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FINAL MASTER AGRI-PARK BUSINESS PLAN FOR THE HARRY GWALA DISTRICT

rural development & land reform

Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

This report has been read and approved by:

Mr Nhlanhla Mndaweni
PSSC KZN Head: Chief Director
Department of Rural Development and Land Reform

Signature: _____ **Date:** _____

Mr Riaz Dawjee
RID Director
Department of Rural Development and Land Reform

Signature: _____ **Date:** _____

Mr Ben Thabethe
REID Director
Department of Rural Development and Land Reform

Signature: _____ **Date:** _____

Mr Bonani Ngqaimbana
Programmes Manager (DAPOTT coordinator)
Harry Gwala Development Agency

Signature: _____ **Date:** _____

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Document Information

Document title:	Business Plan: Master Agri-park Business Plan for Harry Gwala District
Prepared by:	Urban-Econ Development Economists
Contact details:	37 Hunt Road Glenwood Durban 4062 South Africa Tel: +27 (0)31 202 9673 e-mail: durban@urban-econ.com
Contact Person:	Mrs Talia Feigenbaum
Prepared for:	Department of Rural Development and Land Reform
Contact details:	181 Hoosen Haffejee Street Pietermaritzburg 3201 South Africa
Contact Person:	Mr Nhlanhla Mndaweni

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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.
The reader does not know what the goal and objectives of the Agri-Park are.
The reader would like to know what approach the project team took

Chapter 2: Agri-Park 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: 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.
- 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 Harry Gwala District Muncipality, 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 District is located.
- The reader does not know the major economic activities in the District.
- The reader does know where the Agri-hub will be located in the District.

Chapter 5: Main District Role-Players

Summary: Provides a list of the main role players that could potentially be involved in the Harry Gwala District 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: Commodity Analysis: Vegetable, Livestock (Beef), Cotton

Summary:

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

Chapter 9: Concept Development

Summary:

- Development concept.
- High–level capital expenditure.

Chapter 10: Organisational Structure

Summary:

- Advisory Structures
- Approval Structures
- Implementation and Monitoring Structures

Chapter 11: Implementation Guidelines

Summary: Implementation guidelines of the Harry Gwala District Agri-Park.
Key Words: Alignment, Implementation Process, Recommendations, Catalytic Projects, Roll-out Plan.
Must read if: The reader is interested in the implementation of the Master business plan

Executive Summary

The concept, together with the introduction of an Agri-Park for each district municipality, is a relatively new notion to South Africa. This document represents the **Harry Gwala District Municipality Master Business Plan** that is intended to serve as a guiding document toward 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 the background information on the concept of an Agri-Park as well as a short description of the project. The section encompasses various elements including methodologies, as well as the goals and objectives of the project. Finally, the section also presents the purpose of the master business plan and outlines the various steps that are undertaken in completing the master business plan.

Section 2: Agri-Park Model

The second section provides an insight into the Agri-Park model, provides the definition of the Agri-Park, and describes the three basic units within the Agri-Park. All the basic functions together with how the basic units will interact are also described in this section. The section concludes with the strategic objectives that have been set out by the Agri-Park.

Section 3: Policy Framework and Government Programmes (implications)

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

Section 4: Location Context

Section 4 details some of the main features and major economic infrastructure that are crucial to the development of the Agri-Park in the Harry Gwala District. The proposed location of the Agri-Hub, together with some of the existing infrastructure that can be utilised by the Agri-Park, are also described. The section includes maps of the region, details with respect to infrastructural support and what needs to be done to improve the current infrastructure. The section, therefore provides a good understanding of the strengths, weaknesses and the

comparative advantages that the district holds in order to establish an Agri-Park in the Harry Gwala District.

Section 5: Main Role-Players

Section 5 outlines the main role-players that could potentially be involved in the Harry Gwala District Agri-Park at varying levels of the development process and agricultural value chain. The role-players are summarised into three categories: Government and Public Sector; Private Sector and Civil Society; and Associations and Organisations. The purpose of this section is to provide an insight into the possible partnership opportunities with regards to the recommended agricultural.

Section 6: Economic and Socio-Economic Analysis

Section 6 details the economy of the Harry Gwala District in relation to population and economic growth; job creation; and income and poverty level. A sectoral analysis is also provided, setting out the structure of the Harry Gwala District economy with respect to the different economic sectors and their output and employment contributions to the district's economy. The main sections within the section include demographic analysis, sector profiling, employment analysis and details on income and poverty.

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. Section 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 Harry Gwala District'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 section identifies the three dominant commodities in the Harry Gwala District, through a thorough prioritisation process. Products related to the selected commodities are also briefly discussed in this section. The 3 commodities identified for the district are vegetables, soybean and maize.

Section 8: Commodity Analysis

This section provides an analysis of the local, global, and capital, markets for 3 identified commodities. Other major topics covered in the section include: value chain assessment, agro-processing opportunities, main input suppliers, competitors, stakeholders, technology

requirements, job creation opportunities, contribution to food security, regulatory requirements, substitute products and services, societal and cultural trends and SWOT analysis, provided for each individual commodity.

Section 9: Agri-Park Concept Development

This section develops the Agri-Park concept in relation to the identified commodities in the Harry Gwala District. The purpose of this section is to align 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 Market Centre.

Section 10: Proposed Organisational Structure

Section 10 presents a proposed organisational and governance structure for the Harry Gwala District Agri-Park. This structure comprises various government and civil society stakeholders embedded within the official formal structures established specifically to implement and manage the Agri-Park. It comprises advisory structures, approval structures, and implementation and monitoring structures and proposes the roles and responsibilities that should be performed by each structure. The relationships between structures are presented schematically in order to provide a graphic illustration of the proposed structure.

Section 11: Implementation Guidelines

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

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

Farmer Production Support Unit (FPSU)

Key Role/Function

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

Potential Locations

1. Highflats,
2. Ndawana,
3. Ebutha Farm and
4. Kwa Sani LM

Training

Provides training and extension support to farmers, including:

- Best management and production practices
- Best management and production practices
- Data interpretation
- Marketing
- Crop cultivation
- Business administration

Infrastructure & Equipment

- Transport (e.g Bakkie or pick-up vehicles)
- Storage facilities
- Weighing and packaging equipment (crates)
- Retail outlet for the local market

Recommended Number of FPSUs: 4

Estimated CAPEX: R365 618 028

Human Resources

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

Agri-Hub (AH)

Key Role/Function

The AHs have a major function as a processor of agricultural produce and distribution centre. Other auxiliary functions for the AH include:

1. Training;
2. Logistics;
3. Storage/warehousing;
4. Packaging;
5. Labelling; and
6. Product distribution.

Potential Location

- Ebutha Farm, Umzimkhulu

Human Resources

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

Training

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

Infrastructure & Equipment

- Administrative facilities
- 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
- Administrative offices

Recommended Number of Agri-Hubs: 1

Estimated CAPEX: R49 971 000

Rural Urban Market Centre (RUMC)

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.
- Logistics support

Human Resources

- IT expert/personnel
- Administrative staff
- Training personnel
- Marketing personnel

Infrastructure & Equipment

- Office facilities/ information centre
- ICT
- Distribution centre

Location

- Based within eThekwini Municipality

Training

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

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1 Introduction

1.1 Short description of the project including the goal and objectives

The National Department of Rural Development and Land Reform (DRDLR) have appointed Urban-Econ Development Economists (UEDE) to undertake the development of a Master Agri-park Business Plan. The business plans will be comprehensive and specific to each district municipality, with the purpose to operationalise an Agri-park. Furthermore, the Master Agri-park Business Plan will identify the three most feasible agricultural commodity value chains within the district. The ultimate goal of the project is to use agricultural development as a catalyst for rural economic transformation by effectively utilising land with high agricultural potential.

1.2 Purpose of the Master Business Plan

The purpose of the Harry Gwala Master Agri-park Business Plan is to operationalise the Agri-park model within the district. Furthermore, the objectives of the business plan are:

- To develop a document that serves as a guideline towards the implementation of the Agri-park within the district.
- Review as much existing documentation, maps, and agricultural potential as possible.
- To engage with district representatives, government officials, and other related role-players.
- To align the business plan with existing policies, strategies, and relevant development plans.
- Determine the socio-economic benefits and potential impact that the Agri-park will have within the district.
- To identify the existing agro-processing facilities and farmers within each district municipality and to establish possible linkages.
- To identify current, or potential agricultural activities within the district.
- To identify three dominant, or most feasible commodities within the district.
- To identify agro-processing business opportunities for each Agri-park based on the three commodities.
- To perform a SWOT analysis that includes a legal, environmental, and technical analysis.
- To conduct a feasibility and viability assessment of the proposed agro-processing facilities.
- To identify current agro-processing initiatives and possible synergies, linkages and opportunities to buy into existing businesses.
- To identify potential public-private partnerships.
- To develop a district specific operational plan for the Agri-park.

2 Agri-park Model

2.1 An understanding of the Agri-park concept

Poverty alleviation has been one of government's key areas to address, especially in rural areas where there is a lack of economic activity. Government has intervened with various anti-poverty programmes, but with a lower impact than what was expected. The key issue, however, has not been the programmes themselves, but rather the co-ordination of anti-poverty activities and integrated package services to match the local priorities.

The lack of co-ordination and an integrated package has thus led to the Agri-parks initiative, a concept relatively new in a South African context. The concept follows an integrated Agri-parks approach of collective farming efforts, farmer incubation programmes, Agri-Clusters 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, where multiple tenants and owners operate under a common management structure where a range of enterprises can exist.

The Agri-parks model is required to have a strong social mobilization component for the organization and mobilization 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 – partnering with DAFF and COGTA is essential.

For the successful mobilization of the programme the Agri-parks should:

- Be based on the locational economic and comparative advantages.
- Have all the elements of a value chain (cluster) present for a dominant comparative, or product advantage.
- Be able to lay a solid economic foundation for the development of rural industrialization.

To ensure the mobilization of the Agri-parks programme the following guiding principles should be followed:

- One Agri-park is to be established in each District.
- The Agri-parks should be controlled by the local farmers.
- The Agri-parks are required to be catalysts from which rural industrialization can take place.
- The Agri-parks must be government-guided to ensure economic sustainability.
- The Agri-parks must strengthen partnerships between the public and private sectors in order to increase access to services.

- The Agri-parks must maximize access to markets for all farmers with a bias towards emerging farmers and rural communities.
- The Agri-parks must maximize the use of high-value agricultural land.
- The Agri-parks must maximize the use of existing support services and industries.
- The Agri-parks should support growing towns and the revitalization of rural towns in the way of economic and population growth, as well as promote rural-urban linkages.

The business plans for the Agri-parks will therefore, be structured around the identification of suitable products, location, potential public and private partners, social mobilization, 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 inform the development of the Agri-parks.

2.1.1 Definition and Background to Agri-parks

The Agri-parks system is a relatively new concept to South Africa, but the idea draws from existing models locally and abroad, including 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 naming of the concept as a "Park" is intended to convey the role that the Mega Agri-park (nationwide network) will play in open space preservation.

Although the term "Agri-parks" suggests permanent land conservation and recreational use that is synonymous with the description "public park", it brings to the fore a more traditional model of an agricultural "business park", or "hub", where multiple tenants and owners operate under a common management structure. The Agri-parks are intended to provide a platform for networking between producers, markets and processors, while also providing the physical infrastructure required for the transforming industries.

