Given that the district is a relatively high density district it is recommended that 15 FPSU's are established.	The Agri-Hub is to be located in Rietkuil.	It is proposed that there should be only **one RUMC** for all the Agri-Parks in the Gauteng Province. However, if the SDM's Agri-Park develops into a

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
	In addition to these farmers, state owned land can be allocated for the production of broilers.			feasible business venture, and there is a demand for an RUMC in ten years, an ideal location would be selected at a district level. Given the proximity to the City of Johannesburg, it is recommended that the RUMC be based on the periphery of Johannesburg.
Human Resources	Personnel required to manage the production include: o A farm manager; o Farm workers; and o Administrators. It is estimated that broiler production will create 0.022 direct jobs for every hectare that is brought into production.	The FPSU will provide the following HR/HR facilities: o Agricultural extension officers' / support office; o Animal health expert/ Veterinary doctor; o Animal nutritionist; o Machine operators/ Local mechanisation centre and workshops; o Agronomists; o Researchers; and o Voluntary/Established commercial farmers to mentor the small scale farmers (*as many as* possible). It is estimated that broiler production will create 0.014	The AH will provide the following HR: o Administrative manager; o Abattoir manager ; o Logistics operation manager; o Meat processing operator supervisors; o Food Science Specialists; o Quality control manager; o Hygiene manager; o Meat inspector; o Research personnel; and o Training personnel Additional staff would include the following:	The RUMC will provide the following HR: o IT expert/personnel o Administrative staff o Training personnel o Marketing personnel It is estimated that broiler production will create 0.014 indirect jobs for every hectare that is brought into production.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
		indirect jobs for every hectare that is brought into production.	○ Administration officers ○ Processing operators ○ Abattoir operators ○ Feeders ○ Security guards ○ Cleaners ○ Drivers ○ Mechanical operator It is estimated that broiler production will create 0.014 indirect jobs for every hectare that is brought into production.	
Training	The small scale/ emerging farmers will require training in: ○ Broiler production; ○ Business skills; ○ Finance skills; ○ Marketing; ○ Animal diseases; ○ Phytosanitary requirements; and ○ Feeding. The small holder / emerging farmers would require training on: *best farm practices*, use of tools and equipments, training on how to interpret market information and ICT. Extension officiers through the DAFF can also	One of the key function of the FPSU would be to provide training and extension support on broiler production practices to the farmers, including: ○ Broiler production; ○ Marketing; ○ Animal diseases; ○ Phytosanitary requirements; ○ Feeding; ○ Regulatory standards and requirements training; ○ Health and safety training; ○ Management skills;	Some training would also be required at the hub, including: ○ Training of processing staff; ○ Training on best practices, based on changing demand and supply; ○ Training on new innovations as they surface; ○ Training in Meat Inspection; and ○ Training in Abattoir Technology and Hygiene.	Training of personnel on how to disseminate information to the SHF, AH and the FPSU.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
	organise Agri-shows, where farmers can express their concerns, and where training can be provided. Also, well establsihed commercial livestock farmers can also provide some training to the smallholders through a mentorship programme.	o Agriculture computer programme skills; and o Computer literacy.		
Key Products/services	Key product: o Fully grown, live chickens. Key Services: o Preparation of broiler house (disinfecting).	The core activities of the FPSU are: o Logistics; o Training; o Input supply including feed; o Transport of livestock; o Extension; o Production planning/scheduling; and o Farmer production management.	The core activities of the AH are: o Production and distribution of day old chicks; o Collection of live chickens; o Slaughter and processing; o Packaging; o Storage of products; o Marketing; and o Transportion of products to the markets.	The core activities of the RUMC are: o Dissemination of information; and o Maketing and distribution of final products to different wholesalers and major retail outlets.
Infrastructure & Equipment	Infrastructure & equipment requirements include: o Broiler houses; o Feed silos; and o Water systems.	The FPSU would require the following equipment & infrastructure: o Transport (e.g Bakkie or pick-up vehicles); o Storage facility;	The AH would require the following equipment/ infrastructure: o Administrative facilities;	The RUMC would require to put in place the following equipment/infrastructure: o facilities/ information centre; and o ICT.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
		○ Weighing and packaging equipment (crates); ○ Transport facilities for transportion of live animals from the FPSU to the AH; and ○ Retail outlet.	○ Agro-Processing facilities; ○ Packaging facilities; ○ Quality control facilities; ○ Agricultural input distribution and sales centre; ○ Retail facility; ○ Training centre; ○ Student and staff housing; ○ Logistics and transport facility; ○ Large warehouses/ holding facilities; ○ Cold storage facilities; and ○ Administrative offices.	
Logistics	A logistics plan will be necessary for the transport of input and final products. Farmers will need to be grouped and scheduled into the production plan accordingly. Pick up and drop off points (farms) will need to demarcated for each group accordingly in order to streamline the logistical process.	The FPSU will be required to develop a logistics plan to move input products to the farmers and final products to the AH. Central pick up and drop off points should be demarcated by the FPSU. The logistics schedule should be planned according to the production plan developed by the FPSU.	The AH will be required to liaise closely with the RUMC and FPSU in developing a logistics plan. The AH will be responsible for the distribution of the final processed product to the market.	The RUMC is responsible for marketing and distribution plans. The responsibilities include: ○ Production and processing quantities; ○ Liasing with buyers; ○ Distribution/logistics plans; and ○ Determining input quantities required for output quantites.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
Technology/ICT	The following technology/ICT would catalyse effective production for the farmers: o Modern tools; o Mobile devices for subscription to Apps., to enable them receive information from the RUMC on weather forecast, disease control and other relevant information; and o Broiler management software.	The following technology/ICT can be used by the FPSU: o Production planning software; o Logistics planning software; o Vehicle tracking devices; o Internet access for farmers and trainees.	In order to remain conversant with the trends in the global, national and local market, so as to make necessary adjustments in the production line, the RUMC would also require subscription to certain Apps from the RUMC. This will enable the AH to remain informed.	The RUMC will provide information technologies that all the various basic units of the AP can subscribe to.

Catalytic Project

A catalytic project relating to poultry farming is the development of a poultry abattoir for the slaughtering of chickens. Primary processing in terms of preparing cuts (fresh/frozen) for the local retail market can also take place. The abattoir should ideally be linked to the FPSUs located throughout the SDM.

11.5. Proposed Development Concept of Red Meat

The following table outlines the proposed development concept of the identified commodity "broilers".

Table 65: Red Meat Development Concept

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
Key Role & Function	The primary responsibility of the farmer would be to rear livestocks (mainly cattle, pigs and sheep) solely for the purpose of meat production.	The FPSU will play the following key functions: o Input supplies (breeding stock, weaners, feed, feed supplements, veterinary drugs, grazing land, equipment/infrastructure e.t.c.); o Training and extension support; o Veterinary services; o Mechanisation support; o Local logistics support; o Auctioning of live animals The FPSUs will have limited sorting, packaging, storage, and processing for local markets with through-put of excess products to AH.	Key roles and functions include: o Training; o Logistics; o Auctioning; o Feedlots; o Processing; o Branding (where necessary; o Storage/warehousing; o Packaging; and o Product distribution.	Need to provide market intelligence, assist farmers, and processors in managing a nexus of contracts, with large warehousing and cold storage facilities to enable market management.
Location	These farmers will be distributed throughout the district.	Given that the district is a relatively high density district it is recommended that 15 FPSU's are established.	The Agri-Hub is to be located in Rietkuil.	It is proposed that there should be only **one RUMC** for all the Agri-Parks in the Gauteng Province. However, if the SDM's

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
	In addition to these farmers, state owned land can be allocated for the production of livestock.			Agri-Park develops into a feasible business venture, and there is a demand for an RUMC in ten years, an ideal location would be selected at a district level. Given the proximity to the City of Johannesburg, it is recommended that the RUMC be based on the periphery of Johannesburg.
Human Resources	Personnel required to manage the production include: o A farm manager; o Animal health expert/ veterinary doctor; o Farm workers; and o Administrators. It is estimated that red meat production will create 2.07 direct jobs for every hectare that is brought into production.	The FPSU will provide the following HR/HR facilities: o Agricultural extension officers' / support office; o Animal health expert/ Veterinary doctor; o Animal nutritionist; o Machine operators/ Local mechanisation centre and workshops; o Agronomists; o Researchers; and o Voluntary/Established commercial farmers to mentor the small scale farmers (*as many* as possible). It is estimated that red meat production will create 1.61	The AH will provide the following HR: o Administrative manager; o Abattoir manager ; o Feedlot manager; o Logistics operation manager; o Meat processing operator supervisors; o Food Science Specialists; o Quality control manager; o Hygiene manager; o Meat inspector; o Research personnel; and o Training personnel	The RUMC will provide the following HR: o IT expert/personnel o Administrative staff o Training personnel o Marketing personnel It is estimated that red meat production will create 1.61 indirect jobs for every hectare that is brought into production.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
		indirect jobs for every hectare that is brought into production.	Additional staff would include the following: o Administration officers o Processing operators o Abattoir operators o Feeders o Security guards o Cleaners o Drivers o Mechanical operator It is estimated that red meat production will create 1.61 indirect jobs for every hectare that is brought into production.	
Training	The small scale/ emerging farmers will require training in: o Livestock production; o Business skills; o Finance skills; o Marketing; o Animal diseases; o Phytosanitary requirements; and o Feeding. The small holder / emerging farmers would require training on: *best farm practices*, use of tools and equipments, training on how to	One of the key function of the FPSU would be to provide training and extension support on various animal husbandry practices to the farmers, including: o Marketing; o Animal diseases; o Phytosanitary requirements; o Feeding; o Regulatory standards and requirements training; o Health and safety training;	Some training would also be required at the hub, including: o Training of processing staff; o Training on best practices, based on changing demand and supply; and o Training on new innovations as they surface. o Training in Meat Inspection; and	Training of personnel on how to disseminate information to the SHF, AH and the FPSU.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
	interpret market information and ICT. Extension officiers through the DAFF can also organise Agri-shows, where farmers can express their concerns, and where training can be provided. Also, well establsihed commercial livestock farmers can also provide some training to the smallholders through a mentorship programme.	o Management skills; o Agriculture computer programme skills; and o Computer literacy.	o Training in Abattoir Technology and Hygiene.	
Key Products/services	The core activities of the small holder farmers are: o Rearing of livestock (mainly cattle, pigs and sheep) up to the point where animals can be weaned and sent to the feedlots for finishing.	The core activities of the FPSU are: o Logistics; o Selling of live animals by putting in place an auction facility where feedlotter or speculators and local buyers and other meat processors can purchase live animals; o Training; o Input supply including feed; o Transport of livestock; o Extension; o Production planning/scheduling; and o Farmer production management.	The core activities of the AH are: o Receiving of livestock from farmers into the feedlot located in the AH; o Erection of a livestock auction facility; o Slaughter and processing; o Packaging; o Storage of products; o Marketing; and o Transportion of products to the markets.	The core activities of the RUMC are: o Dissemination of information; and o Maketing and distribution of final products to different wholesalers and major retail outlets.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
Infrastructure & Equipment	The smallholder farmer would require the following equipments (which can be hired from the FPSU) and infrastructure : o On-farm feedlots; o Feeding/ watering troughs; o Grazing land; o Animal Kraal; o Animal handling facilities (e.g neck clamp); o Animal branding / tatooing equipment; o Transport; and o Fencing (especially into camps).	The FPSU would require to put in place the following equipments/infrastructure: o Transport (e.g Bakkie or pick-up vehicles); o Auction facility; o Storage facilities; o Weighing and packaging equipment (crates); o Retail outlet; o Transport facilities for transportion of live animals from the FPSU to the AH; and o Animal handling equipment.	The AH would require the following equipment/ infrastructure: o Administrative facilities; o Agro-Processing facilities; o Packaging facilities; o Quality control facilities; o Agricultural input distribution and sales centre; o Retail facility; o Training centre; o Student and staff housing; o Logistics and transport facility; o Large warehouses/ holding facilities; o Cold storage facilities; and o Administrative offices.	The RUMC would require to put in place the following equipment/infrastructure: o facilities/ information centre; and o ICT.
Logistics	A logistics plan will be necessary for the transport of input and final products. Farmers will need to be grouped and scheduled into the production plan accordingly. Pick up and drop off points (farms) will need to demarcated for each	The FPSU will be required to develop a logistics plan to move input products to the farmers and final products to the AH. Central pick up and drop off points should be demarcated by the FPSU.	The AH will be required to liaise closely with the RUMC and FPSU in developing a logistics plan. The AH will be responsible for the distribution of the final	The RUMC is responsible for marketing and distribution plans. The responsibilities include: o Production and processing quantities; o Liasing with buyers;

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
	group accordingly in order to streamline the logistical process. Smallholder farmers should be organised into groups in the form of co-operatives . Each group should have a group head that would communicate information from the farmers to the FPSU and also arrange for delivery of inputs and transportion of animals with the FPSU. This group heads would work closely with the the FPSU. **Feedlots**: livestocks farmers with less than 30 heads of animals will be encouraged to fatten thier weaners on the farm, in pens or large paddocks (they will be supported with inputs from the FPSU). Once these animals are ready for the market, transport arrangements would be made with the FPSU to sell their animals at the auction facility located at the FPSU. These farmers can also sell some of their animals directly to the local markets at the farm gate. Livestock farmers with 30 or more heads of animals that do not have feedlots would be encouraged to send their weaners to the feedlot	The logistics schedule should be planned according to the production plan developed by the FPSU.	processed product to the market.	o Distribution/logistics plans; and o Determining input quantities required for output quantites.