The focus of the Agri-park is primarily on the processing of agricultural products, while 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 Agri-park 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 Agri-parks will be farmer-controlled with the model having a strong social mobilization 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 the Department of Agriculture, Forestry and Fisheries, and the Departments of Cooperative Governance and Traditional Affairs and other spheres of government. In addition, state land will be brought into use and is to be used for both production and processing.
In summary: An Agri-park 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. The Agri-parks contain three basic units:

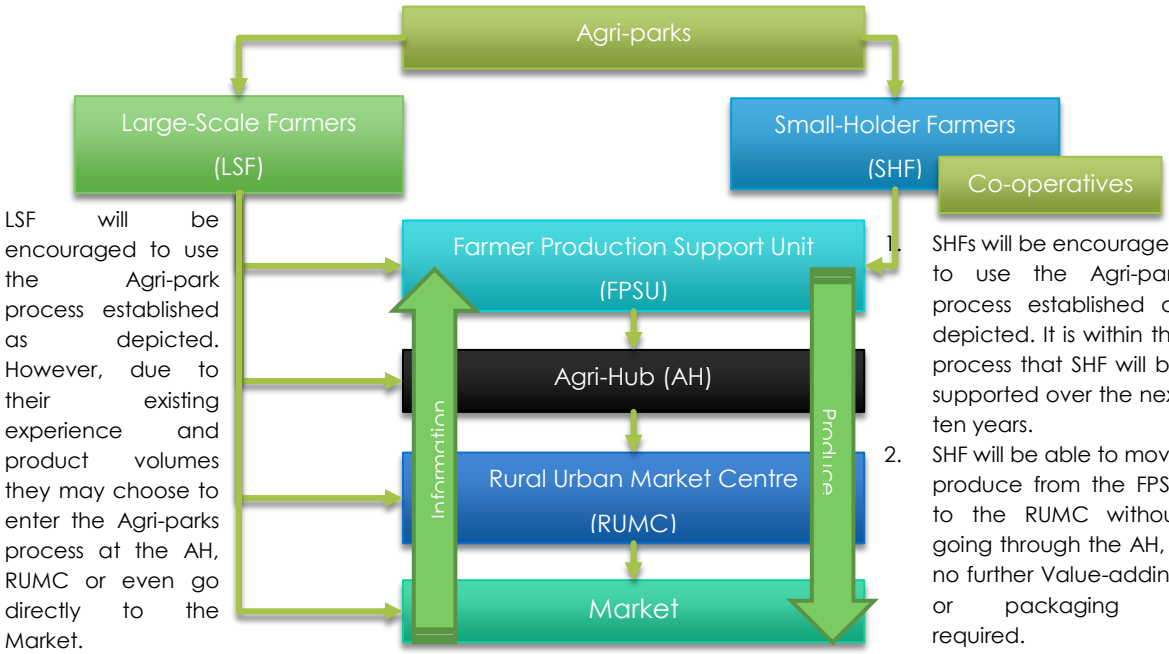
- The Farmer Production Support Unit (FPSU). The FPSU is a rural outreach unit connected with the Agri-Hub. The FPSU does primary collection, some storage, some processing for the local market, and extension services including mechanisation.

- Agri-hub Unit (AH). The AH is a production, equipment hire, processing, packaging, logistics and training (demonstration) unit.

- The Rural Urban Market Centre Unit (RUM). The RUM has three main purposes;
    i. Linking and contracting rural, urban and international markets through contracts.
    ii. Acts as a holding-facility, releasing produce to urban markets based on seasonal trends.
    iii. Provides market intelligence and information feedback, to the AH and FPSU, using latest Information and communication technologies.

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

FIGURE 1: AGRI-PARK PRODUCE AND INFORMATION FLOWS



LSF will be encouraged to use the Agri-park process established as depicted. However, due to their existing experience and product volumes they may choose to enter the Agri-parks process at the AH, RUMC or even go directly to the Market.

1. SHFs will be encouraged to use the Agri-park process established as depicted. It is within this process that SHF will be supported over the next ten years.
2. SHF will be able to move produce from the FPSU to the RUMC without going through the AH, if no further Value-adding or packaging is required.

Farmer Production Support Units (FPSU): Are centres (more than one per district) of agricultural input supplies, extension support, mechanisation 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-hubs.

Agri-Hub: Agri-Hubs are located in central places in a District Municipality, 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 labourers. Agri-hubs 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.

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 Agri-hubs provide inputs to the RUMC. Agri-parks share RUMCs.

Figure 2 illustrates the strategic representation of the Agri-park model. This model is to be duplicated in each district across the country, essentially creating a Mega Agri-park. Each Agri-park, however will be developed based on its own comparative advantages and its strength, in order to develop each district level economy.

FIGURE 2: STRATEGIC REPRESENTATION OF THE AGRI-PARK MODEL

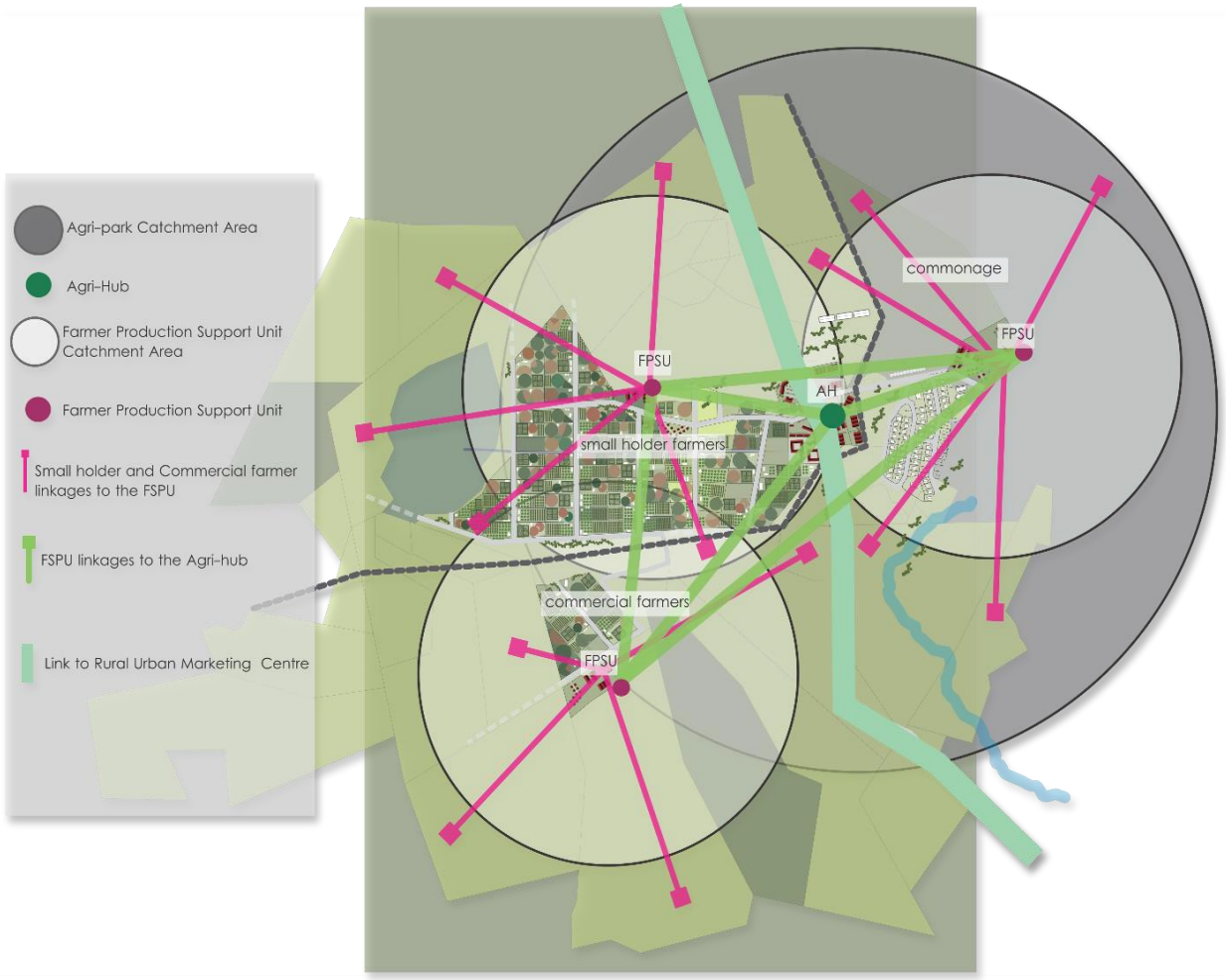


Figure 2 depicts the catchment area of the Agri-park in the grey circle, essentially illustrating the size and contents of the Park that includes farmers, FPSU's, AH's and RUMC's. The Agri-Hub, or AH, forms the central point of the Agri-park that is linked to the FPSU's. There will be more than one FPSU per district, which is intended to provide a supporting role between the AH and the farmers. All these components of the Agri-Hub are interlinked, providing a streamlined and integrated approach to agricultural and rural development. Table 1 provides the relevant detail of the catchment of each component.

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 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 RUM is designed to have the largest catchment areas of 250km in low density areas and 150km in high density areas.

2.1.2 Strategic objectives of the Agri-parks Programme

The following are the strategic objectives of the Agri-parks Programme:

- Establish Agri-parks in all of South Africa's Districts District Municipalities 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 mechanisation 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 Agri-park value chain.
- Enable producer ownership of the majority of Agri-parks equity (70%), with the state and commercial interests holding minority shares (30%).
- Allow smallholder producers to take full control of Agri-parks by steadily decreasing state support over a period of ten years.
- Bring under-utilised land (especially in Communal Areas Land and land reform farms) into full production over the next few years, and expand irrigated agriculture.
- Contribute to the achievement of the National Development Plan's "inclusive rural economy" and target of 1 million jobs created in agriculture sector through creating

higher demand for raw agricultural produce, primary and ancillary inputs, as well as generating increased downstream economic activities in the sector.

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

The Agri-parks programme is viewed as a programme that will address issues of rural economic development, one of government's key areas to address. Government has previously intervened with various anti-poverty programmes, but with a lower impact than what was expected. The Agri-parks model, however, is expected to co-ordinate anti-poverty activities, providing an integrated package service that will match the local priorities.

3 Policy Framework and Government Programmes

3.1 Introduction

This section of the business plan provides an overview of the national, provincial, and local policies that will have a direct influence on the development of the Agri-park concept in Harry Gwala District.

3.2 National policies

3.2.1 New Growth Path (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 South Africa will be employed and that unemployment would be reduced from 25% to 15%. The NGP is also formulated to reduce inequality and eliminate rural poverty by identifying areas where long-term structural and feasible changes can be made.

STRATEGIC PRIORITIES / FOCUS AREAS
The strategic focus of the NGP is to support employment creation. Efforts will be prioritised in key sectors such as infrastructure, the agricultural value chain, the mining value chain, green economy manufacturing, tourism, and certain high- level services. To achieve these objectives, the framework seeks to: • Identify areas that have potential for large scale employment creation. • Develop a policy package to facilitate employment creation in the areas identified. • Create a consensus on the new local and global opportunities, and see how these opportunities can be seized in order to achieve socially desirable and sustainable outcomes. • Strengthen the domestic and regional agricultural markets by supporting smallholder farmers. • Broaden the markets for South African goods and services through a stronger focus on exports. • Provide quality basic and secondary education. • Invest in health including effective measures to address HIV/AIDS.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
The agricultural value chain has been prioritised to play an important role in the provision of job opportunities and improve the standard of living of farm workers. The NGP targets opportunities for 300,000 households in agricultural smallholder schemes, plus 145,000 jobs in agro-processing by 2020, while there is potential to upgrade conditions for 660,000 farm-workers. It can be concluded that the NGP supports the development of the Agri-parks.

3.2.2 National Development Plan – 2030 (2010)

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

1. Too few people work.
2. The quality of school education for black people is poor.
3. Infrastructure is poorly located, inadequate, and under-maintained.
4. Spatial divides hobble inclusive development.
5. The economy is unsustainably resource-intensive.
6. The public health system cannot meet demand or sustain quality.
7. Public services are uneven and often of poor quality.
8. Corruption levels are high.
9. South Africa remains a divided society.

STRATEGIC PRIORITIES / FOCUS AREAS

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

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

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

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

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The National Development Plan views agriculture as critical to employment and food security. It is estimated that agriculture would potentially create a million jobs by 2030. Agri-parks will serve as important mechanisms to execute the NDP's proposed rural development

strategy due to their potential for supporting small-scale agricultural production and stimulating agro-processing in rural areas.

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

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

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

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

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

STRATEGIC PRIORITIES / FOCUS AREAS
IPAP focuses on building on, and fulfilling, the plans set out in IPAP 2012/2013 in its transversal and sector-specific interventions. These transversal interventions are in the areas of: • Public procurement • Competition policy • Innovation and technology • Skills for the economy • Industrial financing • Developmental trade policy • Regional integration • Special economic zones
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
IPAP identifies the agro-processing industry as a sector with potential to spur growth and create jobs, because of its strong backward linkage with the primary agricultural sector. The agriculture and agro-processing value chain represents an important source of labour intensive growth. In addition, this value chain is central to the rural development and smallholder farmer development objectives of 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 Agri-park Programme is key in advancing the objectives of IPAP. The Agri-parks Programme will further promote an approach to land reform and rural development consisting of comprehensive spatial planning, appropriate categorisation of land and beneficiaries to ensure sustained agricultural development, associated/ targeted skills development, employment creation, significant infrastructural expansion, improved public service delivery, more dedicated investment in agriculture through a targeted approach, and the increased involvement of the private sector in land reform and rural development initiatives.

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

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

responses offered in the *Integrated Growth and Development Plan (IGDP)* into tangible, concrete steps.

STRATEGIC PRIORITIES / FOCUS AREAS

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

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

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

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

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

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

- Poultry/ Soybeans/ Maize integrated value chain
- Red meat value chain
- Wheat value chain
- Fruits and vegetables
- Wine industry
- Forestry
- Small-scale fisheries

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

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

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

STRATEGIC PRIORITIES / FOCUS AREAS
The strategic objective is to articulate how government should intervene to support and develop Small and Medium Enterprises (SMEs), agro-processing in the local and global agricultural sector, as well as forestry and fisheries value chains. The following strategic interventions are set out by this strategy: • Facilitate access to incentives and support packages • Facilitate access to infrastructure • Promote value chain linkages • Support technical and managerial training • Facilitate access to appropriate technology • Facilitate access to business development services The implementation of this strategy is to be aligned with the implementation of the Smallholder Development Programme, the Zero Hunger Plan, and the Marketing Strategy of the DAFF to realise its intended objectives.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
Developing and supporting the currently underserviced agro-processing SME has been identified as key to achieving government's priority targets of promoting job creation, economic growth, and equity. The findings of the Department of Agriculture, Forestry and Fisheries Agro-processing Strategy forms a vital input in formulating the Agri-parks Master Business Plans due to the scope of agro-processing in the national economy.

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

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

STRATEGIC PRIORITIES / FOCUS AREAS
The Strategic Plan of the DAFF aims to address the social and economic challenges that the AFF sectors are faced with. It further sets new opportunities for service delivery with relation to job creation, food security, rural development, and skills development. The opportunities or action areas highlighted for key policy development include the following:

STRATEGIC PRIORITIES / FOCUS AREAS

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

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

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

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The Strategic Plan of the DAFF supports the development of the Agri-parks development. Agro-processing is highlighted to play a key role in ensuring an equitable food-secure economy. Interventions should focus on developing processed agricultural products, while at the same time targeting increased export-trade. Investment in agro-processing should be increased as a means of reinvigorating specific strategic value chains such as soya beans, rooibos, beverages, fruit and vegetables, as well as forestry. An equitable food-security economy will improve access to markets, especially for smallholder farmers.

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

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

STRATEGIC PRIORITIES / FOCUS AREAS

The objectives of this document are the following:

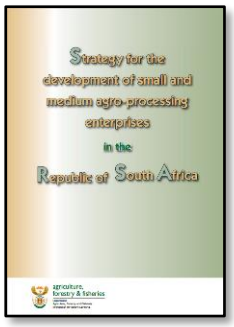
1. Rural industrialisation through the establishment of agro-processing industries that are closer to production areas.
2. Local economic growth through increased trade in rural areas.
3. Job creation through the establishment of SME agro-processors to improve livelihoods of both smallholder agro-processors 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.
- Facilitate infrastructure investment specifically within rural areas.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

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



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

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

STRATEGIC PRIORITIES / FOCUS AREAS
The strategy seeks to articulate how the small and medium agro-processing enterprises within the agriculture, forestry and fisheries sector in South Africa can be supported and developed at all levels of government (national, provincial, and local).
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
The *Strategy for the Development of Small and Medium Agro-processing Enterprises in the Republic of South Africa* informs the Agri-parks Master Business Plan through identifying the following four intervention pillars needed to for the development of Small and Medium Agro-processing Enterprises: • Entrepreneurial support • Enterprise development (Access to finance, market access and incubation) • Industry research and technology transfer • Infrastructure investment

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

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

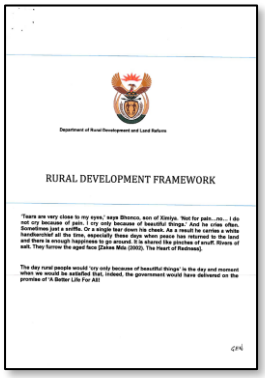
STRATEGIC PRIORITIES / FOCUS AREAS
The strategic priorities of the IGDP for the agricultural, forestry, and fisheries sector are the following: 1. Attaining equity and transformation 2. Equitable growth and competitiveness 3. Environmental sustainability 4. Good governance
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
The IGDP identifies that in terms of agro-processing, there is a need to support South African exporters to position their products better in fast-growing, developing country destinations and Africa. This may require focused export intelligence and marketing support, as well as intergovernmental assistance to ensure that South African products are not unfairly subject to nontariff barriers. Greater emphasis and investment is required in the understanding and managing of international trade standards and regulations, especially in the areas of food safety and sanitary and phytosanitary measures.

3.2.10 Agricultural Landholding Policy Framework

The mandate of the Agricultural Landholding Policy Framework rests with the DRDLR. The framework generates a platform which creates and maintains equitable and sustainable land dispensation and is intended to act as a catalyst for rural development in order to reverse the skewed distribution of land ownership as well as the discriminatory land laws which were developed during the Apartheid era. The context of the framework is aligned to the reversal of the Natives Land Act of 1913, the Constitution, the Green Paper on Land Reform, NDP and MTSF.

STRATEGIC PRIORITIES / FOCUS AREAS
The focus areas provided by the framework and overall aim and objectives include eradicating poverty through job creation and the promotion of equity in the agriculture sector through the: 1. Facilitation of entry of small scale into main stream agricultural activities. 2. Redistribution of land from large agricultural holdings to co-operatives and family owned land holdings. 3. Increasing efficiency, sustainability and competitiveness amongst all agricultural holdings.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
The Agri-parks development aligns itself with the main objectives of the framework, which focuses on the redistribution of wealth to small scale developing farmers and commonage and subsistence farmers alike through the creation of employment opportunities to be realised and assisted by the Agri-park. Through this combination, small scale farmers will attain the exposure and experience higher levels of productivity, encouraging commodity sustainability and ensuring fair competition between commercial and small scale farmers.

3.2.11 Rural Development Framework (2013)



The Rural Development Framework (RDF) is concerned with the effects of the dispossession of land and systematic deprivation of land use rights, culture and social cohesion of rural black South Africa. This framework looks at reversing the damages and inequality caused by the 1913 Natives Land Act, which has not only caused a dispossession of land but an erosion of culture, livelihoods and even resulted in land degradation impacting on the agricultural capabilities of these areas. The setting of the framework is aligned to the reversal of the Natives Land Act of 1913, the advent of the Bantustan System, the Agrarian Transformation Strategy, the Constitution, the MTSF and Comprehensive Rural Development Programme CRDP.

STRATEGIC PRIORITIES / FOCUS AREAS
There are no specific strategic priorities of the RDP. Rather it consolidates all relevant priorities concerning rural development and creates a framework document. As such it restates the strategic priorities of the RDF are a rehash of the CRDPs and NDP etc.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
Given the policies upon which the RDF is built, alignment with the Agri-park is guaranteed.

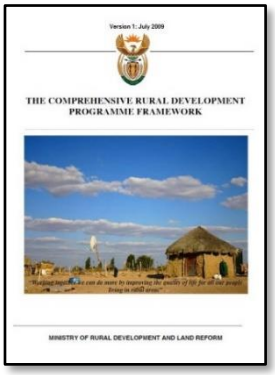
3.3 Linkages to national government programmes and initiatives

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

3.3.1 Department of Rural Development and Land Reform

rural development & land reform
Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

3.3.1.1 Comprehensive Rural Development Programme



The *Comprehensive Rural Development Programme (CRDP)* is aimed at being an effective response against poverty and food insecurity through maximising the use and management of natural resources to create vibrant, equitable, and sustainable rural communities. A CRDP must improve the standards of living and welfare, but also rectify past injustices through rights-based interventions and address skewed patterns of distribution and ownership of wealth and assets. The strategic objective of the CRDP is therefore, to facilitate integrated

development and social cohesion through participatory approaches in partnership with all sectors of society. This document therefore, serves as the policy framework document for the Comprehensive Rural Development Programme. 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 include: contributing to the redistribution of 30% of the country's agricultural land; improving food security of the rural poor; creation of business opportunities, de-congesting and rehabilitation of over-crowded former homeland areas; and expanding opportunities for women, youth, people with disabilities, and older persons who stay in rural areas.

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

1. Coordinated and integrated broad-based **agrarian transformation**,
2. Strategically increasing **rural development**,
3. Improved **land reform**.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

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

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.

3.3.2 Other Programmes

Other programmes implemented by the DRDLR are the following:

1. LAND REFORM PROGRAMME
The Land Reform Programme aims to initiate a sustainable land reform programme in South Africa, based on the following three strategic objectives: • Strategically located land acquired • Farm development support provided to smallholder farmers • Functional system and institutional arrangements
2. RECAPITALISATION AND DEVELOPMENT PROGRAMME
The Department of Rural Development and Land Reform's Recapitalisation and Development Programme seeks to operationalise the policy on the same name, published 23 July 2014. It focuses on human (capacity development), infrastructure development and operational inputs on properties in distress or that are newly acquired through the land reform redistribution, restitution and other programmes since 1994, as well as other agricultural properties in distress acquired without grant funding. The approach is to ensure that the enterprises are profitable and sustainable across the value chain in line with the Business Plan, which stipulates comprehensive development requirements of targeted properties over a 5-year recapitalisation and development cycle.
3. PROVINCIAL SHARED SERVICES CENTRES
Provincial Shared Services Centres (PSSCs) are established to coordinate land reform programmes. The PSSC's focus on the following services: • Redistribution in terms of the Pro Active Land Acquisition Strategy (PLAS) • Tenure (ESTA, IPILRA) • Recapitalisation • State Land Administration

3.3.3 Department of Agriculture, Forestry and Fisheries

The following rural development programmes are driven by DAFF:

1. COMPREHENSIVE AGRICULTURE SUPPORT PROGRAMME (CASP)
To ensure the commercial viability of emerging farmers from a household food security level to a commercial level, a farmer-to- farmer mentorship policy has been developed. The department regards skills development as one of its critical focus areas and this obviously includes providing hands-on training to emergent farmers in various fields of farm management.
2. MICRO-AGRICULTURAL FINANCIAL INSTITUTIONS OF SOUTH AFRICA (MAFISA)
The Micro-Agricultural Financial Institutions of South Africa (MAFISA) encourage partnerships between established agricultural enterprises and emerging farmers and entrepreneurs by providing access to finance for farmers, especially beneficiaries of the land restitution, redistribution, and land tenure reform programmes. The Land Bank administers the credit scheme on behalf of the department and provincial departments provide assistance to access the scheme. Four development finance institutions are currently participating in the disbursement of MAFISA funds in the provinces.
3. ILIMA-LETSEMA
The grant provides for farmers who lack access to credit to be assisted to access agricultural production inputs. The inputs are necessary to increase agricultural production and hence,

to improve household and national food security. Jobs are sustained and new ones created when farm enterprises are made operational, and this requires provision of the production inputs

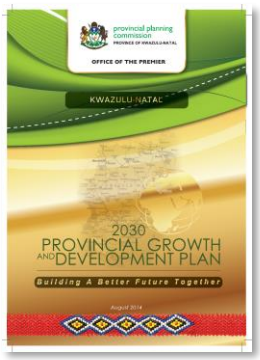
4. AGRICULTURAL BROAD-BASED BLACK ECONOMIC EMPOWERMENT (AgriBBBEE)

The AgriBBBEE 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.

3.4 Provincial policies (Agriculture specific plans)

The following provincial policies and programmes are considered relevant to the establishment of Harry Gwala District's Agri-park.

3.4.1 KwaZulu-Natal Provincial Growth and Development Strategy and Plan (PGDS and PGDP)



The Provincial Growth and Development Strategy provides a high-level view of key issues, mechanisms and interventions necessary to achieve continued balanced growth in the province for the 30 year time horizon. It provides KZN with a reasoned strategic framework for accelerated and shared economic growth through catalytic and developmental interventions, within a coherent equitable spatial development architecture, putting people first, particularly the poor and vulnerable, and building sustainable communities, livelihoods and living environments. It aligns itself to the Millennium Development Goals (MDGs), the NGP, the NDP, and various other national policies and strategies. The *Provincial Growth and Development Plan* is the implementation framework for the PGDS and provides a number of proposed interventions.