Production Flow	Smallholder farmers/ Emerging Farmers and Commercial Farmers	Farmer Production Support Unit	Agri-Hub	Rural Urban Marketing Centre
	located in the AH for fattening. Farmers that have access to feedlots around them would make use of these nearby feedlots. Livestocks from this category of farmers would be transported directly from the farm to the AH for auctioning and processing to ensure continuous supply of livestock.			
Technology/ICT	The following technology/ICT would catalyse effective production for the farmers: o Modern tools; o Mobile devices for subscription to Apps., to enable them receive information from the RUMC on weather forecast, disease control and other relevant information; and o Livestock management software.	The following technology/ICT can be used by the FPSU: o Production planning software; o Logistics planning software; o Vehicle tracking devices; and o Internet access for farmers and trainees.	In order to remain conversant with the trends in the global, national and local market, so as to make necessary adjustments in the production line, the RUMC would also require subscription to certain Apps from the RUMC. This will enable the AH to remain informed.	The RUMC will provide information technologies that all the various basic units of the AP can subscribe to.

Catalytic Project

A catalytic project relating to the red meat market is the development of an abattoir. The main purpose would be to allow smallholder farmers with easy access to a market for their beef, sheep and pork. The abattoir can also include primary beneficiation facilities such as packaging of fresh or frozen cuts for the local retail market.

11.6. Combined Agri-park Concept for the District

The following development concept summarises the above concepts to form a single, streamlined concept that draws on the main elements and activities of each of the role-players. The following concept provides a broader overview of the AP development in comparison to the individual concepts, and therefore excludes precise detail.

Table 66: Combined Development Concept for the Chosen Commodities

Production Flow	Small-Scale/Emerging Farmers & Commercial farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
Key Role & Function	The major role for the farmers is production management – ensuring that all produce reaches maturity. Quality control is of high importance for farmers to guarantee higher returns on their produce.	Agricultural input supplies, extension support, mechanisation support, local logistics support, primary produce collection, training and extension support, veterinary services (livestock and poultry) and through-put to Agri-Hubs. The FPSUs will have limited sorting, packaging, storage, and processing for local markets with through-put of excess products to Agri-hubs.	The Agri-Hub has a major function as a processor of agricultural produce and distribution centre. Other auxiliary functions for the Agri-Hub include: o Training; o Logistics; o Feedlots; o Processing; o Branding (where necessary; o Storage/warehousing; o Packaging; and o Product distribution.	The RUMC is to provide market intelligence and assist farmers, and processors in managing a nexus of contracts, with large warehousing and cold storage facilities to enable market management
Location	These farmers will be distributed throughout the district. In addition to these farmers, state owned land can be allocated for production.	Given that the district is a relatively high density district it is recommended that 15 FPSU's are established.	The Agri-Hub is to be located in Rietkuil.	It is proposed that there should be only **one RUMC** for all the Agri-Parks in the Gauteng Province. However, if the SDM's Agri-Park develops into a feasible business venture, and there is a demand for an RUMC in ten years, an ideal location would be selected at a district level. Given the proximity to the City of Johannesburg, it is recommended

				that the RUMC be based on the periphery of Johannesburg.
Human Resources	On farm personnel required to manage production include: o Farm managers; o Farm workers/labour; and o Administrators	The FPSU will provide the following HR/HR facilities: o Agricultural extension officers' / support office; o Animal health expert/ Veterinary doctor; o Animal nutritionist; o Machine operators/ Local mechanisation centre and workshops; o Agronomists; o Researchers; and o Voluntary/Established commercial farmers to mentor the small scale farmers (*as many* as possible).	The AH will provide the following HR: o Administrative staff; o Quality control personnel; o Processing/floor staff; o Research and demonstration personnel; and o Training personnel.	The RUMC will provide the following HR: o IT expert/personnel; o Administrative staff; o Training personnel; and o Marketing personnel.
Training	The on farm personnel will require training in their respective fields of production. Training of such personnel should include: o Production practices; o Business administration; and o Marketing	A key function of the FPSU would be to provide training and extension support for the various types of production practices to farmers, including: o Best management and production practices; o Data interpretation; o Marketing; o Crop cultivation; o Animal husbandry; and o Business administration. In order for the FPSU to have the ability to train on farm personnel,	Staff within the Agri-Hub will require training in various processing best practices. Training programmes for such personnel should include: o Training of processing staff; o Training on best practices, based on changing demand and supply; and o Training on new innovations as they surface.	Personnel that are actively particpating in the RUMC should be trained in the following fields: o Data collection/collation; o Data interpretation; and o Data dissemination

		they will need training in the various fields themselves. Trianing is available at various agricultural training institutions.		
Key Products & Services	Key products: o Fresh vegetables; o Live chickens and by-products; and o Livestock and by-products. Key Services: o Preparation of the facilities; o Field preparation; o Cultivation; and o Animal husbandry	The core services of the FPSU are: o Logistics; o Training; o Input supply; o Extension services; o Production planning/scheduling; and o Farmer production management	The core products of the AH are: o Collection of produce; o Processing of product; o Packaging and labelling; o Storage; o Marketing; and o Transportion of products to the markets.	The core services of the RUMC are: o Dissemination of information; o Maketing and distribution of final products to different wholesalers and major retail outlets
Infrastructure & Equipment	Infrastructure & equipment requirements include: o Broiler houses; o On-farm feedlots; o Grazing land and animal kraals; o Handling facilities; o Feed silos o Water systems o Irrigation systems o Greenhouses; o Animal branding / tatooing equipment;	The FPSU would require the following equipment & infrastructure: o Transport (e.g Bakkie or pick-up vehicles) o Auction facility; o Storage facilities; o Weighing and packaging equipment (crates); o Retail outlet for the local market; o Transport facilities for transportion of live animals from the FPSU to the AH; and	The AH would require the following equipment/ infrastructure: o Administrative facilities; o Agro-Processing facilities; o Packaging facilities; o Quality control facilities; o Agricultural input distribution and sales centre; o Retail facility; o Training centre; o Student and staff housing; o Logistics and transport; facility;	The RUMC would require to put in place the following equipment/infrastructure: o Office facilities/ information centre; and o ICT.

	○ Transport; and ○ Fencing (especially into camps).	○ Animal handling equipment.	○ Large warehouses/ holding facilities; ○ Cold storage facilities; and ○ Administrative offices	

Logistics plan

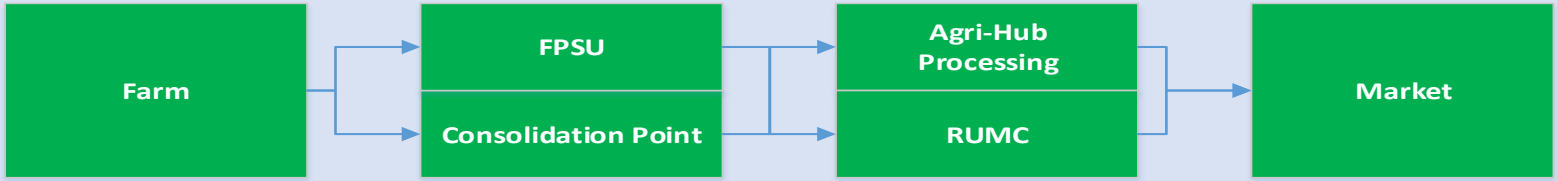
The focus of the logistics plan is to develop a strategy to move farm produce to market as smallholder and emerging farmers seek to become important players in the emerging food supply chain in South Africa. The logistics plan draws on challenges and opportunities faces by the farmers that are likely to participate within the APs programme, while the focus remains on recognising the importance that transport plays in the emerging farmer value chains.

Understanding the logistics chain

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:

1. The primary transport segment, also known figuratively as the first mile, is the segment in which 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.
2. 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 AH. The key role-players at this point are larger, commercial farmers, or transporters.
3. The final transport segment will move product from the intermediate point to the final market, or destination.

These segments are exemplified in the following figure:



The above figure is a generic emerging, or small-scale farmer's logistics chain that contains the farm, consolidation/collection points, intermediate processing points and the final markets for the product. The first mile, in general, is the most important segment since it can be the most expensive segment of the logistics chain. It is often the case that product quality is compromised through bruising and ageing in this segment.

Recommended logistics strategy:

Unlike commercial, large-scale farming, small-scale and emerging farmers produce smaller quantities and farms are spread over a wide spatial territory. As such, it is of high importance that consolidation points are developed in order to collect produce in viable volumes, while coordination with intermediaries and transporters is crucial so that the farmers jointly are able to create economies of scale. Consolidation points should therefore be developed at strategic locations on easy access roads and a well-structured approach is required in order to assist the farmers in produce consolidation. This is exemplified in the following logistics plan:

In order to do this, appropriate infrastructure is required at the consolidation points along with organised transport coordination (exploiting ICT) that will reduce value deterioration at the farm gate and consolidation/collection points. The following recommendations can be used in order to develop the logistics plan for the AP:

1. Locate and demarcate specific areas of production that will participate in the APs programme.
2. Develop an inventory of what will be produced in the given demarcated areas.
3. Determine quantities to be produced in the demarcated areas.
4. Determine the total value of production that will be produced my small-scale farmers.
5. Determine and map the spatial location and spread of farms that will be producing within the programme.
6. Determine the location of the consolidation/collection points and what facilities should be made available.
7. Assess the potential perishability of the produce/value of the post-harvest losses.
8. Plan for the availability and reliability of transport services to collect produce.
9. Assess the quality of transport infrastructure in the location.
10. Determine the key market locations/destinations in the given area.
11. Develop, or enhance farmers' organisations and support groups.

The above process will assist in providing a better understanding of how to move produce from farm to market, while a comprehensive and integrated logistics management system can be employed to improve the efficiency in which produce can be moved to market taking into account rural infrastructure, consolidation management and collection services. The ability to understand the product movement will provide a foundation from which a logistics plan can be developed.

The following steps provide a broad outline toward the logistics plan, in which all elements of the AP including the farmers, FPSU, AH and RUMC are integrated:

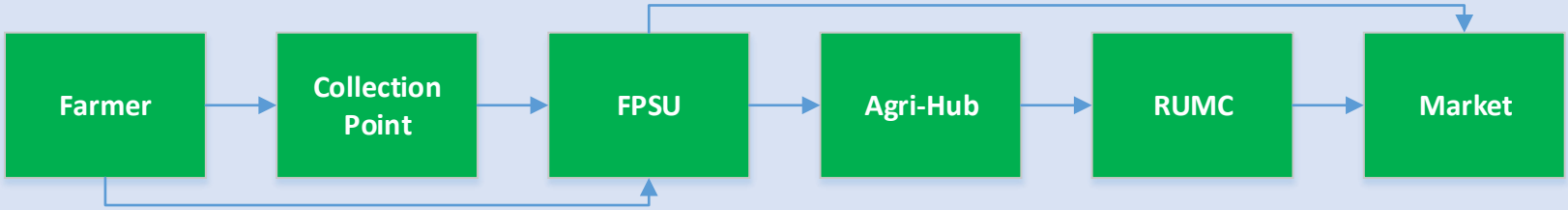
1. Demarcate farmer groups within a given production area.
2. Determine a central location of the consolidation/collection point for the produce in each of the demarcated areas.

3. Implement a logistics management system and programme through the FPSU and RUMC that will assist in moving farmers produce to the consolidation points.
4. Implement a logistics management system and programme through the FPSU and RUMC that will move product from the consolidation points to the Agri-Hub.
5. Implement a logistics management system and programme through the RUMC that will move product from the Agri-Hub to the market/final product destination.

The specific roles and functions of the farmers, the FPSU, Agri-Hub and RUMC are specified as follows:

- The farmers may either opt to transport their produce to the collection point themselves, or make use of FPSU transport.
- The FPSU will be responsible for the movement/transportation of the product from farms to the collection point to the Agri-Hub
- The Agri-Hub can opt to collect produce from the FPSU, or have it delivered by the FPSU. The Agri-Hub should also transport final products to the market, or RUMC
- The RUMC will provide the market intelligence and therefore the timing of the movement of the product. The RUMC will play an important role in planning, implementing and managing the logistics programme.

This is indicated in the following diagram:



It is recommended that the logistics plans are further developed and designed for each commodity. Every commodity has differing transport requirements, including cold chains, livestock transport, and various consolidating activities. In this case, vegetables and red meat will require cold storage at all points to ensure freshness of product and poultry will require trucks collect chickens in an organised manner that ensures less time on road.

Technology/ ICT

To develop the efficiency required to manage the AP in a successful and meaningful way, an integrated technology/ICT approach is necessary to keep all participants'/role players in the system well informed. Each role-player is required to understand the needs and requirements of the previous, or next role-player within the value chain. For example, the FPSU will be required to understand the production capacity and timing of the farmers, while also needing to know what the demands of the Agri-Hub are in the way of produce. The ability to know this will assist in the FPSU being able to meet the demands of the AH.

	Technology and ICT is, thus, a key input to the value chain in coordinating activities between role-players. Specific technologies that can assist for the individual entities and the entire value chains are detailed below: o ***Production management software***: Can assist farmers' and the FPSU in production coordination and management. o ***Logistics management software***: Can be integrated throughout the value chain in order to assist the coordination of logistical activities and move product from farm to fork in the most efficient manner. o ***Weather apps***: Can assist farmers' and the FPSU in production. o ***Market apps***: Understanding the market conditions is integral to making production based decisions (i.e. what to produce and when to supply the market). Importantly, technologies and ICT within the AP project need to be integrated in order to inform all role-players, understand the supply and demand conditions within the programme, and inform each of the role-players of the actions that need to be made in order to complement one another.
Potential Economic Benefit	The Sedibeng Agri-Park will have the following ***spinoffs***, namely: o Formal and informal employment; o Business development; o Skills development; o Economic growth; and o attraction of youth to add to an aging sector In terms of ***targeted hectares***, the total of vacant agricultural land in Sedibeng is approximately 62 700 hectares (Gauteng Agricultural Potential Atlas 2013). It can be assumed that the Agri-Park could potentially target 31 380 hectares (50%) of potential land. Thus in terms of ***smallholder farmers,*** it can be assumed that Sedibeng Agri-Park has the potential of introducing up to 6 276 additional farmers based on 31 380 hectares of land. And in terms of ***job creation,*** the Sedibeng Agri-Park has the potential to create approximately 8 000 direct and indirect jobs over the next 10 years. Securing funding to implement all the components of the Agri-Park is essential to the successful implementation. If all the components are not implemented correctly the Agri-Park will not be successful. Partnerships will therefore be crucial to the viability of the project.

11.7. High-level costing (CAPEX)

The capital expenditure section provides an overview of the capital expenditure that is projected for the SDM Agri-Park. The FPSU and the AH were used as the basis for the expenditure figures projected, thus calculated estimates were made for the capital needs of the FPSU and AH. Since the RUMC will not be located in the SDM, the RUMC expenses have not been included in the projections provided. Estimated bulk connections, building and machinery/equipment requirements were used to investigate the capital expenditure. The total capital expenditure estimate is calculated for a period of ten (10) years, and is not an annual capital requirement.

The accompanying capital expenditure projection/estimate is intended solely for the information and use of this strategy and is not intended to be, and should not be, used for any other purpose. The estimated capital expenditure has been compiled by the Professional Economist and not by a registered Accountant or Auditor. These estimates may contain materiality as it was not compiled in accordance with the Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS).

Materiality is a concept that is judged in light of the expected range of reasonableness of the information; therefore, users should not expect prospective information (information about events that have not yet occurred) to be as precise as historical information.

Table 67: Capital Expenditure Estimates

District Agri-Park Total	Quantity	Cost	Total Cost
FPSU	15	R17 562 730	R263 440 950
Agri-Hub	1	R95 671 820	R95 671 820
Grand Total			**R359 112 770**

The above estimate is based on a projected 15 FPSUs and one Agri-Hub within the SDM. The total estimate for the FPSUs is approximately R263,440,950, or R17,562,730 each. The FPSUs are to be implemented over an 8-10-year period and the estimated capital expenditure should be allocated as such.

It is estimated that the AH would cost in the region of R100,000,000 to construct, including three different processing lines for vegetables, poultry and red meat. The budget includes the estimated turnkey solutions (all-inclusive costs) for each of the processing lines within the AH. This construction and expansion of the AH will be implemented over a number of years and, as such, the budget should be allocated accordingly.

The implementation plan that follows makes it clear the time periods for implementation. The total estimated budget for the Agri-park is R359,112,770 for a 10-year period.

11.8. Conclusion

The above concepts address the conceptual roles of each of the actors within the AP with 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 illustrate a holistic and integrated development approach that is required to bring to the AP efficiencies.

It is important that functions are complementary and coordination between the role-players is coordinated in a fashion that streamlines product flow. The ability to do this will ensure that a quality product is moved from 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, thus, the

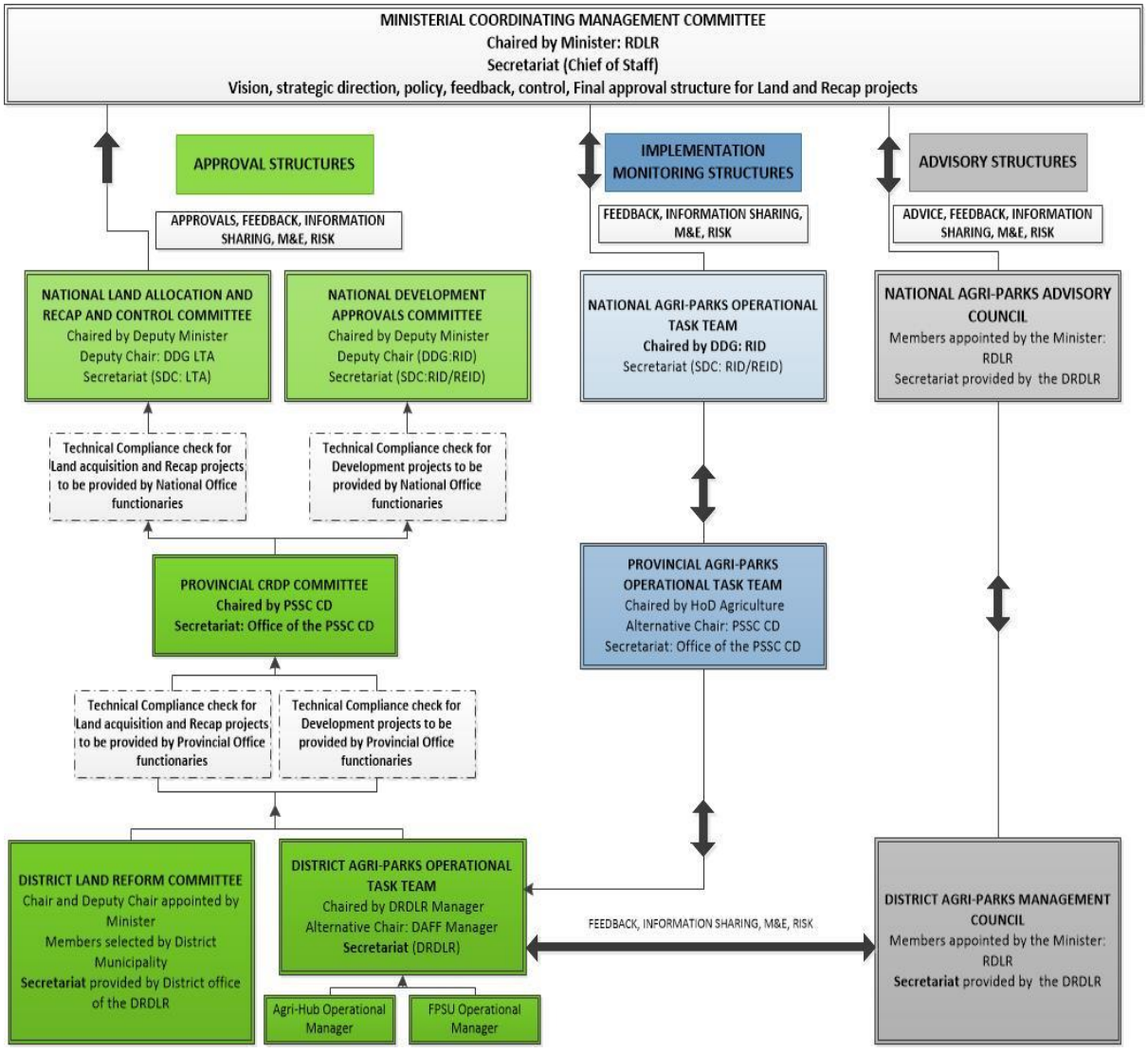
ability to meet the expectations, or demands of that role-player. Most important are the management systems that are implemented in the programme to ensure coordination between role-players is done effectively and timeously. The logistics functions and technology/ICT that is used are therefore integral to the success s of the system.

Section 12: Agri-Park Organisational Structure

12.1. Introduction

An organisational structure defines how activities such as task allocation, coordination and supervision are directed toward the achievement of organisational aims. Figure 23 explains the organisational structure of the Agri-Park that would which would be utilised in the SDM.

Figure 23: Agri-Park Organisational Structure



There are three sub-structures which would form part of the Sedibeng AP, namely:

1. Advisory Structures;
2. Approval Structures; and
3. Implementation Monitoring structures.

Each of the abovementioned structured will be discusses in detail in this section.

12.2. Advisory Structures:

The main functions of the advisory structures within the Sedibeng AP organisational structure are to give advice to the approval of structures. The advisory structures which have been identified are as follows:

- National Agri-Parks Advisory Council (NAAC); and
- District Agri-Parks Management Council (DAMC).

It is important to note that the advisory structures' member primarily comprise of stakeholders and interested parties.

12.2.1. NAAC

The 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.

12.2.2. DAMC

The DAMC, 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.

12.3. Approval structures:

Approval 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.

12.3.1. 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.

12.3.2. 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.

12.3.3. 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.

12.3.4. 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

12.3.5. PCRDP

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
- 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

12.3.6. 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.