STRATEGIC PRIORITIES / FOCUS AREAS

The strategic focus of the PGDS is *"…to build on the smart province concept, through improving all growth sectors enhancing their employment generating potential, transformation of the economic sector in respect of representivity of our population, appropriate provision of economic and social infrastructure and building of sustainable communities in our Province, and contributing to this on a nation and Continental level."*

There are seven strategic goals of the PGDS, all of which have a direct bearing on economic development:

- Goal 1: Job Creation
- Goal 2: Human Resource Development
- Goal 3: Human & Community Development
- Goal 4: Strategic Infrastructure
- Goal 5: Environmental Sustainability
- Goal 6: Governance and Policy

- Goal 7: Spatial Equity

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

Strategic Goal 1, Job Creation, focuses on the economic development and investments necessary to address inequality, unemployment and poverty. The strategic objectives of the Agri-park Programme are all focused on creating employment opportunities for smallholder farmers and revitalising rural towns by creating urban-rural linkages that will drive economic growth. Furthermore, the focus on rural-urban linkages seeks to address the spatial disparities of inequality present in KZN. Thus, there is a strong alignment between the PGDS, its implementation framework, the PGDP and the Agri-park Programme.

3.4.2 KwaZulu-Natal Provincial Spatial Economic Development Strategy (PSEDS)

The *Provincial Spatial Economic Development Strategy (PSEDS)* provides a spatial framework for economic investment by utilising a nodes and corridors approach in support of the objectives of the PGDS and PGDP. It recognises the spatial disparities inherent in social and economic development which result from the spatial distribution of natural resources, historical imperatives and cultural factors. It further recognises that these spatial disparities were aggravated by apartheid spatial planning, resulting in a disjuncture between where people live and where social and economic opportunities are concentrated. The main objective of the PSEDS is to provide a spatial interpretation of economic development opportunities and spending priorities based on an understanding of the economic drivers and comparative and competitive advantages of the different districts in the province. The successful implementation of the PSEDS is dependent on the implementation at local level.

STRATEGIC PRIORITIES / FOCUS AREAS

The PSEDS identifies the following sectors of the provincial economy as the drivers of the economic growth which is necessary to address the particular nature of inequality and poverty in KZN:

- Agriculture - including agri-industry.
- Industry - including heavy and light industry and manufacturing.
- Tourism - including domestic and foreign tourism.
- Service sector - including financial, social, transport, retail and government.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

As a key driver of economic growth and development, the agricultural sector has an important role to play. Through its core focus on primary commodity production and The Agri-parks Programme aligns with the PSEDS from the perspective of focusing on both primary commodity production and also agro-processing opportunities, both of which have the potential to create employment opportunities and significantly increase the contribution of agriculture to the provincial economy.

3.4.3 KwaZulu-Natal Department of Agriculture and Rural Development Strategic Plan (2015–2020)

The Department of Agriculture and Rural Development Strategic Plan, 2015-2020 is guided by other key policies such as the NGP, NDP, Medium-Term Strategic Framework 2015-2020 (MTSF), APAP, IDGP, Operation Phakisa, PGDS, PGDP and PSEDS. Its mission is "to promote, through partnerships, sound agricultural practices that stimulate economic growth, food-security and advancement of rural communities in KZN". The strategic plan for KZN DARD describes three programmes of action and associated objectives, targets and measurable indicators over a period of three years (2015/16-2017/18).

STRATEGIC PRIORITIES / FOCUS AREAS

The KZN DARD Strategic Plan sets four strategic goals for the Department:

1. Provision of sound and transparent corporate and financial management systems.
2. Maximising agricultural development and output in the province.
3. Promotion of environmentally sustainable agricultural development.
4. Improve access to services in rural areas through coordination.

These goals are further disaggregated into strategic objectives at a programme level. There are three programmes:

1. Programme 1: Departmental line function support
2. Programme 2: Agriculture
3. Programme 3: Rural Development

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The establishment of the Agri-parks Programme and associated strategic objectives are incorporated into Programme 2 (Agriculture) and 3 (Rural Development), ensuring that there is alignment between the Department's Strategic Plan and the roll-out of the Agri-parks Programme. The stated purpose of the Agricultural Programme is to "engage, empower and transform our communities to participate in sustainable agricultural and environmental practices in order to realise economic development and food security", whilst the goal of the Rural Development Programme is "transformation of eth rural economy". Both of these focus on the need to leverage the economic growth potential of an optimised agricultural sector by establishing Agri-parks and facilitating social mobilisation within rural economies by creating linkages to urban economies.

3.4.4 Strategy for Agrarian Transformation

The *Strategy for Agrarian Transformation* sets out a detailed approach for the transformation of the agricultural sector in KZN. It proposes that an agrarian transformation strategy, supported by an integrated approach to rural development, will in turn contribute towards addressing food security, job creation and the growth of the provincial economy. This strategy is

guided by key policies such as the MTSF, NGP, National Development Plan NDP, PGDS, Rural Development Framework (RDF), APAP and Operation Phakisa.

STRATEGIC PRIORITIES / FOCUS AREAS
The *Agrarian Transformation Strategy* focuses on all critical aspects of supporting the development of farmers and assists farmers in the drawbacks associated with subsistence farming compared with sustainable commercial agriculture. The Agrarian Transformation programme is based on: 1. The provision of basic services and social amenities for rural communities. 2. Food security support. 3. Interventions in crop and livestock production. 4. Supporting a sustainable land reform programme. In terms of the provision of services, KZN DARD will play a coordination role within KZN to ensure that gains in agricultural development are accompanied by access to schools, health, transport infrastructure, housing and social amenities from relevant sector departments. This strategy is focused on the provision of agricultural support to a range of clients in the sector, from households on communal land to new entrant black commercial farmers and claimants who have accessed land through the land reform programme.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
The establishment of the Agri-parks concept plan and associated strategic objectives are integrated into Agrarian Transformation Strategy through its second pillar which is the Agri-Village model. This reformed approach takes into consideration the: • Agro-Processing Model; • Business Model; • Commodity Approach; and • Scientific Research, Technology Development and Extension All the above elements have been incorporated and addressed as part of Agri-parks core objectives, which focuses on Agro-Processing Opportunities for the designated districts, business models which can successfully applied and are tailor made to suite each districts dynamics, Commodity Analysis which details the appropriateness of each commodity relative to its district and looking at Technological Advancements in commodity production, processing and storage.

3.5 Local policies

The following local (District) policies and programmes are considered relevant to the establishment of the Harry Gwala District Agri-park.

3.5.1 District Growth and Development Plan (DGDP)

The *Harry Gwala District Growth and Development Plan* is a District-wide implementation plan developed as a requisite in terms of the PGDS. It is recognised as playing a key role in

integrating and aligning the intentions of the NDP and the PGDP with the activities and interventions of local government operating at the coalface of implementation and interaction with constituent communities. Its aim, therefore, is to translate the PGDP into a detailed implementation plan at a District level, inclusive of clearly defined targets and responsibilities which will enable KZN to measure progress in achieving the accepted growth and development goals. Additionally, the PDGP sets out to propose specific milestones in targeted priority sectors.

STRATEGIC PRIORITIES/ FOCUS AREAS

The DGDP plan is a long term plan focusing on the year 2030. Six strategic goals are set to realise this vision:

1. Honest and Transparent Governance
2. Appropriate and Reliable Infrastructure Services according to the SDF priorities
3. Access to jobs by providing an enabling environment for investment and facilitating skills and SMME development
4. Safety and Security through zero tolerance of wrong doing at all levels
5. Improved Municipal Health Services
6. Lobbying the Provincial Government for
    a. Better Quality of Education
    b. Improved Healthcare facilities
    c. Appropriate Land Reform

To address challenges found within the District, four key drivers of growth in the District have been identified as:

1. Agriculture and Agro-industry
2. Tourism
3. Public Sector
4. Strategic Infrastructure Delivery

To achieve growth in these areas the following four key objectives need to be implemented within all four key sectors and linkages across these areas identified and exploited:

1. Skills development
2. SMME development
3. Spatial Restructuring
4. Research and Innovation

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The DGDP recognises the pivotal role to be played by an optimised agricultural sector in driving economic development and creating economic opportunities for the District's residents and has set this as one of its primary strategic goals. This implies that local government interventions focused on developing the agricultural sector are prioritised and incorporated into all IDP processes within the Harry Gwala District and its local municipalities. This will facilitate an integrated response within the District regarding interventions to enhance agricultural production and agro-processing and therefore is aligned with the strategic objectives of the Agri-park Programme.

3.5.2 Spatial Development Framework (SDF), 2014

The *Harry Gwala District-wide Reviewed Spatial Development Framework (SDF), 2014* is a high level spatial overview of the District that is intended to guide and inform strategic land use management and spatial planning. Local municipalities found within the District are expected

to align their individual SDFs with the District's SDF and to incorporate its strategic aims to ensure effective spatial planning. The primary purpose of the Spatial Framework Plan is to act as a service delivery tool and component of the District Municipality's IDP. The SDF ultimately provides a spatial development structure to guide service delivery within the district, protecting and preserving the environment and guide the space economy. A hierarchy and typology of Corridors and Nodes are used as the main structuring elements in the spatial plan. Specific tourism and recreation nodes have been identified within the SDF.

STRATEGIC PRIORITIES / FOCUS AREAS

The primary aims and objectives of the Harry Gwala SDF are as follows:

1. Base future development guidance on a good understanding of the existing development, its problems and opportunities.
2. Provide strategic guidance for such development, including addressing issues of more appropriate distribution of economic and infrastructure development, social upliftment, environmental conservation and appropriate utilization etc.
3. Ensure the appropriate structuring and linkage of development both internally and in relation to external issues and opportunities.
4. Provide a spatial reflection of the needs and priorities established in the IDP and addressing the specific and unique issues and opportunities within the District.
5. Establish a development process and sequence leading from the present to the envisaged future development.
6. Ensure alignment with the SDF's of the Local Municipalities within the District.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The SDF can be seen as a significant guideline policy from a spatial point of view, by providing guidelines of the following aspects:

- Areas worthy of protection due to environmental sensitivities or productive capacities;
- Economic opportunities;
- Areas of population concentration or nodes; and
- Linkages or corridors

Thus, the SDF will be of significant influence in the selection of the FPSU's, the Agri-Hub and the RUMC sites which form part of the Harry Gwala Agri-park.

3.5.3 Integrated Development Plan Review (IDP), 2015/ 2016

The Integrated Development Plan Review (IDP), 2015/ 2016 for Harry Gwala District is strategic planning tool that guides development within the District. It aims to promote and sustain integrated service delivery and infrastructure development that facilitates economic growth and development. Included in the plan is a five-year capital investment plan that identifies strategic infrastructure projects.

STRATEGIC PRIORITIES / FOCUS AREAS

The IDP sets the following six development goals for 2015/16:

1. Basic service delivery
2. Municipal transformation and organisational development
3. Good governance and public participation

4. Promotion of LED and social development
5. Municipal financial viability and management
6. Create functional urban, regional and human settlements whilst protecting the environment.

In terms of agriculture, Harry Gwala District's long term vision includes communities benefitting from a vibrant agriculture sector.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The Agri-park model's focus on inclusion of smallholder farmers and creating rural-urban linkages will assist the District with poverty eradication through economic development and growth and also with ensuring food security. The establishment of agro-processing facilities will create agro-processing opportunities that can add value to primary commodities and generate employment opportunities and economic growth.

3.6 Synopsis

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 Agri-park will contribute to the various objectives as set out within the above-mentioned documentation.