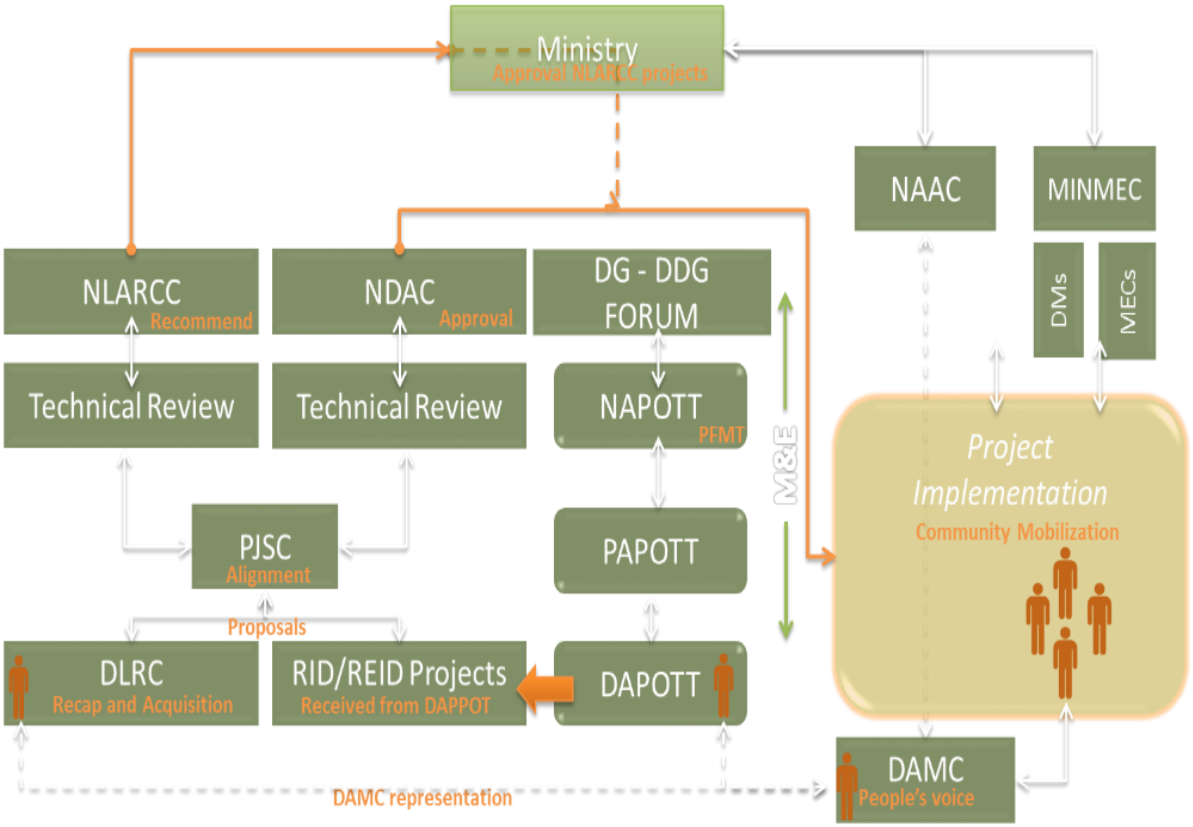
12.3.7. NDAC

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 land acquisition, tenure recapitalisation and development projects.

12.4. 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 24 provides an overview for the implementation and monitoring structures for the Agri-Park.

Figure 24: Implementation and Monitoring Structures



12.4.1. 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.

12.4.2. 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.

Section 13: Implementation Guidelines

13.1. Introduction

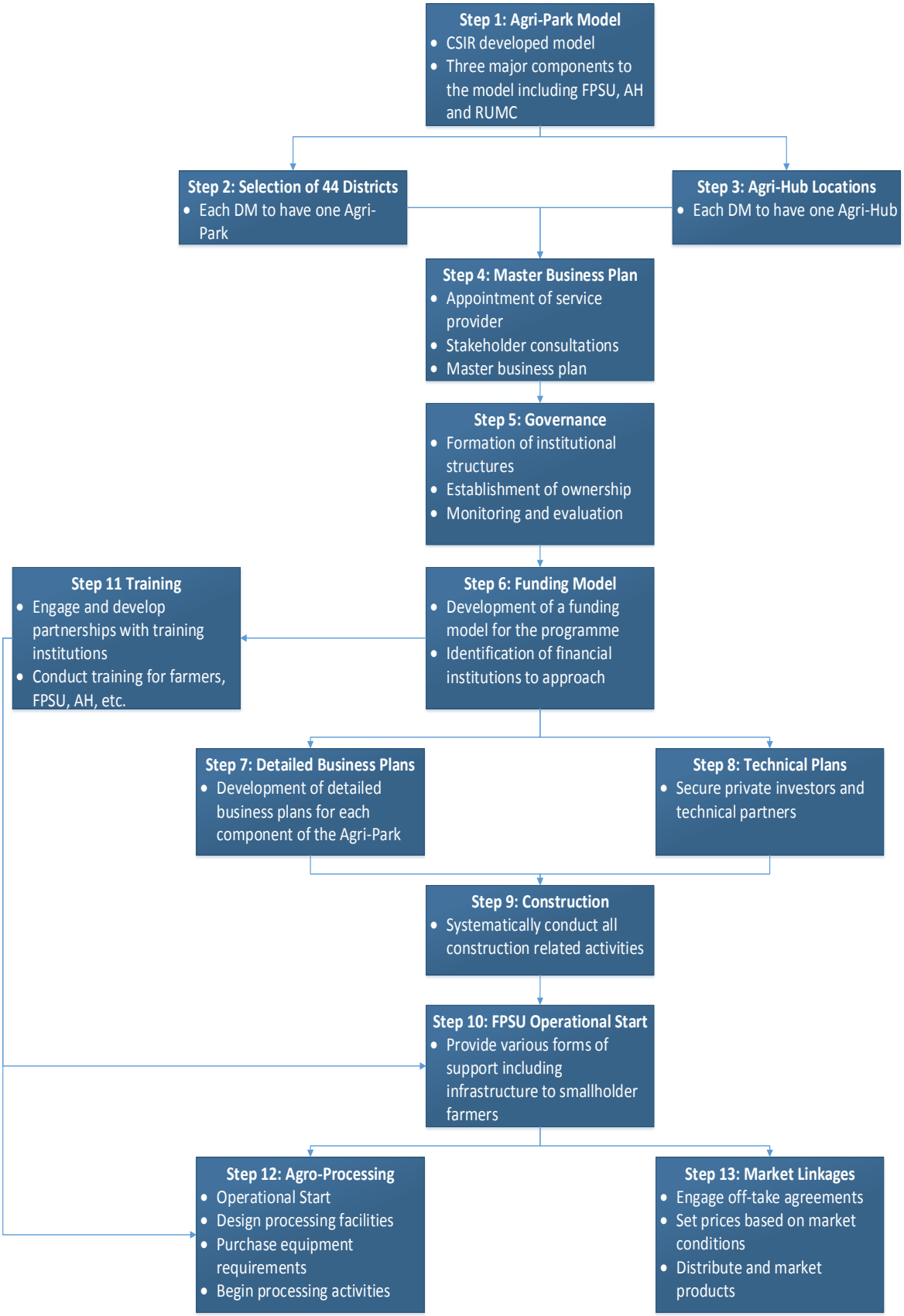
The following implementation guidelines provide an overview of what should be achieved in order to successfully implement the APs programme within the SDM. The implementation guidelines provide valuable information about:

- Understanding the implementation process and what is required for the process;
- How to align the implementation of the APs programme with various government initiatives in developing agriculture;
- Recommendations that will streamline and assist the development of the APs programme; and
- Steps to be taken in developing the AP in the form of a roll-out plan.

This final chapter lays out the implementation guidelines and planning required to implement the SDM Agri-Parks programme, starting with the implementation process.

13.2. Implementation Process

The above guidelines are used to develop the following implementation process for the rollout of the SDM Agri-Park. The process follows the following 13 steps:


Step 1: Agri-Park Model
CSIR developed model
Three major components to the model including FPSU, AH and RUMC
Step 2: Selection of 44 Districts
Each DM to have one Agri-Park
Step 3: Agri-Hub Locations
Each DM to have one Agri-Hub
Step 4: Master Business Plan
Appointment of service provider
Stakeholder consultations
Master business plan
Step 5: Governance
Formation of institutional structures
Establishment of ownership
Monitoring and evaluation
Step 11 Training
Engage and develop partnerships with training institutions
Conduct training for farmers, FPSU, AH, etc.
Step 6: Funding Model
Development of a funding model for the programme
Identification of financial institutions to approach
Step 7: Detailed Business Plans
Development of detailed business plans for each component of the Agri-Park
Step 8: Technical Plans
Secure private investors and technical partners
Step 9: Construction
Systematically conduct all construction related activities
Step 10: FPSU Operational Start
Provide various forms of support including infrastructure to smallholder farmers
Step 12: Agro-Processing
Operational Start
Design processing facilities
Purchase equipment requirements
Begin processing activities
Step 13: Market Linkages
Engage off-take agreements
Set prices based on market conditions
Distribute and market products

1. **Agri-park model:** The APs model has been developed by the DRDLR and has been adopted as the model of preference nationally;
2. **Selection of the 44 Districts Municipalities:** The APs model is to be implemented across 44 districts nationally over a 10-year period;
3. **Agri-Hub location selection:** The DRDLR along with technical partners have identified locations for the AH in each of the given districts. The AH forms the heart of the APs programmes, where significant agro-processing takes place;
4. **Master Agri-Park Business Plan:** The Master APs Business plans were developed for the APs. This plan identified specific commodities that agriculture would be developed around within the districts. The plan further outlines challenges and opportunities for each of the Agri-Parks;
5. **Governance:** Strategic bodies and plans will be formed, including the defining of ownership and management structures;
6. **Funding model:** A financial gearing plan will be developed for each AP once all costs for implementation are established. The plan will also assist in developing investment memorandums to attract investors;
7. **Technical planning:** The technical aspect of the AP will entail, mainly, the planning of the physical construction of the AP along with related infrastructure and technologies;
8. **Detailed business plans:** The different units of the APs (i.e. FPSUs, AH and RUMC) as well as the farmers will have specific detailed business plans developed;
9. **Financial close:** Funding will be sourced from various financial institutions, government bodies and private investment, depending on the funding model;
10. **Construction:** The construction of the APs units and other related infrastructure will start;
11. **Training Programmes Rollout:** Training programmes will commence through the FPSUs and other partners;
12. **Farmer Production**: FPSUs will be set-up and run in order to make assistance available for farmers to start production through the AP;
13. **Agro-Processing**: Once primary production has taken place, and products are ready, agro-processing activities will commence through the APs AH; and
14. **Market**: Completed products will be distributed and sold to relevant markets through assistance of the RUMC. Moreover, the RUMC will responsible for providing information to producers for production purposes.

The 14 step implementation process should align with current projects that take place in a district context in order to avoid duplication of any existing programmes/projects/campaigns, while also continuing with them to avoid redundancies. Various programmes/projects/campaigns are identified and described in the following sub-section.

13.3. Alignment with Government Programmes

The APs programme is required to align with various agricultural programmes, projects, or strategies that have been adopted and implemented by government and its various departments. Table 68 below provides an overview of the various programmes/projects/campaigns that are currently under progress and how the AP could potentially align.

Table 68: Government Programmes, Projects and Campaigns

Programme/Project /Campaign	Description	Agri-Parks Alignment
Agricultural Programmes		
Agricultural Broad-Based Black Economic Empowerment (AgriBEE)	The implementation of AgriBEE is based on the commodity value chain approach. The approach is fundamental in creating partnerships, linkages, and networks for balanced, mutually benefiting results for all	❖ The AP will focus on the development of the value chains for each of the identified commodities; ❖ In developing the value chain there needs to be a focus on

	concerned. The AgriBEE is expected to ensure enhanced competitiveness and sustainable development with expansion of the existing businesses, rehabilitation of agricultural business that are performing poorly and expanded entry for new businesses in the sector. AgriBEE also encourages partnerships between established agricultural enterprises and emerging farmers and entrepreneurs.	integration of all stakeholder to be involved; ❖ Integration of the value chain will create partnerships and linkages that will be mutually beneficial for all stakeholder involved and enhance the competitiveness of the AP; and ❖ Stakeholder engagement is required to encourage partnerships that are beneficial from farmers to markets.
Comprehensive Agricultural Support Programme (CASP)	The programme provides agricultural support to land and agrarian reform projects, which contributes towards food security, job creation and poverty alleviation. CASP is also involved in the development of a number of policies, strategies and projects that are geared toward the development of the agricultural sector. These include: o Agricultural finance lending; o Co-operatives establishment; o Access to markets; o Value chain development; o Improvement policies; o Production guidelines; o Agro-logistics planning; and o Early warning climate systems.	❖ The AP should work closely with CASP projects to support the initiatives set out within CASP; ❖ Policy alignment is key to achieve a common set of goals; ❖ The AP should focus on job creation through various initiatives, especially primary agriculture where there is potential for many job opportunities; ❖ The AP should investigate initiatives to extend credit to farmers; ❖ The AP needs to encourage and manage the establishment of co-operatives; ❖ Management practices need to be implemented at various stages of the value chain in order to ensure consistent production and product quality; and ❖ Information technology should inform all stakeholders within the value chain.
Integrated Food Security and Nutrition Programme (IFSNP)	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, and as a result 10% of the total CASP budget will also be aligned to projects that contribute directly towards food security (DAFF, 2016).	❖ A major objective of the AP is to improve food security; ❖ Primary production should be a key focus of the AP; and ❖ The AP will therefore be required to improve access to markets through engaging the markets and meeting the requirements of the market procurement policies.
Research and Development (R&D)	The programme encourages research and development within the realm of agriculture and involves all stakeholders within the national agricultural research system.	❖ Training forms part of the APs many roles; ❖ Training requires research and development initiatives that should align with R&D