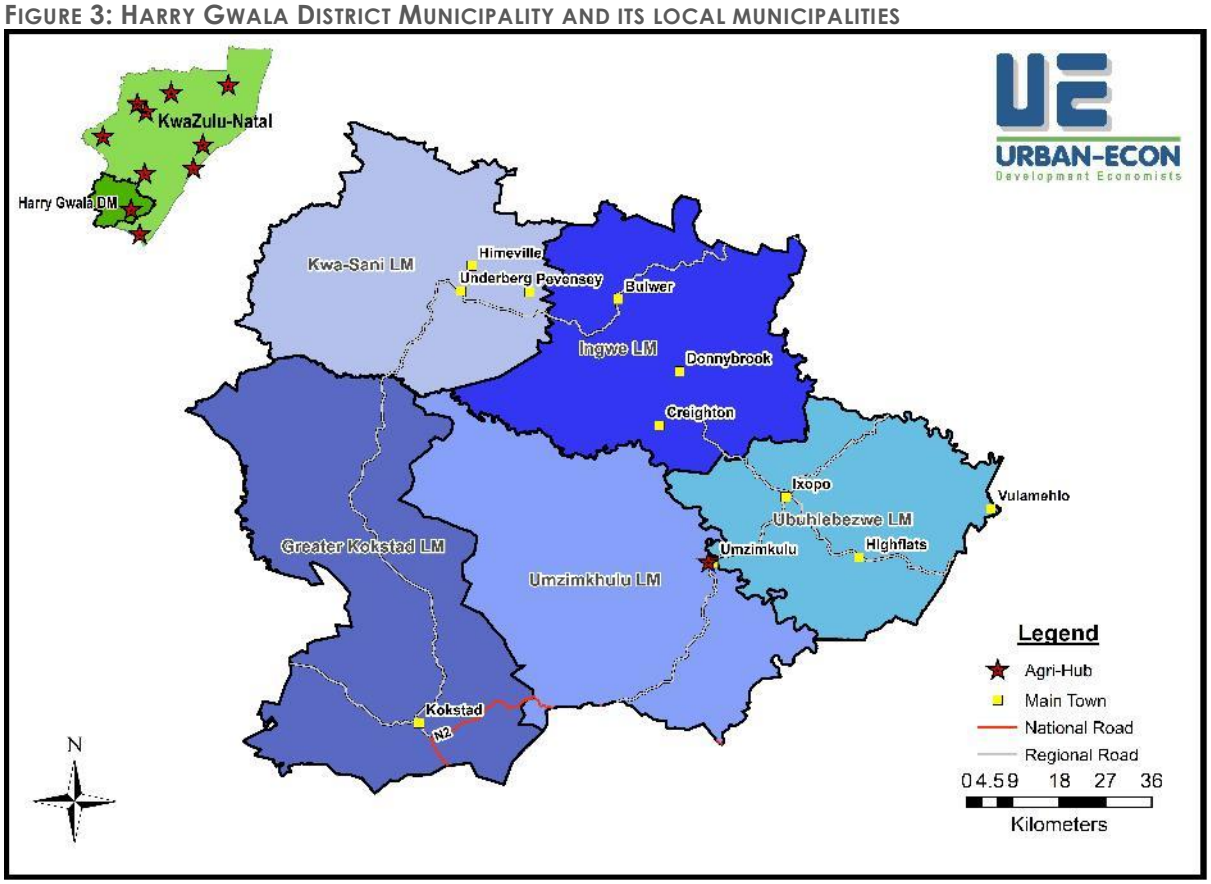
4 Location Context

4.1 Description of the District

The Harry Gwala District Municipality (previously Sisonke District Municipality) is located in the south-western region of KwaZulu-Natal and is made up of one District Management Area, which is on the western side of the municipal area and five local municipalities, which includes Kwa Sani, Ingwe, Greater Kokstad, Umzimkhulu and uBuhlebezwe (See Figure 3 below). The seat of Harry Gwala is Ixopo which is strategically located at the intersection of four major provincial routes leading to Pietermaritzburg, the Drakensberg, the Eastern Cape and the South Coast (R56 and R612). The District is surrounded by uMgungundlovu to the north-east, Ugu to the south-east, OR Tambo to the south, Alfred Nzo to the south-west, the Kingdom of Lesotho to the north-west, and uThukela to the north. It is also bordered by the Drakensberg Mountains, which form a 200km-long World Heritage Site.

The Kwa Sani and Ingwe Local Municipalities will be amalgamated into one Municipality by 2016/2017.

FIGURE 3: HARRY GWALA DISTRICT MUNICIPALITY AND ITS LOCAL MUNICIPALITIES



Source: Urban-Econ

4.1.1 Nodes and corridors

The location and roles of nodes and corridors will have a significant impact on the shape of the district transport infrastructure. The Harry Gwala SDF[1] shows a hierarchy of different development elements including corridors and nodes which are described below.

Corridors

- Two Provincial Priority Corridors, which are primary corridors within the District, are intended to serve areas of high poverty levels with good economic development potential within one or two sectors. These corridors include:
  - SC 2: Kokstad – Umzimkhulu – Msunduzi (Provincial Secondary Corridor), and
  - SC 6: Port Shepstone – St Faiths – Ixopo (Provincial Secondary Corridor)
- Primary Corridors: R56 and N2 are major movement corridors in the District and provide linkages with urban centres.
- Secondary Corridors: R612 and R617 provide secondary movement channels thereby promoting linkages for tourism opportunities and agriculture.
- Potential Secondary Corridors: D1201, P604, MR126, and MR27-2 have potential of enhancing movement between centres and promoting economic activities between centres.

Nodes

In terms of the Harry Gwala District Municipality SDF, the Settlement Hierarchy proposed for the municipal area is as follows:

- Primary Nodes: These were identified to be Kokstad, Ixopo, and because of economic activities and forces to these areas in the district.
- Hubs: Cedarville, Creighton, Himeville, Swartberg, and Underberg in the district were identified as hubs as they render services to the surrounding communities.
- Secondary Nodes: Donnybrook, Highflats, Franklin, and Bulwer were identified as secondary nodes.
- Service Satellite nodes: Stepmore, Ncwadi, Pevensy, Jolivet, Centacow Mission, and Ntwasahlobo were also identified as satellite nodes.
- Tourism and Recreation Nodes: The following areas have been identified as tourism and recreation nodes. Bushmans Nek, Garden Castle and Sani Pass.

[1] Harry Gwala (2014) Spatial Development Framework 2014/2018

4.1.2 Road linkages and transport routes

In terms of additional spatial impacts, it also important that any future major land developments which rely on access to transport is located in such a manner that it will support and enhance these major transport routes and corridors.

As indicated in the Harry Gwala SDF, the District Municipality does not have notable National Level access. However, access to the Kokstad via the south is via the N2. This access allows the District to tie into the Eastern Cape, as well as to the important nodes of Port Shepstone, and further away, eThekwini Municipality. At a local level, the key roads through the District are the R56 and R617 and R612. These are critical in providing access within the District and to the surrounding areas. Finally, there are also a number of District level roads which knit the Municipalities together. Through the various routes, access to Durban, Pietermaritzburg, Matatiele, Port Shepstone, and the Eastern Cape is possible.

4.1.3 Rail

Historically the rail system from Pietermaritzburg to Donnybrook via Creighton to Riverside and Eastern Cape was the major transportation link through the central part of the District. From Donnybrook the line split and linked up Kokstad via Franklin. A further rail line ran from Donnybrook to Umzimkhulu via Ixopo. It is the only line through to Kokstad and the Eastern Cape that is functional mainly for timber haulage. The line from Ixopo and Umzimkhulu has been reconstructed for tourism purposes. The Eastern Cape line is also used for limited steam train tourism.

4.2 Location of the Agri-hub

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

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

The following criteria was applied state land parcels with agricultural potential in order to determine and select the most appropriate and favourable site that will be used as the Mega Agri-Hub:

1. Existing Land Capability
2. Existing Agricultural infrastructure (e.g. silos, abattoirs, millers, ginners, food processors, fresh produce, etc.)

3. Proximity to potentially vacant state land parcels
4. Proximity to water sources (dams, rivers, reservoirs)
5. Proximity to CASP, Ilima-Letsema, PLAS, Restitution claims, recapitalisation projects
6. Identification of enterprise areas (DAFF 1936) e.g. cattle, sheep, maize
7. Proximity to social relief projects
8. Proximity to EDD gateways
9. Existing Road and Rail connectivity
10. Proximity to retail markets (SPAR, Pick N Pay food stores)
11. Proximity to PIMD poorest wards
12. Proximity to Land Care projects
13. Proximity to rural towns
14. Proximity to AVMP farms
15. Proximity to existing CRDP wards

Based on the above mentioned criteria, it was determined that the main Agri-Hub will be located at Ebutha Farm, Umzimkhulu, Umzimkhulu Local Municipality.

Based on the analysis done by the DRDLR, Ebutha Farm, Umzimkhulu was selected for the following reasons:

- It is not an EDD District Gateway
- Good road connectivity (R56) and close to rail connectivity.
- There are CASP and Ilima-Letsema Projects in the area
- There are large parcels of vacant state land to the east of the proposed location.
- There are a number of restitution claims around location.
- There are 2 SPAR food stores found in close proximity to site with another 3 stores found within a reasonable distance from the site.
- There are 2 abattoirs - 1 to the north and 1 to the north east of the location.
- 1 sawmill found to the North West of the location.
- Land Capability is moderate for cultivation.
- There is 1 CASP project to the south east of the proposed location.
- There are a few Restitution claims to the north east of the proposed location.
- There is one SIP anchor project to the north of the site.

4.3 Maps

The following maps depict the location of the Harry Gwala (Sisonke) District as well as important characteristics of the area, especially with respect to the development of the Agri-park. The

maps indicate the proposed location of the Agri-Hub, as well as land use capabilities, important agricultural projects, related infrastructure, markets and transport routes.

Figure 4 below indicates the proposed location of the Agri-Hub, land capability, water sites, towns/cities and major transport routes. The Harry Gwala (Sisonke) District map provides useful information regarding the location of abattoirs, silos and fresh produce markets, which is of crucial importance in proposals for expanding the agricultural economy within the District and the Province.

FIGURE 4: HARRY GWALA DISTRICT MUNICIPALITY LOCATION OF THE AGRI-HUB

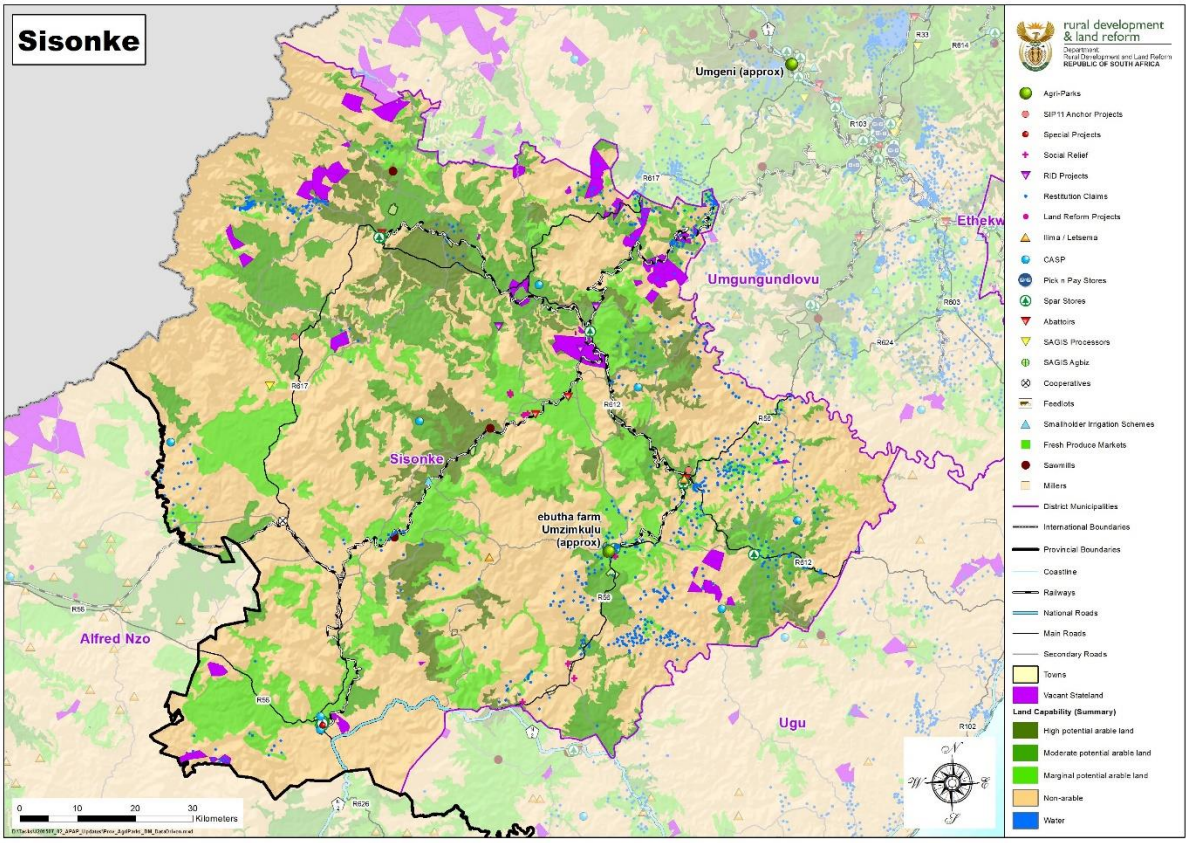
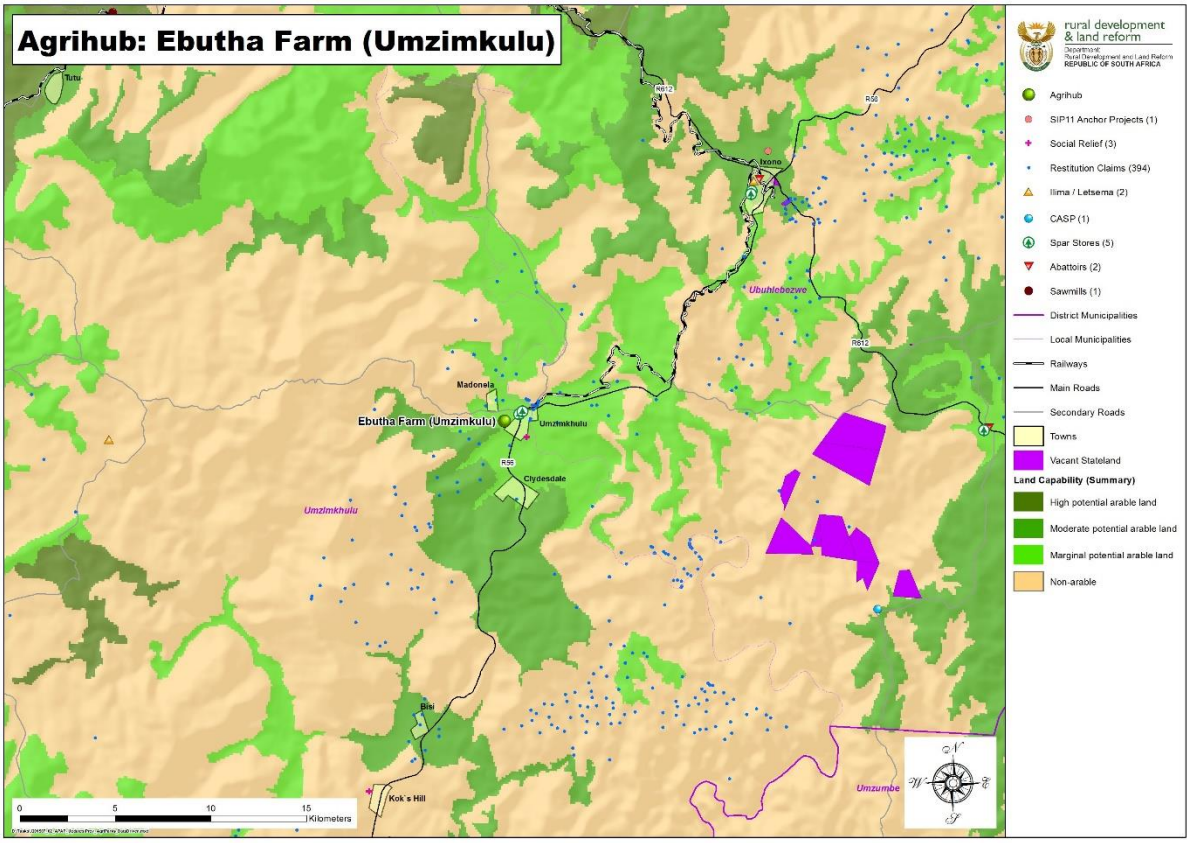


Figure 5 below indicates the proposed location (green dot) of the Agri-Hub at Ebutha Farm in Umzimkulu within the Harry Gwala District Municipality. It is state owned land and is approximately 382 ha in extent. The site is close to the R56 road linkage. The Umzimkhulu Local Municipality has the most settlements and is the most populated in comparison to the other local municipalities found within the District. Approximately 48% of the municipal areas is under traditional ownership.

FIGURE 5: EBUTHA FARM, UMZIMKHULU, HARRY GWALA DISTRICT MUNICIPALITY



4.4 Economic infrastructure

4.4.1 Roads

Major transportation routes include the main road (R56) through from Msunduzi to the Eastern Cape via Ixopo and Kokstad. The other main road traversing the district is the (R617) which links Msunduzi to Bulwer, Underberg and Kokstad. There is a linkage route from the coast at Park Rynie to Ixopo and Bulwer.

Through the PGDS R56 from Pietermaritzburg through Ixopo, Umzimkhulu and Kokstad and R612 from Port Shepstone and P68 both via Highflats and Ixopo place opportunities for economic and infrastructural development. In particular, P68 cuts across a number of areas that are considered as priority zones as indicated in the SDF. The R56 continues to serve as a major economic and link between KwaZulu-Natal and Eastern Cape Province.

The Agri-Hub is strategically located on the R56 which provides good access to coastal and inland regions of the province. It also provides good access to Durban's King Shaka Airport and Dube Tradeport as well as the ports of Durban and Richards Bay. These are all potential distribution points for any export quality commodities produced within Harry Gwala District's

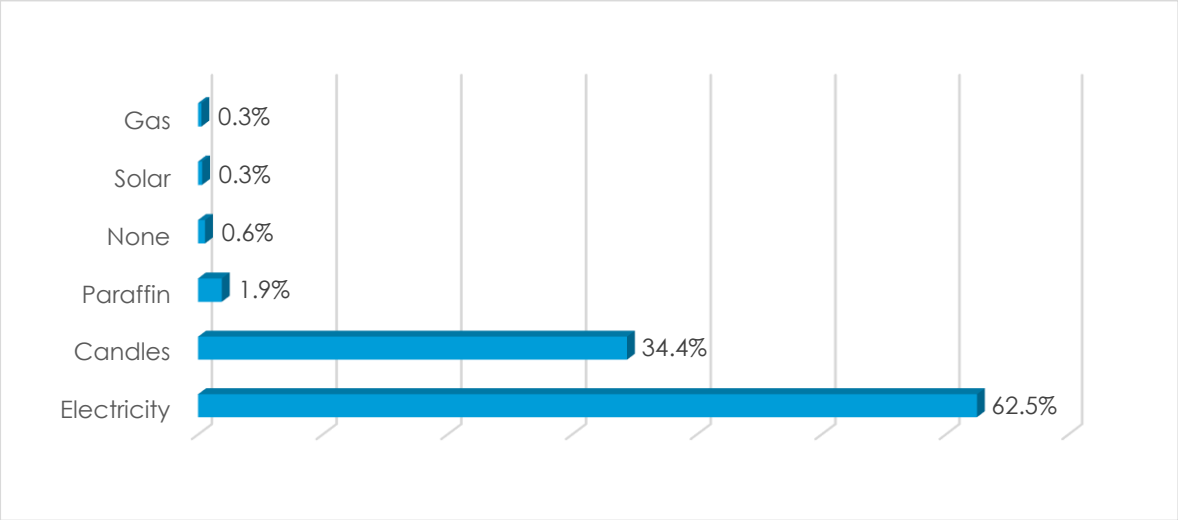
Agri-park. The condition of provincial roads in Harry Gwala District is sometimes poor and some routes require upgrading. Freight transport and a lack of maintenance are contributing to the deterioration of provincial road infrastructure.

4.4.2 Electricity

A key factor for promotion of social and economic development is electricity supply. Having access to energy means access to a wide range of opportunities for agriculture. Many of the operations involved in agricultural activities require access to energy, including agro-processing. Therefore, Harry Gwala District's current status of access to energy is important for the success of the Agri-park.

The figure below indicates household access to energy for lighting within the Harry Gwala District.

FIGURE 6: HOUSEHOLD ACCESS TO ENERGY FOR LIGHTING IN HARRY GWALA DISTRICT 2011



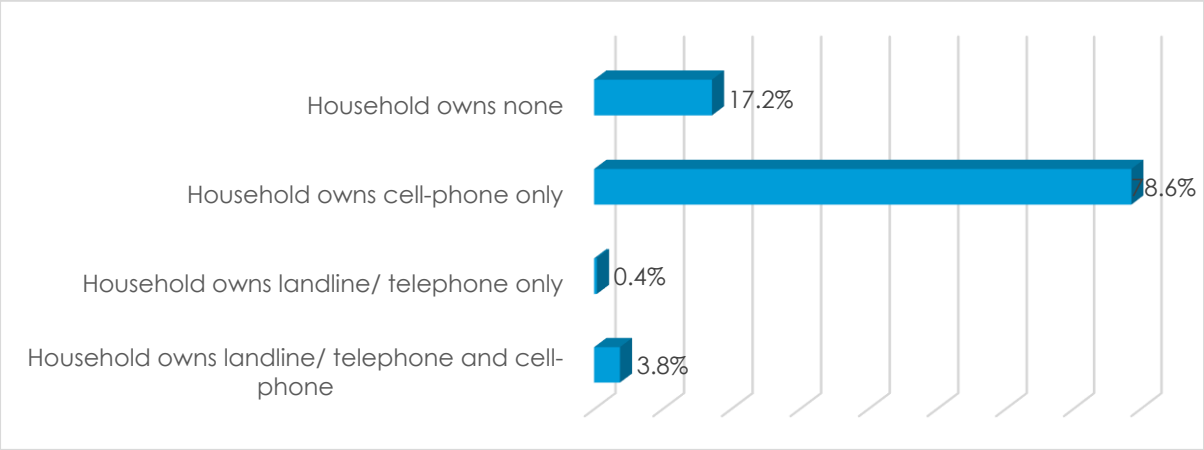
Source: Census 2011

In 2011, electricity, which is supplied through Eskom, was accessed by 62,5% of households within the District. 34,4% of households used candles whilst 1,9% used paraffin. 0,6% of households did not have access to any energy to for lighting at the time.

4.4.3 Telecommunications

Economic development activities require a solid and extensive communications network that allows for a rapid and free flow of information, which increases overall economic efficiency by helping to ensure that businesses can communicate. The figure below indicates household access to telephone or cellphone within the Harry Gwala District.

FIGURE 7: HOUSEHOLD ACCESS TO TELEPHONE OR CELLPHONE FACILITIES IN HARRY GWALA DISTRICT 2011



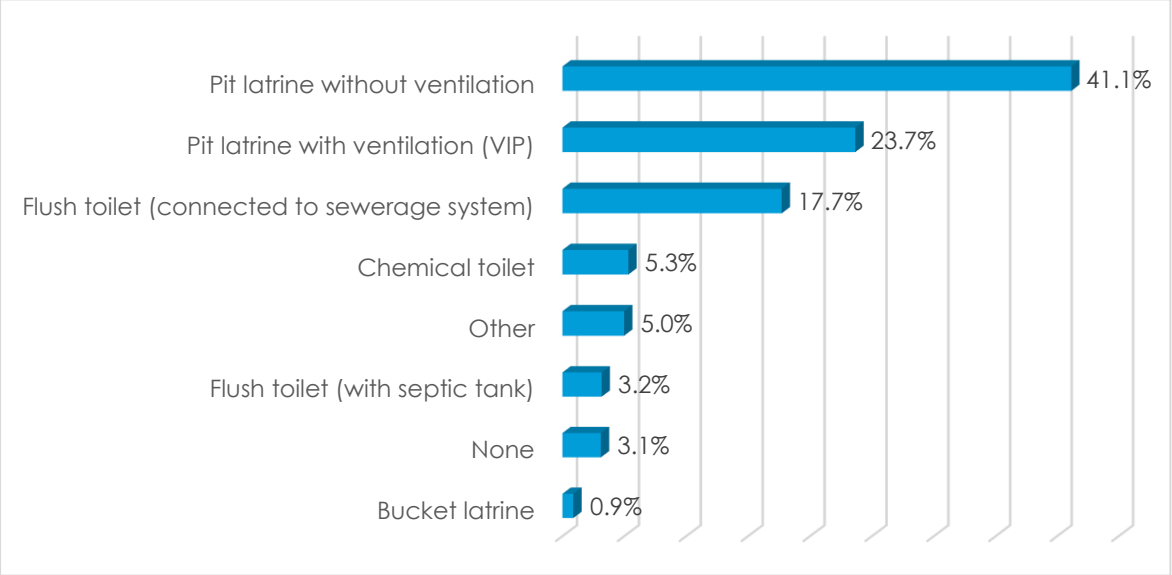
Source: Census 2011

78,6% of households in Harry Gwala have access to cell phones only followed by households who have no access to a telephone or cell phone. Only 0,4% of households use a landline only whilst 3,8% of households use both landline and cell phone.