		programmes set out by government; and ❖ R&D is required throughout the value chain and will be required to evolve as technologies do.
National Regulatory Services (NRS)	The increased trade in regulated agricultural products has required the development of the NRS that regulates and promotes international trade. This includes inspections of agricultural produce and bilateral negotiations. In addition, the NRS promotes awareness with respect to agricultural produce health matters.	❖ The AP should implement policies that enforce international standards on production and processing that will allow the programme access to international markets.
Land and Agrarian Reform Project (LARP)	The objectives of LARP are the redistribution of land, increased black entrepreneurship, promoting access to agricultural support services, increased agricultural production, and increased agricultural trade. The programme builds on lessons that have been learnt from previous land reform projects, reviews, the Land Summit and implementation reforms.	❖ The AP forms part of the market for farmers and will therefore encourage production; ❖ Models are to be developed to distribute state own land and ensure land tenure is in place for producers; and ❖ Access to the market through the AP will further encourage land that was previously not in production to produce.
LandCare	The LandCare programme was established to promote productivity through the sustainable use of natural resources, to improve food security and create employment, therefore encouraging South Africans to use sustainable methods of cultivation, livestock grazing and harvesting of natural resources in order to limit land degradation.	❖ Access to the market through the AP will further encourage land that was previously not in production to produce; and ❖ The AP is to encourage the sustainable use of land and resources.
Small Holder Farmer Evaluation	The programme focuses on the integration of smallholder farmers into the greater agricultural value chain. The programme works in conjunction with other programmes and provides strategic agricultural support.	❖ The AP will manage and encourage smallholder production, a primary objective of the AP; and ❖ Logistics and management plans are key to the success of integration of smallholder farmers.
Rural Development Programmes		
Comprehensive Rural Development Programme (CRDP)	The CRDP is in place to create decent work and sustainable livelihoods. The programme ensures sustainability, communal ownership and effective contribution toward the objectives of developing rural areas. The overarching objective of the CRDP is social cohesion and integrated development through participatory approaches and partnerships with all sectors of society.	❖ The Agri-park encourage primary production; ❖ Will have support mechanisms in place to ensure best production methods; ❖ Create jobs in primary agriculture; and ❖ Ownership models encourage social cohesion, integration and participation from all stakeholders.

National Rural Youth Service Corps programme (Narysec)	Narysec is a youth skills development and employment programme that also forms part of the CRDP. The programme also provides character building programmes, soft and hard skills training and dispatches youth to rural areas for rural development projects. The programme further transforms the youth of rural areas, from being job seekers to being job creators.	❖ The APs programme will encourage youth to participate in agriculture by creating viable and attractive agricultural enterprises.
Rural Enterprise and Industrial Development (REID)	REID is in place to facilitate poverty reduction, social organisation, youth development and the development of cooperatives, rural enterprises and industries.	❖ The AP encourage primary production; ❖ Will have support mechanisms in place to ensure best production methods; ❖ Create jobs in primary agriculture; and ❖ Ownership models encourage social cohesion.
GDARD Agri-Hubs Development	The GDARD seeks to develop Agri-Hubs that will result in the growth of the local agricultural sector through integrated agricultural value chains.	❖ Similarities in the programmes are complementary and will align accordingly.

13.4. Recommendations

The below table provides a list of recommendations that should be considered for the development of the AP in the SDM.

Infrastructure

- Roads should be developed and upgraded to accommodate transport vehicles that collect and distribute the commodities within a district. This will likely result in faster transport times, less bruising to produce, and have a lesser impact on vehicles. The district should investigate the potential of tapping into rail roads for the transportation of agricultural produce;
- The district should capitalise on all already existing initiatives and infrastructure for the establishment of the AP. There should be upgrading and revitalisation of any existing infrastructure that can be used to support the development of the AP;
- Establish infrastructure that will aid the recycling of waste water for use in agricultural activities. Significant amounts of waste water are discharged into natural river systems that should rather be used for agricultural production, especially since water is a scarce commodity.

Natural Resources

- Considering that the entire district is water scarce, more work should be done in determining water availability for agricultural production around the proposed location of the AH, FPSU(s) and around all the major areas where primary production potentials is huge as well as areas where the available water sources can be used to support primary production;
- 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; and
- Small scale farmers should have rain harvesters (e.g. Jojo Tanks) on their farms. This would serve as water reservoirs in the absence of rain fall.

Agri-Park commodities

- Best Practices in production and processing must be implemented to ensure a quality product that meet international standards. Efforts should be made to ensure that product that are processed and packaged comply with international standards, to enhance products' suitability for the export markets; and
- Although the initial phase of the project will support the development of the value-chain of the three pre-dominant commodities in the district, it is recommended that processing facilities should be expanded in subsequent phases to accommodate the production of other crops and livestock in subsequent phases. The AP should not be limited to the production of three commodities, but rather look to diversify production and spread risk.

Technology

- Telecommunication services should be upgraded (e.g. erection of cell towers) in areas that are currently underserviced, particularly in the rural areas, since most of the farmers that would be targeted are located in these areas. This will allow farmers the access to information required for production, while also linking to information that is provided by the RUMC and AH. Further to this, investigations should be made into government subsidising telecommunication services (e.g. provision of free Wi-Fi) in the district to enable producers to overcome the cost barrier associated with their low levels of connectedness. 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; and
- Equipment and machinery used should be of a level that does not significantly replace labour, but still provide the competitive edge required to compete within the industry. Further to this a planning process is required to ensure machinery is distributed according to a production plan that each FPSU is to manage.

Training

- The FPSU and AH should establish partnerships with certain research institutions for research and development, and also to facilitate training programmes. Established training and research institutions have the capacity to assist in human capital development and training. The partners would ideally have many years in the industry and have an impressive track record. Partnership should also be established with commercial farmers who are able to assist in production and skills development;
- Practical manuals and information packages should be developed for the smallholder and emerging farmers to assist them in their production processes. These manuals and information packages should cover aspects relating to: regulatory requirements, information on support programmes, production guidelines, etc. Where possible, manuals should be developed in language of choice to enhance easy understanding; and
- Training should be geared to agribusiness development and changing the perception that agriculture is for subsistence purposes and/or a sign of wealth (owning land, or herds of cattle is often viewed as a sign of wealth). Farmers need to be made aware of the economic advantages that lie within agricultural production and that businesses can be developed. As such, producers should be trained in business administration activities.

Agri-Park Units

- The RUMC should be strategically situated in close proximity to the Lanseria International Airport. The strategic location will allow the AP to take advantage of potential export opportunities, while it remains in close proximity to both the Pretoria and Johannesburg markets. Further investigations should be made to identify a site for the development of the RUMC;

- The FPSU(s) should be strategically located around productive farm areas that have significant potential for primary production. Further investigations should be made to identify a sites for the development of the FPSUs;
- Develop an inventory map for farmers that are earmarked for production within the AP. Production areas should be zoned and mapped and FPSUs should be centrally located to these production zones. Zoning in this manner will allow for streamlining of logistic activities that take place within the AP. Farmers are to be engaged and informed of the process and development of the AP – they will also be required to have a representative body for engagement with various stakeholders; and
- Business Plans should be developed for each of the entities within the AP, including the farmers, FPSUs, the AH and the RUMC. The business plans are required to detail the operations of each of the entities, further detailing their role and responsibility within the AP.

Logistics

- A comprehensive logistics plan should be developed to guide the implementation of the AP. The plan should investigate various methods of moving produce from farm to fork. This should be done to allow smallholder and emerging farmers ease of access to markets, a crucial area for the success of these farmers;
- Smallholder farmers with small production capacities should be encouraged to work in joint ventures in order to participate in supplying the AP. Consolidating produce in order to create economies of scale is critical in gaining access to the market – this should be considered in depth within the logistics plan – consolidation points are of critical importance within the Agri-Parks model; and
- The District APs Councils should engage with other departments and be responsible for the implementation of the APs. A representative body must take ownership of the AP and implement the project. This body should represent all stakeholders, public and private, within the AP.

Policies

- Policy should be set in place to encourage cross-border relationships and partnerships with neighbouring districts, where infrastructure and resources can be shared, should the district be short of or have excess of certain resources – this will further develop economies of scale, distribute risk and encourage a fully integrated national APs programme;
- 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 AP to be upheld, and also to allow for the evaluation of the AP development;
- Policy around land ownership should be revised such that it provides security of tenure to farmers. Ownership of land encourages farmers to invest in their land and encourages borrowing for financing activities. Ownership of land encourages productivity and is therefore mutually beneficial for the farmer and the AP;
- Monitoring and evaluation policies need to be set in place: The constant monitoring and evaluation of participants within the Agri-Park is a due diligence process that ensures that the participants are operating and effectively contributing to the programme. Under-performing participants should be assisted and continuous underperformance should result in replacement; and
- Meet objectives: Producers should be educated on the objectives of the Agri-Park so that they are able to meet the expectations that are set out within the Agri-Parks business/operating policies. The ability for producers to cooperate within the system is important in meeting the objectives of the programme.

Funding /investment

- Funding mechanisms/incentives need to be developed in order to encourage local investment and attract foreign investments. Investment is a key input to the development and

implementation of the AP. Incentives, or mechanisms that encourage investment in the AP will have positive spin-offs for the project in faster development and potentially in technologies that have a positive impact on production activities.

Integrated Development

- Tourism needs to be encouraged within the AP. Tourism remains a key contributor to local economies, especially through job creation. Agriculture has proven to be relatively successful in encouraging tourism, especially in Western Capes winelands. Efforts should be made to accommodate tourists within the AP through on-farm activities and tours of agro-processing activities.

Market

- Engage farmers and the market. The AP must engage the farmers and the market in order to provide farmers with access to the market. Engagement with farmers has indicated that it is difficult to access markets, while engagement with the market has indicated that accessing produce from small-holder farmers is difficult given the transaction costs in managing procurement from these farmers. Understanding the requirements from each side is an imperative in understanding the requirements of one another and therefore access to the market.
- District should form partnership with some of the existing main players in the various industries to enable them penetrate local and international market. The management of the Agri-Park, or RUMC must be responsible for linking the farmers to the market. The RUMC must play a role as the representative body for all farmers participating in the Aps programme and assist the farmer in access to the market.
- Partnerships should be established with commercial and semi-commercial farmers. Commercial and semi-commercial farmers often have a track record and understand the requirements of the market. As such, smallholder and emerging farmer would be able to piggy back on the more established farmers in order to gain the required skills needed to access the market.

Incentive programme

- Incentive programmes and packages that would make agriculture more attractive as a business/enterprise, (especially to the youths) should be developed. For example, awarding scholarships that would encourage young individuals study in the field of agriculture, creating a youth centre within the AP, to help the underprivileged youth in a way such that they render services to the AP, while they get taken care of in return;
- Farmer's must apply to form part of the Agri-Parks programme: Farmers need to develop business plan and follow an application process that will allow them to form part of the Agri-Parks programme. This forms part of a due diligence process that is to be formulated by the relevant parties, including the DRDLR and WRDM. Agri-Parks requires that producers for are able to produce and meet market expectations, while farmers need to operate viable enterprises – making the due diligence process important; and
- Incentives need to be developed to encourage participation within the Agri-Parks projects: Tax breaks, access to markets, transport subsidies, guaranteed prices, land tenure, ownership, and subsidised inputs are all incentives that could be developed to encourage participation in the programme. Various incentives should be investigated to develop an environment of participation. The incentives should be such that participants are better off operating within the Agri-Park programme than if they were not.

Linkages

- Sedibeng District and West Rand District are neighbouring districts and can be fundamentally linked through agricultural programmes. Amongst the programmes already under investigation is the Gauteng Agrotropolis, which seeks to link the districts and align all agricultural related

projects that will create a major agricultural district and economy. As such, it is recommended that the Agri-Parks programmes seeks linkages between the initiatives and aligns strategies.

Catalytic Projects

- A catalytic project relating to local vegetable farming is the development of a vegetable pack house and processing facility for the washing, sorting, grading and packaging of local produce. Some retail activities and basic processing (chopping, peeling, etc.) can take place as well;
- A catalytic project relating to poultry farming is the development of a poultry abattoir for the slaughtering of chickens. Primary processing in terms of preparing cuts (fresh/frozen) for the local retail market can also take place; and
- A recommended catalytic project for red meat production is the establishment of a full capacity Abattoir; for the slaughtering of cattle, pork and sheep. Also, for primary beneficiation in terms of packaging of fresh and frozen cuts for the retail market.

These recommendations are based on the analysis done on the economic infrastructure, socio-economic analysis and consultations with district stakeholders and the understanding of the status quo of agriculture within the SDM. The recommendations inform what needs to be done in order to achieve the goals that have been set out within the business plan.

ILCA Trading Pty (Ltd) indicated in a presentation that the SDM has various opportunities for agricultural potential. The starting point for these opportunities lies in the development of a 50000m³ reservoir on top of a koppies (within vicinity of the Sedibeng AP) which could allow for gravity fed irrigation for at least 200 hectares of agricultural land.

There are roll on benefits should the reservoir be developed, such as:

1. Food supply (fresh produce, meat products, processed meat, dairy product, honey bee farming and barley farming);
2. Clean water;
3. Sanitation;
4. Roads;
5. Job creation;
6. Conservation;
7. Wetlands;
8. Botanical gardens; and
9. Training (Agriculture, conservation, water treatment, brick making and paving).

One important roll on benefit is waste water utilisation. Instead of using chlorine to treat the water, water treatment could use UV which eliminates the use of chlorine. Lidwala Specialist Solutions indicated that there is enough waste water of good quality to irrigate 8000 hectares. ***There is a large scale waste water treatment works new Pump Station and associated Sewers that will connect to the existing sewerage network located within the SDM. It will treat effluent that cannot be dealt with at the existing waste water treatment works in SDM, as well as future growth.***

Please see Appendix B for an overview of the Sedibeng Agri-Park Irrigation Proposal.

Further opportunities identified within the SDM include garden waste (large scale composting), methane gas production, organic farming, mushroom farming, conversion of the Leewkuil waste water treatment works into a mushroom farm, utilization of equipment from the Parks Department, grass cutting of public roads, small holding development (tunnel farming, drip irrigation, chicken farming, rabbit farming, brain tannery, vegetables, bee farming), eco villages.

Additionally, it was indicated that the Sedibeng Agri-Park could offer:

1. Functioning cultural village;
2. Levalla chalets;

3. Crocodile farm;
4. Plaaskombuis restaurant;
5. Fresh produce market and picnic baskets;
6. Curio shop; and
7. Hiking and cart rides.

13.5. Roll-out plan

Implementation is a crucial element in any strategy and needs to be adhered to realistic timeframes and role-players. This subsection focusses on the implementation actions for the elements as discussed within this document. The implementation plan is structured in a way that it follows a phased approach in order to prioritise the necessary actions that will help in facilitating an enabling environment for the establishment of the Agri-businesses within the AP.

The best approach for the Agri-Park formulation is in a phased manner, this implies that there are short, medium and long term actions that need to be implemented in order to bring the Agri-Park from identification to implementation. These actions or goals are structured in accordance with the theoretical foundations to the formation stages of a park. These stages are illustrated in the below and show the actions to be taken over the project duration. The main implementation actions associated with each term will be discussed with their details thereafter.

13.5.1. Short-term: Agri-Parks start-up

The pre-park formation process are the actions that are necessary as a foundation for the other phases to follow. These actions need to be conducted within the immediate short-term, and forms the foundation on which the agri-businesses within the AP will develop. This is the first phase in the Rietkuil AH formation process. These actions are indicated as the steps that should be achieved within the first year.

13.5.2. Short- to Medium-Term: Emergence of the Agri-Park

The next phase in the AP implementation/development process is that of the emerging park, a short- to medium-term goal. At this stage the required primary infrastructure and statutory requirement process should have been established, or in the process of implementation. The focus should be on implementing the actions required for the formation of the emerging park as the basis for the development of the hub which was laid out in the previous phase.

During this phase the core AH businesses should be established and the focus should start shifting towards forming linkages with other agro-processing functions, such as private investors, emerging farmers and supporting services in the SDM. This phase is centralised around the establishment of the agri-businesses within the hub to form the anchor around which the AP can be developed. These steps are to be achieved from years two to four.

13.5.3. Medium-Term: Expanding the Agri-Hub

The expanding hub is when the hub has reached a stage when it is starting to operate at full capacity and the potential for spin-off opportunities or expansion of existing practices are present within the hub. At this stage the agri-businesses within the Randfontein AP functions start operating at a profit and can start depending less on the help of government and more on solidifying operations, supply lines and target markets. Linkages should be starting to become established and the opportunities for new linkages

and operations can be formed. This should be the focus from year five to seven, but continue into the evolution for the AP.

13.5.4. Long-Term: Agri-Hub Evolution

This is a long-term phase when the Randfontein AH reaches maturity. The focus of this phase should be on improving and furthering efficiency within the AP and larger SDM and the identification of areas for further improvements and development opportunities. The agri-businesses should begin to forming strong linkages, each exploiting economic advantages and the formation of linkages with smaller firms, functions and services is established, as well as taking on new opportunities.

The roll out plan illustrated below indicates a step-by-step plan that should be followed for the implementation of the APs within the SDM.

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 policy framework for the Agri-Parks										
	3. Establishment of national Agri-Park project support facility to support and coordinate district base operational teams										
	4. Development of detailed plan and design of a prototypical Agri-Park that is adaptable, 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)										
STEP 2: Agri-Hub Location Selection	1. Development of a site selection methodology and location criteria										
	2. Initial site identification together with the generation of site specific maps with district specific narratives and selection criteria.										
	3. Property selection process										
	4. Sign-off of final Agri-Park sites by each district municipality										
STEP 3: Master Agri-Park Business Plan	1. Appointment of service providers to develop Master Agri-park Business Plans for each district municipality										
	2. Stakeholder consultations										
	3. Commodity identification										
	4. Policy and strategy alignment										
	5. Identification of major role-players										
	6. Development of an industry report										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	7. Feasibility assessment of three prioritised commodities										
	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 Development Financial 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 scenarios on project gearing										
	6. Conduct a sensitivity analysis										
STEP 6: Technical Planning	1. Design of Agri-park specific incentive schemes										
	3. Identification of potential Public Private Partnership's										
	2. Secure private investors / technical partners										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	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)										
	7. Consultations with technical specialists										
	8. Development of the Agri-parks Monitoring and Evaluation Framework										
STEP 7: Detailed Business Plans	1. Development of detailed business plans for each Farmer Production Support Unit										
	2. Development of a detail business plan for the Agri -hubs										
	3. Development of a detail business plan for the RUMC's										
	4. Development of a detail business plan for small holder farmers										
	5. Development of a detail 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										
STEP 9: Construction	1. Finalise the project designs and drawings										
	2. Conduct a bill of quantities										
	3. Prepare tender documentation										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	5. Tender evaluation and selection process										
	7. Site preparation										
	8. Construction Facilities & upgrade of existing infrastructure										
	9. Site handover										
STEP 10: Primary Production	1. Identify emerging farmers and their capacity to supply the different agri-businesses, assess the capacity of the farms to see what the capacity of the farms are for 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, possible export destinations										
	5. Design processing facilities/ production lines, taking into consideration procedures 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, identification of suppliers' location,										
	10. Recruit and train employees										
	11. Secondary processing of primary processed products, packaging, labelling, and storage.										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
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.										
	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 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.										

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Appendix A: New Entrants

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Mr. Busakwe	De deur	Midvaal	Unknown	072 217480
Mnguni	Kaydale	Lesedi	Beef and Dairy	073 2969 062
Jan	Wailers farm	Midvaal	Beef cattle	072 704 3183
Kgabang Ma Afrika	Mapleton	Ekurhuleni	Broiler & Veg	
Chicken Hazen	Mullerstein	Emfuleni	Broiler & Veg	083 308 6613
Msibi's Farm	Waterdal	Emfuleni	Broiler & Veg	072 075 1104
Ms Ntlovu	Waterdal	Emfuleni	Broiler & Veg	083 7418 925
Bogale Project	Dreamlands	Emfuleni	Broiler & Veg	083 487 2906
Matsoho a thlatswa	De deur	Midvaal	Broiler & Veg	083 487 2906
Makoloane	De deur	Midvaal	Broiler & Veg	082 9281 934
Mr Motale		Midvaal	Broiler & Veg	078 103 7309
Mrs Nkosi	Walkerville	Midvaal	Broiler & Veg	082 051 8584
Osimo farm	Holfontein	Emfuleni	Broiler and crop	084 583 8069
Chicken chain project	Devon	Lesedi	Broiler and Livestock	084 503 9860
D.C Qupe	Evaton	Emfuleni	Broiler and sheep	082 3640 997
Esther Matsenene	Putfontein	Ekurhuleni	Broilers	076 1919 026
Timothy	Putfontein	Ekurhuleni	Broilers	082 4269 738
Isikhukhukazi	Roodekraal	Ekurhuleni	Broilers	083 6618 900
Sekhoela Project	Putfontein	Ekurhuleni	Broilers	072 373 4803
Tsholo's poultry	Putfontein	Ekurhuleni	Broilers	072 348 9368
Tshuma's farm	Putfontein	Ekurhuleni	Broilers	072 411 6767
Alex Ngwenya	Klippoortjie	Ekurhuleni	Broilers	082 7753 642
Joe Lerumo	Putfontein	Ekurhuleni	Broilers	072 516 4377
Donnah Radinne	Rietkol	Ekurhuleni	Broilers	083 673 6567
Thabang Gabashane	Putfontein	Ekurhuleni	Broilers	083 991 3073
Moeketsane	Spaarwater	Lesedi	Broilers	016 3421 506
Philemon Nkosi	Jameson Park	Lesedi	Broilers	082 932 8436
Ratanda Farmers	Ratanda	Lesedi	Broilers	082 315 8996
Small Farmer Development	Devon	Lesedi	Broilers	083 539 9705
Malebo's farm	Mullerstein	Emfuleni	Broilers	083 5940 408
Bakubung broiler	Theoville	Emfuleni	Broilers	083 946 9431
Farmers dream	Bloempark	Emfuleni	Broilers	072 717 0385
Thothe	Dreamlands	Emfuleni	Broilers	072 507 6784
Mokonyane	Rosashof	Emfuleni	Broilers	072 271 4329
Lebitsa	Rosashof	Emfuleni	Broilers	083 761 6061
Khasibe broiler Project	Dreamlands	Emfuleni	Broilers	082 323 5214
Moeng 's Farm	Sebokeng	Emfuleni	Broilers	082 346 9438
Siyaya Broiler	Vereeniging	Emfuleni	Broilers	083 355 3966

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Maartens	Dreamlands	Emfuleni	Broilers	N/A
T.D. Mokoena	Sharpville	Ekurhuleni	Broilers	
Mothopeng	De deur	Midvaal	Broilers	082 717 4400
Nellie	Walkers fruit farm	Midvaal	Broilers	083 258 9004
Mr Ramaphosa	Walkerville	Midvaal	Broilers	076 1965 221
Mr Lenake	Bloemendal	Midvaal	Broilers	082 820 5378
Mrs Hill	Walkers fruit farm	Midvaal	Broilers	
Mr Mofokeng	Hartzenbergfontein	Midvaal	Broilers	
Ms Mendu	Hartzenbergfontein	Midvaal	Broilers	083 239 2269
Mphele	Boltonwold	Midvaal	Broilers	083 414 3251
Thomas	De deur	Midvaal	Broilers	083 672 5279
Molebatsi	Walkerville	Midvaal	Broilers	082 262 1993
Mr Lord	Orange farm	Midvaal	Broilers	
Mrs Mendu	Hartzenbergfontein	Midvaal	Broilers	082 5666 602
Mr Andile	Walkerville	Midvaal	Broilers	083 7458 215
Babbie	Orange farm	Midvaal	Broilers	083 691 4949
Mr Mogaswa	Walkerville	Midvaal	Broilers	
Vicky	Bloemendal	Midvaal	Broilers	072 210 3765
Barbara	Elandsfontein	Midvaal	Broilers	082 719 0834
Bessie	Walkerville	Midvaal	Broilers	083 988 1765
Kagiso	Hartzenbergfontein	Midvaal	Broilers	082 570 1622
Lefa	Meyerton	Midvaal	Broilers	072 759 9548
Mr Khambule	De deur	Midvaal	Broilers	083 717 9380
Tumi	Meyerton	Midvaal	Broilers	084686 4688
Mataka	Walkers fruit farm	Midvaal	Broilers	083 379 1700
Petrus	De deur	Midvaal	Broilers	072 929 5188
Johannes	walkerville	Midvaal	Broilers	082 333 5908
David	Meyerton	Midvaal	Broilers	
Ghislan	Wailers farm	Midvaal	Broilers	072 473 9787
Mr Kekana	Walkers fruit farm	Midvaal	Broilers	082 463 1513
Mr Mokoena	Walkers fruit farm	Midvaal	Broilers	730072219
Mr Maswikaneng	Sicelo	Midvaal	Broilers	083 562 7613
Mike	De deur	Midvaal	Broilers	072 752 7448
Mohadi	Walkerville	Midvaal	Broilers	078 919 2451
Solly	Daleside	Midvaal	Broilers	
Mrs Mafithle	Walkerville	Midvaal	Broilers	084 766 6974