4.4.4 Water and sanitation

The figure below indicates household access to sanitation within the Harry Gwala District.

FIGURE 8: HOUSEHOLD ACCESS TO SANITATION IN HARRY GWALA DISTRICT 2011

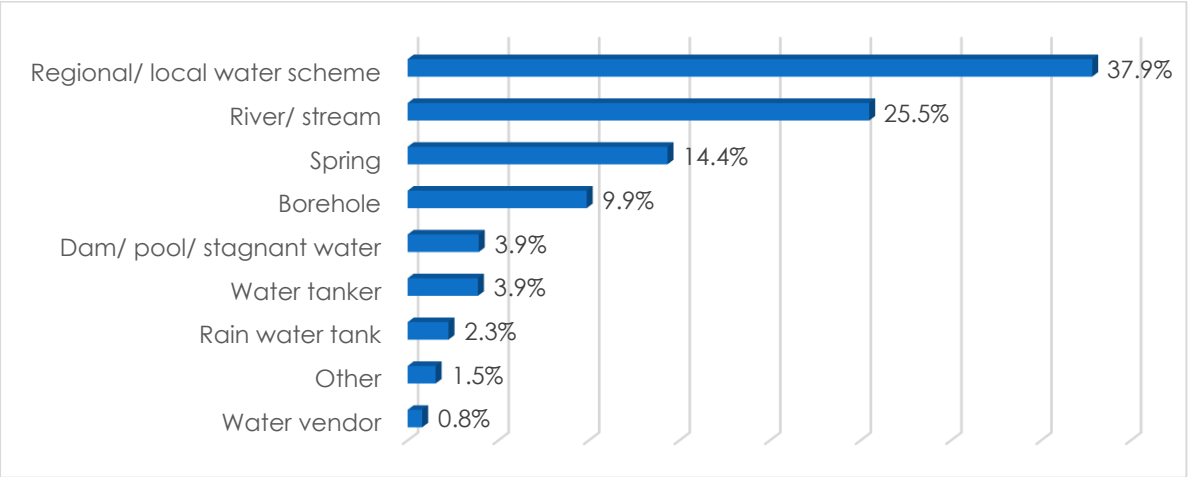


Source: Census 2011

Majority of households (41,1%) have access to a pit latrine system without ventilation followed households that have access to a pit latrine system with ventilation. Only 17,7% of households have access to flush toilets.

Household access to water within Harry Gwala District can be seen in Figure 9.

FIGURE 9: HOUSEHOLD ACCESS TO WATER IN HARRY GWALA DISTRICT 2011



Source: Census 2011

Household access to water from a regional or local water scheme is accessed by 37,9% of households within the District. A large percentage of households have access to natural water systems for water use; 25,5% of households access water from a river/stream, 25,5% households draw water from springs and 9,9% of households use borehole water.

4.4.5 Economic infrastructure challenges

Some of the challenges experienced by the Harry Gwala District, and highlighted in the Spatial Economic Overview Sisonke District Municipality[2]. A lack of access to utilities including: electricity, water, and communication was identified as a major challenge. Poor road maintenance was identified as a major cause for concern in the area. It was noted in that this was often a result of poor infrastructure maintenance. The removal of telephone cables in rural areas was also highlighted as a factor that has been negatively impacting on rural business: it was argued that you cannot operate a business without a reliable communications service.

Where necessary, infrastructure facilities within the District should be identified for upgrading purposes. Access roads, telecommunication technology, electricity distribution and water supply are all key requirements for the participation of stakeholders within the Agri-Parks projects, and therefore extension, or upgrades may be required.

[2] KZN DEDT (2012) KZN PSEDS Profiling District Economic Drivers: Sisonke District Municipality - A Spatial Economic Overview. Available (online): http://www.tikzn.co.za/resources/docs/investment_map/sisonke/REPORT_2_4_-_PSEDS_District_Profiling_-_Sisonke_Final_for_submission.pdf (Accessed December 2015)

5 Main role-players

This section presents the main role-players in the public and private sectors which are considered important to the development of the Agri-park in Harry Gwala District. There are three categories of role-players, namely government, private companies, and associations and organisations.

TABLE 2: GOVERNMENT ROLE-PLAYERS

Role-player	Potential role
Government	
KZN Department of Agriculture and Rural Development (KZN DARD)	• Agricultural institutional support at provincial, district and local levels
KZN Department of Rural Development and Land Reform (DRDLR)	• Monitoring and Evaluation • Provision of institutional support • Provision of funding • Project facilitation
Harry Gwala District Municipality	• Facilitation of District initiatives • Liaison with local stakeholder • Institutional support and facilitation
Harry Gwala Development Agency	• Investment facilitation • Trade Promotion • Small business support • BBBEE promotion • Land reform support • Private sector development • Local economic development • Cooperatives development and support • Provision of industrial infrastructure • Skills development and training
Ubuhlebezwe Local Municipality	• Facilitation of local initiatives • Liaison with local stakeholders • Institutional support and facilitation
Kwa Sani Local Municipality	• Facilitation of local initiatives • Liaison with local stakeholders • Institutional support and facilitation
Umzimkhulu Local Municipality	• Facilitation of local initiatives • Liaison with local stakeholders • Institutional support and facilitation
Ingwe Local Municipality	• Facilitation of local initiatives • Liaison with local stakeholders • Institutional support and facilitation
Greater Kokstad Local Municipality	• Facilitation of local initiatives • Liaison with local stakeholders • Institutional support and facilitation
KZN Department of Cooperative Governance and Traditional Affairs (CoGTA)	• Institutional support and facilitation • Local economic development • Nodal Economic Development Planning; • Facilitating coordinating and monitoring of donor programmes • Assisting on LED capacity building processes
Department of Agriculture, Forestry and Fisheries	• Agricultural sector support • Promote rural development

Role-player	Potential role
Ingonyama Trust tribal authority	• Facilitating linkages between tribal and rural communities and potential/created opportunities • Identification of best positioned community individuals to benefit from initiative • Encouraging rural collaboration and buy-in
Amakhosi	• Facilitating linkages between tribal and rural communities and potential/created opportunities • Identification of best positioned community individuals to benefit from initiative • Encouraging rural collaboration and buy-in
Financial services	
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.
Extension services and research	
Agriculture Research Council (ARC)	• Agricultural research support • Institutional support
Organisations and Associations	
Agricultural Producers Agents Council (APAC)	• Regulating council – agents in the industry
South African Feedlot Association (SAFA)	• Industry representation • Provides support and solutions • Collective branding of grain fed beef • Educational workshops and tours • Animal health issues
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
Milk Producers' Organisation (MPO)	• Market protection and promotion • Communication • Technology transfer • Information • Protection of member interests
Forestry South Africa (FSA)	• Voluntary association of timber growers • Inclusive organisation that represents private timber growers (corporate, commercial, emerging farmers)

Role-player	Potential role
Hlanganani Farmers Association	• Farmers Association compromising of farmers from the Hlanganani area.
Highflats Farmers Association	• Farmers Association compromising of farmers from the Highflats area.
Lourdes Wool Growers Association	• Wool production based farmers association based within the Harry Gwala District.
Ubuhlebezwe Emerging Farmers	• Farmers Association compromising of farmers based in the Ubuhlebezwe Local Municipality.
Ingwe farmers Association	• Farmers Association compromising of farmers from in the Ingwe Local Municipality.
Umzimkhulu forest growers	• Forestry production farmers association consisting of farmers from the Umzimkhulu Local Municipality.
Underberg Farmers Association	• Dairy farmers association compromising of farmers from the Underberg area.
Merensky Timber	• Forestry and timber production.

6 Economic and socio-economic analysis

6.1 Demographic analysis

6.1.1 Population and household growth

Table 3 below indicates population and household growth and densities between 2005 and 2015. The population of Harry Gwala has grown from 425 100 in 2005 to 471 383 in 2015, indicating an average growth rate of 1% per annum over the last 10 years. The number of households have also grown from 102 146 in 2005 to 115 837 in 2015, with an average growth rate of 1% during this period. In 2015, the population household size stood at 4 people per household. Population density in 2005 was 20 people per km^2 which grew to 45 people per km^2 in 2015. Household density has also increased from ten households per km^2 in 2005 to eleven households per km^2 in 2015.

TABLE 3: POPULATION AND HOUSEHOLD GROWTH AND DENSITIES IN HARRY GWALA DISTRICT

Harry Gwala District	2005	2010	2015	Growth Rate (2005-2015)
Population total	425 100	440 134	471 383	1%
Households total	102 146	107 412	115 837	1%
Population household size	4	4	4	0%
Area (km^2)	10 547	10 547	10 547	0%
Population density (People/km^2)	40	42	45	1%
Household density (Households/km^2)	10	10	11	1%

Source: Quantec Easydata 2015

6.1.2 Age profile

Table 4 below indicates the age profile of the population within the Harry Gwala District in 2015. Majority of the population (58%) of the population falls within the within the 15-64 years age category. 37% of the population falls within the 0-14 years age category and 5% of the population being 65 years and above.

TABLE 4: AGE PROFILE OF POPULATION WITHIN HARRY GWALA DISTRICT

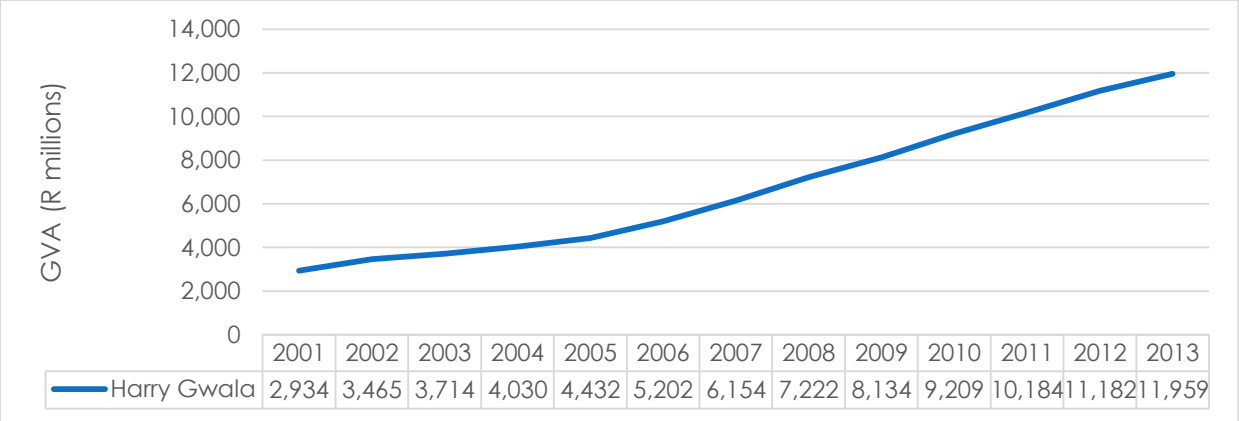
Age group	Harry Gwala	
	Number of people	Percentage of population
0-14 years	175 133	37%
15-64 years	272 727	58%
65 years +	23 523	5%
Total	471 383	100%

Source: Quantec Easydata 2015

6.2 Economic profile (sector analysis)

The figure below indicates the total GVA growth for the Harry Gwala District between 2001 and 2013. GVA has grown from R2 934 million in 2001 to R11 959 million in 2013, indicating an average growth rate of 12% per annum.