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Kalasi	Meyerton	Midvaal	Broilers	073 447 8992
Mr Maleka	Meyerton	Midvaal	Broilers	072 825 7155
Mrs Diale	Walkers fruit farm	Midvaal	Broilers	073 208 8725
Mr Madondo	Walkerville	Midvaal	Broilers	083 722 1953
Mrs Njovane	De deur	Midvaal	Broilers	083 512 9173
Hlangana Isizwe	Apple Orchard	Midvaal	Broilers	073 144 7268
Ntaleni	Bottonworld	Midvaal	Broilers	725153396
Mabel	Boschoek	Midvaal	Broilers, piggery, cattle	084 728 0451
Mr Masiteng	Apple Orchard	Midvaal	Cash crops	083 650 0039
Mr. Mohapi	De deur	Midvaal	Cash crops	072 370 0707
Mrs Msimanga	Wailers farm	Midvaal	Cattle	
Mr Mtombo	Wailers farm	Midvaal	Cattle	
Mr Nkuane	Wailers farm	Midvaal	Cattle	
Mr Khumalo	Wailers farm	Midvaal	Cattle	
David	Wailers farm	Midvaal	Cattle	
Mr. Nkosi project	Nigel	Lesedi	Cattle, Maize	082 518 0420
Phato farm	Babsfontein	Ekurhuleni	chives	082 5666 602
Sizanani Vlakfontein	Nigel	Lesedi	Crop production	083 4786 859
Mr Moloi	Putfontein	Ekurhuleni	Crops	082 880 1337
Booysen Ledwaba	Withok	Ekurhuleni	Crops	072 805 5209
Sungula Business Enterprises	Putfontein	Ekurhuleni	Crops	083 372 0643
Kganane Project	Putfontein	Ekurhuleni	Crops	
Mlangeni Project	Putfontein	Ekurhuleni	Crops	
Mr. Kambule	Waterdal	Emfuleni	Crops	
Mr. Dono	Waterdal	Emfuleni	Crops	
Raphesu Farming	Holfontein	Emfuleni	Crops & livestock	
Summer Sun	Klipkop	Emfuleni	Crops & piggery	
Mokoena's farm	Waterdal	Emfuleni	Crops small stock	082 6320 225
James Nkosi	Vischkuil	Lesedi	Crops/ Broilers	N/A
Phakamile Vundla	Roodekraal	Ekurhuleni	Crops/ Livestock	(011) 901 1499
Jacob Mahlangu	Kaydale	Lesedi	Crops/ Livestock	072 503 8775
Jameson Park Commonage	Jameson Park	Lesedi	Crops/ Livestock	082 932 8436
Thabo Tseki	Roodekraal	Ekurhuleni	Crops/ pigs	082 084 5956
Iya	Putfontein	Ekurhuleni	Dairy	083 3455 674
Aka Shango	Devon	Lesedi	Dairy	082 9281 934
Ntsheare	Devon	Lesedi	Dairy	082 5541 492

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Situnda's project	Waterdal	Emfuleni	Dairy	072 991 9847
E.M Sekwana	Dreamlands	Emfuleni	Dairy	082 068 8902
Rietkuil Dairy	Rietkuil	Emfuleni	Dairy	N/A
Mali-khulu	Klipkop	Emfuleni	dairy	084 800 7007
Mr Thusi	Doornkuil	Midvaal	Dairy	082 419 0564
Puleng	Elandsfontein	Midvaal	Dairy	084 928 4059
Thabane	Waterdal	Emfuleni	Dairy and piggery	083 758 0125
Austin's farm	waterdal	Emfuleni	Dairy, broilers & s	073 8178 470
Malinga's farm	Dreamlands	Emfuleni	Field crops	016 5564 407
Ntsing project	Rosashof	Emfuleni	Field crops and vegetable production	073 0620 329
Mr Mbele	Walkerville	Midvaal	Free range chickens	082 295 2057
Balemi ba lekoa	Klipkop	Emfuleni	Grain crops	082 878 2219
Pule Farming	Holfontein	Emfuleni	Grain crops	
Eve proj	Klipkop	Emfuleni	Grain grops	082 787 6134
Mr. Maleka	Sharpville	Ekurhuleni	Grains	
Tembisa Self-help association of the disabled	Tembisa	Ekurhuleni	Hydroponics	082 929 3191/0119256385
Dijalo Vegeatable	Dreamlands	Emfuleni	Hydroponics	073 319 5654
kunene & sons	De deur	Midvaal	l/stock, veg & poultry	0731729250/
Dlomo commonage	Sharpville	Emfuleni	Large/small stock	072 804 9867
Lowkuil commonage	Sharpville	Emfuleni	Large/small stock	072 804 9867
Ntlele	Rietkuil	Emfuleni	Large/small stock	082 421 3681
Koos Mabiletsa	Vischkuil	Lesedi	Layers	082 497 0461
Steve Motsoeneng	Vischkuil	Lesedi	Layers	084 740 0162
Mr. Vena project	Devon	Lesedi	Layers	083251 4077
Monzai	Rosashof	Emfuleni	Layers	072 400 1245
Makgalema	Rosashof	Emfuleni	layers	083 547 1729
Tladi	Rosashof	Emfuleni	Layers	084 646 0956
Tsogang Bataung	Dreamlands	Emfuleni	Layers	082 4344 148
Moloisane Broiler	Rosashof	Emfuleni	Layers	N/A
Awake Phaphama	De deur	Midvaal	Layers	072 613 3782
Ntombi	Wailers farm	Midvaal	layers	083 212 8835
Alfred	Koolfontein	Midvaal	Layers	
Motswane	Eikenhof	Midvaal	Layers	
Botsane Layers &Veg Project	Rosashof	Emfuleni	Layers and Veg	082 721 7337

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Tsagang ba taung	Dreamlands	Emfuleni	Layers production	N/A
Mzizi	Rosashof	Emfuleni	Layers production	082 554 1788
Sepapa	Rosashof	Emfuleni	Layers production	083 670 5751
Maloka	Rosashof	Emfuleni	Layers production	082 209 0319
Hendrick Mahlangu	Vosloorus	Ekurhuleni	Livestock	082 2675 347
Mlambo Ganca	Withok	Ekurhuleni	Livestock	076 347 0083
Msibi	Kaydale	Lesedi	Livestock	
maponya	Waterdal	Emfuleni	Livestock	073 151 2997
Mr.M. P. Mbele	Sharpville	Ekurhuleni	Livestock	
Mr. Ramafikeng	Rosashof	Emfuleni	Livestock	
Mr. Mzizi	Rosashof	Emfuleni	Livestock	082 554 1788
Mr. Mabote	Waterdal	Emfuleni	Livestock	
Mr. S. Mokoena	Waterdal	Emfuleni	Livestock	
Mr Matsimela	De deur	Midvaal	Livestock	072 373 4803
Mrs Mokudubete	Bloemendal	Midvaal	Livestock	084 583 8069
Mrs Sithole	Vogelfontein	Midvaal	Livestock	072 348 9368
Mrs Makhubela	Vogelfontein	Midvaal	Livestock	083 486 5177
Mr Tshablala	De deur	Midvaal	Livestock	073 5381 704
Mr Tshabalala	Walkerville	Midvaal	Livestock	082 929 3191/0119256385
Mr Ntlatleng	Meyerton	Midvaal	Livestock	083 307 8984
Mr Maartens	De deur	Midvaal	Livestock	072 394 7668
Mrs Rorke	Elandsfontein	Midvaal	Livestock	073 273 6061
Colleen	Walkerville	Midvaal	Livestock	073 444 5110
Mr Mofokeng	Bloemendal	Midvaal	Livestock	083 571 6937
Elizabeth	De deur	Midvaal	Livestock	083 313 8084
Peck	Wailers farm	Midvaal	Livestock	
Mr Tlebere	Uitvulg	Midvaal	Livestock	084 984 1368
Die man	Boltonwold	Midvaal	Livestock	082 586 9195
Mrs Kallis	Koolfontein	Midvaal	Livestock	
Grace	Eikenhof	Midvaal	Livestock	082 851 3024
Makhathinini		Midvaal	Livestock	
	Bloemendal	Midvaal	Livestock	082 963 5407
Vincent	Elandsfontein	Midvaal	Livestock	084 563 5194
Mr Dyatyi	De deur	Midvaal	Livestock	082 682 2286
Mr Doyimani		Midvaal	Livestock	082 5869195
Vilakazi	Vosloorus	Ekurhuleni	Livestock & crop	083 7458 215
Mr Lenake	Boschkop	Midvaal	Livestock & veges	082 538 0036

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Mr Mahlangu	Walkerville	Midvaal	Livestock & veges	083 301 3560
Mr Dladla	Elandsfontein	Midvaal	Livestock & veges	083 693 4843
Jabulani Co-op	Nigel	Lesedi	Livestock and Crops	083 486 5177
Sanders	Waterdal	Emfuleni	Livestock and dairy	073 310 7680
Vesubuhle	Devon	Lesedi	Livestock and vegetables	082 538 0036
Nkome'zimbovu	Devon	Lesedi	Livestock, &veg	084 9589 172
Nhlapo	Homelands	Emfuleni	Livestock, and broiler	082 432 9081
Victor Mbotheni	Withok	Ekurhuleni	Livestock/ Crops	083 518 9926
Mr Dlamini	Meyerton	Midvaal	Maize	
Mr. Mkemezulu	Rosashof	Emfuleni	Maize, veg	
Abraham Rooiland	Waterdal	Emfuleni	Not active	016 592 2008
J.T Moleleki	Waterdal	Emfuleni	Not active	N/A
M.N Tloung	Waterdal	Emfuleni	Not active	082 360 5553
Jankie Phakela	Waterdal	Emfuleni	Not active	N/A
S.I Manzana	Waterdal	Emfuleni	Not active	016 594 4009
J.M Maqabe	Waterdal	Emfuleni	Not active	072 290 4586
E.V Mgogi'farm	Waterdal	Emfuleni	Not active	072 316 3454
W.B Magaolle	Waterdal	Emfuleni	Not active	072 778 8106
Mamo Thembe	Waterdal	Emfuleni	Not active	N/A
Mr Dlamini	Waterdal	Emfuleni	Not active	N/A
Climate Malete	Waterdal	Emfuleni	Not active	083 646 1852
Aron Tshabalala	Waterdal	Emfuleni	Not active	083 689 4493
Lengana's farm	Sebokeng	Emfuleni	Not active	084 496 2394
George Manabe	Driemanskap	Lesedi	Piggery	072 317 1052
Kheswa	Dreamlands	Emfuleni	Piggery	082 834 2199
Mr. Ramdumane	Waterdal	Emfuleni	Piggery	072 206 0051
Siyakhula proj	Houtkop	Emfuleni	Piggery	N/A
Mrs Phosa	De deur	Midvaal	Piggery	082 4248 352
Mr Collapen	Walkerville	Midvaal	Piggery	072 411 6767
Mr Letlaka	Meyerton	Midvaal	Piggery	078 450 6060
Mr Banda	Boltonwold	Midvaal	Piggery	
Mmapula	Walkers fruit farm	Midvaal	Piggery	073 169 9247
Mr Ernest	Heidelberg	Midvaal	Piggery	084 719 6050
Mr Ernest	Heidelberg	Midvaal	Piggery	084 719 6050
Thoko	Orange farm	Midvaal	Piggery	082 688 6148
Themba	Walkers fruit farm	Midvaal	Piggery	073 326 8756
Dumisani	Walkers fruit farm	Midvaal	Piggery	072 471 0289

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Mr Mazibuko	Meyerton	Midvaal	Piggery	076 139 4805
Nguni	Bloemendal	Midvaal	Piggery	083 960 5123
Sbongile	Walkerville	Midvaal	Piggery	
Ngubane	Elandsfontein	Midvaal	Piggery	084 766 6974
Reuben	Eikenhof	Midvaal	Piggery & rabbits	073 263 0139
Mr Moloi	Klipkop	Emfuleni	Piggery and layers	072 798 4930
Phadziri	Orange farm	Midvaal	Piggery, layers & vegs	084 9589 172
Mr Solly Maboa	Klipspruit	Ekurhuleni	Piggery, Goats	082 419 0564
Mengwai		Midvaal	Piggery, Vegetables	083 997 6905
Sithole project	Putfontein	Ekurhuleni	Poultry	082 4248 352
Sizakhele project	Putfontein	Ekurhuleni	Poultry	076 1965 221
Lieketseng agric.proj	Spaarwater	Lesedi	Poultry	083 307 8984
Amanang project	Three riviers	Midvaal	Poultry	073 701 5287
Mr Twala	Daleside	Midvaal	Poultry	083 5035 200
Mr Zondo	Walkers fruit farm	Midvaal	Poultry	083 733 7344
Mrs Malinga	De deur	Midvaal	Poultry & veges	072 317 1052
Suzie's farm	Nestpark	Ekurhuleni	Poultry and pigs	083 258 9004
Lekgolo (Maake)	De deur	Midvaal	Poultry and veg.	079 571 2670
Latau's farm	Putfontein	Ekurhuleni	Sheep	082 401 4900
Shange	De deur	Midvaal	Small stock	
Mr Zwane	Wailers farm	Midvaal	Small stock	
Sarah	Wailers farm	Midvaal	Small stock	
Mrs Molomo	Walkerville	Midvaal	Small stock	078 666 7970
Mosoane Project	Welchedacht	Ekurhuleni	To start with broilers	
Monono Project	Putfontein	Ekurhuleni	To start with Layers	
Mokoena's farm	Rosashof	Emfuleni	Veg	072 554 2712
Binini Maphalala	Midrand	Ekurhuleni	Veg & Poultry	082 727 5740
Ikaneng project	Kaalfontein	Ekurhuleni	Veg and broiler	082 870 2744
Farmers Home	Kammaland	Emfuleni	Veg and diary	073 495 3246
Paulina Mathebula	Waterdal	Emfuleni	Veg and maize	N/A
Mr. Mhlanga	Sharpville	Ekurhuleni	Veg and maize	N/A
Tjatji Agric. project	Rietkol	Ekurhuleni	Veg and poultry	078 450 6060
Ntabeni's farm	Dreamlands	Emfuleni	Veg production	016 556 1539
Sibeko's farm	Mullerstein	Emfuleni	Veg production	016 556 1539
Mahlatsi's farm	Dreamlands	Emfuleni	Veg production	072 5997 750
Iketsetseng	Vlakfontein	Emfuleni	Veg production	084 984 1368

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Ndali project	Kammaland	Emfuleni	Veg, pigs and dairy	072 957 5791
Mrs Tsotetsi	De deur	Midvaal	Vegies & Broilers	
Makgato's farm	Babsfontein	Ekurhuleni	Vegies and fruits	083 5035 200
Maleka's farm	Putfontein	Ekurhuleni	Vegetables	073 5381 704
Nkuna Project	Vischkuil	Lesedi	Vegetables	083 735 9425
Masetoni	Nigel	Lesedi	Vegetables	082 518 0420
C.M Nani	Waterdal	Emfuleni	Vegetables	082 710 1277
Nimrod Mokoena	Waterdal	Emfuleni	Vegetables	072 107 2258
Phakela D. J	Dreamlands	Emfuleni	Vegetables	N/A
Khumalo Broiler	Vanderbilpark	Emfuleni	Vegetables	082 924 5610
Moyo	De deur	Midvaal	Vegetables	082 672 7152
Soko	De deur	Midvaal	Vegetables	072 291 2374
Bopanang	Doornkuil	Midvaal	Vegetables	
Sehwana	Meyerton	Midvaal	Vegetables	016 590 1715
Mr Monenesi	Koolfontein	Midvaal	Vegetables	082 880 1337
Mrs Molewa	De deur	Midvaal	Vegetables	082 401 4900
Moyo	De deur	Midvaal	Vegetables	076 1965 221
Mrs Khanyisile	Heidelberg	Midvaal	Vegetables	082 7753 642
Mr Mlipha	Walkers fruit farm	Midvaal	Vegetables	
Mrs Sonia	Walkerville	Midvaal	Vegetables	084 645 3587
Mrs Mnisi	Walkerville	Midvaal	Vegetables	082 802 0832
Mrs Memela	Lenasia	Midvaal	Vegetables	
Ndlovu	Wailers farm	Midvaal	Vegetables	
Mr Pheka	Orange farm	Midvaal	Vegetables	082 492 4775
Ms Reshina	Meyerton	Midvaal	Vegetables	073 530 0039
Mr Leshage	Meyerton	Midvaal	Vegetables	
Mrs Khanye	De deur	Midvaal	Vegetables	082 5541 492
Mrs Moliti	Walkerville	Midvaal	Vegetables	084 503 9860
Mrs Motsusi	De deur	Midvaal	Vegetables	083 4786 859
Mrs Tlale	Walkers fruit farm	Midvaal	Vegetables	083 398 4990
Mr Dlamini	De deur	Midvaal	Vegetables	083 595 2972
Mr Matima	Orange farm	Midvaal	Vegetables	083 212 8835
Mrs Sigasa	De deur	Midvaal	Vegetables	072 044 7704
Kgomo	Bloemendal	Midvaal	Vegetables	
Mr Sonjica	Meyerton	Midvaal	Vegetables	
Mr Diseko	Daleside	Midvaal	Vegetables	084 673 6623
Mrs Kubeka	De deur	Midvaal	Vegetables	016 590 1622

FARMER/ PROJECT	AREA	MUNICIPALITY	COMMODITY	CONTACT NUMBER
Mr Mthethwa	De deur	Midvaal	Vegetables	073 658 4720
Mr Williams	De deur	Midvaal	Vegetables	073 205 2815
Mr Tshabalala	Doornkuil	Midvaal	Vegetables	
Mbongeni	De deur	Midvaal	Vegetables	082 460 7088
Masudubele	De deur	Midvaal	vegetables	072 517 3039
Mr Makhubela	Meyerton	Midvaal	vegetables	072 513 6283
Refilwe	De deur	Midvaal	Vegetables	076 595 4089
Solly	Elandsfontein	Midvaal	Vegetables	083 423 4086
Sophy	De deur	Midvaal	Vegetables	072 217 4807
Mr Ntokaone	De deur	Midvaal	Vegetables	072 368 4711
Xaba	Meyerton	Midvaal	Vegetables	768549278
Tsogang Bataung	De deur	Midvaal	Vegetables & layers	072 939 4270
Mivha	Meyerton	Midvaal	Vegetables & small stock	076 229 7030
Deep south	Orange farm	Midvaal	Vegetables Dairy	083 3455 674

Appendix B: Sedibeng Agri-Park Irrigation Proposal

The following section provides an overview of Sedibeng Agri-Parks Irrigation proposal. ILCA Trading Pty (Ltd) put together an irrigation proposal for Sedibeng Agri-Park as the availability of water will play a decisive role in the Agri-Park.

Two water sources have been identified within Sedibeng, namely:

1. River Water; and
2. Waste Water.

Less than 10 km from the Rietkuil AH is a waste water treatment work which can discharge roughly 150 000 000 litres per day of waste water into the Rietspruit. Should the District Agri-Parks Council be given the go ahead, waste water from the treatment works can be utilised within the next planting season.

In 2010, the SDM proposed a regional sanitation plan which would include a waste water treatment works with a capacity of 150 000 000 litres per day. The plant is planned to be located within the Agri-Park and should the waste water treatment works be relocated next to R54 then an additional source of water in the heart of the irrigation scheme would become available.

Also within the area is a smaller plant which generally handles industrial waste water and should acceptable quality be reached in the treatment of the water then an additional 36 000 000 litres per day would be available.

The following types of irrigation or combination thereof have been identified, namely:

1. Flood irrigation;
2. Conventional sprinklers;

3. Centre pivots; and
4. Drip irrigation.

Pump stations would need to be constructed which would be incorporated into a weir system. An advantage of these pump stations is that they can supply a number of surrounding farms or a single large farm

The irrigation project can be approached in predetermined phases.

1. Phase 1: it is envisioned that three projects would be running simultaneously, such as *River Water Project, Sebokeng Waste Water Treatment Works outflow purification plant* and the *Rietspruit Wetlands Pumping Project*.
2. Phase 2: the irrigation project would involve co-operation of different Government Departments as such phase 2 would involve the following: *proposed new Waste Water Treatment Works* to be relocated next to the R54, as well as *identifying land* that belongs to the Government and land that could be acquired for the development of the AP

Appendix C: Estimated Capital Expenditure

Estimated Capital Expenditure:

The accompanying capital expenditure projection/estimate is intended solely for the information and use of this strategy and is not intended to be, and should not be, used for any other purpose. The estimated capital expenditure has been compiled by the Professional Economist and not by a registered Accountant or Auditor. These estimates may contain materiality as it was not compiled in accordance with the Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS).

Materiality is a concept that is judged in light of the expected range of reasonableness of the information; therefore, users should not expect prospective information (information about events that have not yet occurred) to be as precise as historical information.

Entity	Category	Item	No. of units	Cost/Unit	Total Cost
FPSU	**Consolidation/ Collection Point**	Cold Storage (Perishables)	20	R14 677	R293 540
		Warehousing Facility + Office Space	30	R4 892	R146 760
		Fencing	120	R1 975	R237 000
		Parking	500	R544	R272 000
		Electricity Connection	30	R755	R22 650
		Water Bulk Connection	1	R65 000	R65 000
		Roads/Paving	0	R3 500 000	R0
	Buildings	Agriculture Extension and Support Office	40	R7 791	R311 640

		Mechanisation Centre and Workshop	25	R3 500	R87 500
		Warehousing Facility (Sorting, Processing, Packaging & Storage Facility)	150	R4 892	R733 800
		Cold Storage	30	R14 677	R440 310
		Retail	30	R10 872	R326 160
		Auction Facility	200	R3 500	R700 000
		Agri-Tourism Facility	65	R4 892	R317 980
		Training Facility	40	R7 852	R314 080
	Infrastructure	Water Bulk Connection	1	R65 000	R65 000
		Electricity Connection	200	R755	R151 000
		Road	0	R3 500 000	R0
		Fencing + Installation	200	R1 975	R395 000
		Parking	500	R544	R272 000
	Equipment Poultry	Farm Vehicles			R708 226
		Transport Vehicles			R1 060 800
		Implements			R160 000
		Processing Equipment			R369 000
	Equipment Red Meat	Farm Vehicles			R708 226
		Transport Vehicles			R410 800
		Implements			R480 000
		Processing Equipment			R3 930 000
	Equipment Vegetables	Farm Vehicles			R1 416 452
		Transport Vehicles			R410 800
		Implements			R1 636 316
		Processing Equipment			R1 120 690
FPSU Total Cost					**R17 562 730**

Agri-Hub	**Buildings**	Administration offices, ablution and change room block	80	R7 368	R589 440
		Training Facility	50	R7 852	R392 600
		Warehouse + Processing Facility	600	R4 892	R2 935 200
		Retail	40	R10 872	R434 880
		Cold Storage	100	R14 677	R1 467 700
	Infrastructure	Water Bulk Connection	1	R65 000	R65 000
		Electricity Connection	600	R755	R453 000
		Road	0	R3 500 000	R0
		Fencing + Installation	400	R1 975	R790 000
		Parking	1000	R544	R544 000
	Equipment	Transport Vehicles	1	R5 000 000	R5 000 000
		Processing Equipment:			
		Poultry	1	R50 000 000	R50 000 000
		Agroforestry	0	R15 000 000	R0
		Dairy	0	R15 000 000	R0
		Red Meat	1	R28 000 000	R28 000 000
		Vegetables	1	R5 000 000	R5 000 000
		Orchard Crops	0	R10 000 000	R0
		Aquaculture	0	R16 000 000	R0
		Wool	0	R5 000 000	R0
		Maize	0	R7 000 000	R0
		Dry Beans	0	R7 000 000	R0
AH Total Cost					**R95 671 820**

District Agri-Park Total		Quantity	Cost	Total Cost
FPSU		15	R17 562 730	R263 440 950
Agri-Hub		1	R95 671 820	R95 671 820
Grand Total				**R359 112 770**