FIGURE 10: HARRY GWALA DISTRICT GVA GROWTH 2001-2013

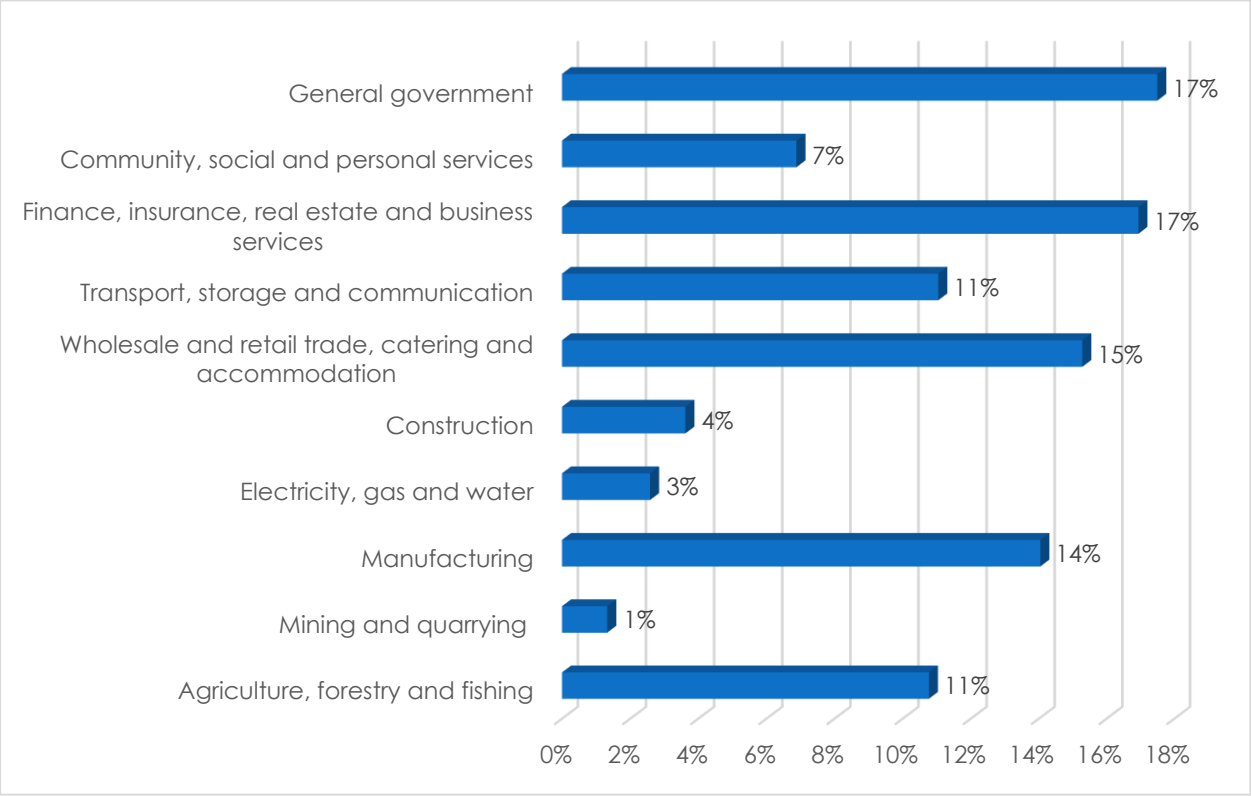


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Harry Gwala	2,934	3,465	3,714	4,030	4,432	5,202	6,154	7,222	8,134	9,209	10,184	11,182	11,959

Source: Quantec Easydata 2015

Figure 11 below indicates the GVA contribution per sector in Harry Gwala District in 2013.

FIGURE 11: HARRY GWALA DISTRICT GVA SECTOR CONTRIBUTION 2013



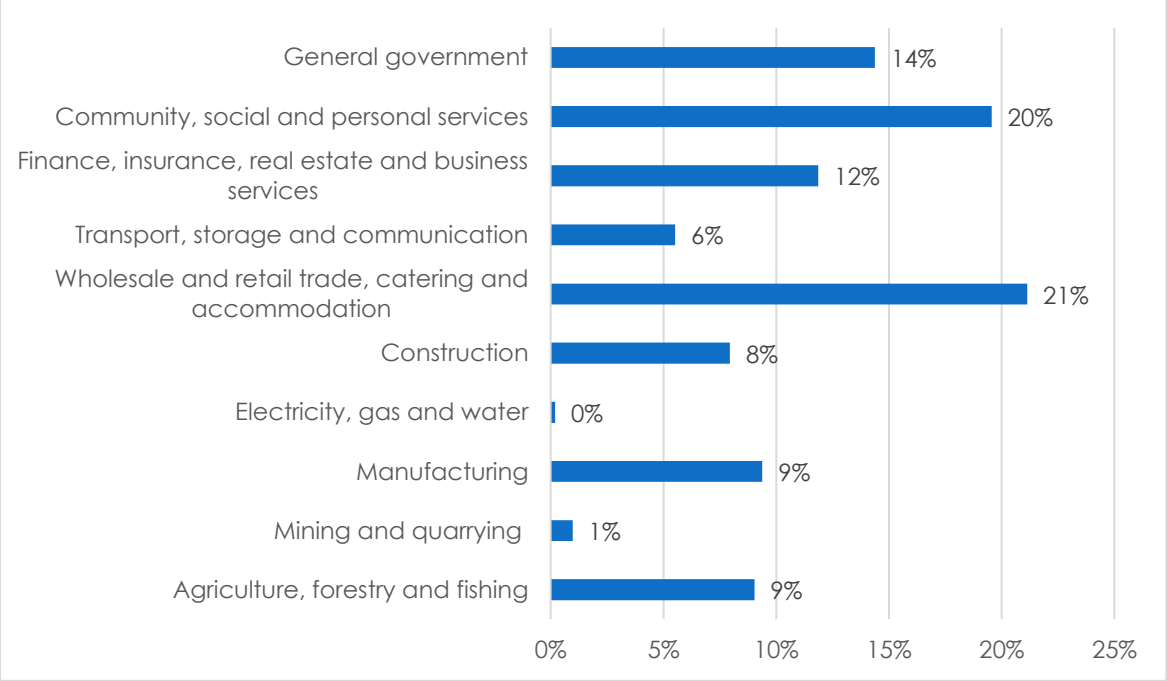
Source: Quantec Easydata 2015

From the figure above it is evident that the sectors which contributed the most to the economy of Harry Gwala in 2013 include General Government (17%); Finance, insurance, real estate and business services (17%); Wholesale and retail trade, catering and accommodation (15%); manufacturing (14%) and Transport, storage and communication (11%). The Agriculture, forestry and fishing sector contributed 11% towards the District's economy and is the sixth largest sector contributor overall.

6.3 Employment per sector

Figure 12 below indicated the labour distribution per sector within the Harry Gwala District in 2013. The Agriculture, forestry and fishing sector only provides employment opportunities for 9% off the District's residents. Majority of the employed population of the District are found within the Wholesale and retail trade, catering and accommodation sector. The development of the Agri-park has the potential to create more employment opportunities within the Agriculture, forestry and fishing sector, thus assisting the District with realising the job creation goals of the myriad national, provincial and local policies reviewed in Section 3.

FIGURE 12: HARRY GWALA DISTRICT LABOUR DISTRIBUTION PER SECTOR 2013



Source: Quatec Easydata 2015

6.4 Unemployment rates

The table below presents the employment profile of the Harry Gwala District in 2013. Harry Gwala District is characterised by an unemployment rate of 31% and a labour force participation rate of only 40%. This is indicative of the limited employment opportunities available in the district. Therefore, there is a potential labour pool (64%) available to take

advantage of the employment opportunities created by the development of the Agri-park. Creation of employment opportunities will also address the high unemployment rate.

TABLE 5: HARRY GWALA DISTRICT EMPLOYMENT PROFILE 2013

Year	2001	2008	2013
Population	449 060	502 983	533 428
Working Age Population	227 465	249 396	280 449
Labour Force	89 091	113 948	112 359
Employed	64 812	77 266	77 233
Unemployed	24 279	36 682	35 126
Not Economically Active	138 374	135 448	168 090
Unemployment Rate	27%	32%	31%
Labour Force Participation Rate	39%	46%	40%

6.5 Skills (level of education)

The education levels of a population are indicative of the level of skill present in the labour force. Skill level has a potential impact on the ability to take advantage of employment opportunities and also to increase the level of income earned. It is also of relevance to the Agri-park because some of the employment opportunities created through its development will require skilled employees. Table 6 below indicates the level of education within the Harry Gwala.

TABLE 6: HARRY GWALA DISTRICT EDUCATION LEVELS 2005-2015

Level of schooling	2005	2010	2015
No schooling	13,8%	10,4%	10,3%
Some primary	34,6%	30,0%	29,7%
Complete primary	6,6%	6,2%	6,2%
Some secondary	21,9%	26,2%	26,5%
Grade 12	6,6%	9,7%	10,2%
Higher	2,3%	2,9%	3,0%
Other/ Unspecified/ NA	14,2%	14,5%	14,0%

Source: Quantec Easydata 2015

6.6 Income and poverty

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. Table 7 below indicates the annual household income in the study area.

TABLE 7: HARRY GWALA DISTRICT ANNUAL HOUSEHOLD INCOME

Income level	Income bracket	Number of households	Percentage	
No income	R 0	17 088	15,2%	15,2%
Low income	R1 - R4 800	6 691	6,0%	65,1%
	R4 801 - R 9 600	13 279	11,8%	
	R9 601 - R 19 200	28 454	25,3%	
	R19 201 - R 38 400	24 634	21,9%	
Low/middle income	R38 401 - R 76 800	10 218	9,1%	14,4%
	R76 801 - R153 600	5 965	5,3%	
Middle/high income	R153 601 - R307 200	3 583	3,2%	4,7%
	R307 201 - R614 400	1 721	1,5%	
High income	R614 401 - R1 228 800	349	0,3%	0,6%
	R1 228 801 - R2 457 600	171	0,2%	
	>R2 457 601	129	0,1%	

Source: Quantec Easydata 2015

The annual household income trends in Harry Gwala District are as follows:

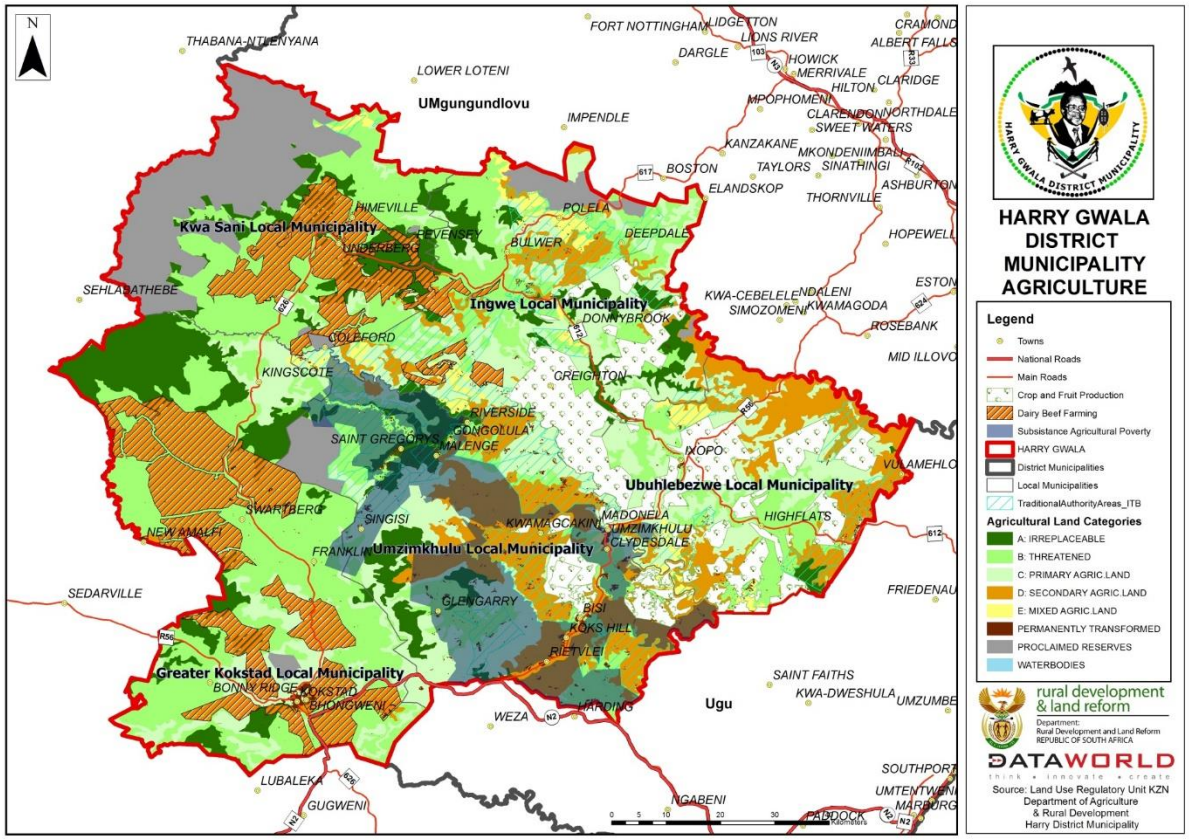
- No income – 15,2%
- Low income – 65.1%
- Low/ middle income – 14,4%
- Middle/ high income – 4.7%
- High income – 0,6%

The low levels of household income in the Harry Gwala District indicate a dire 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 affect the income levels of its people. The high poverty level in the study areas has social consequences such as an inability to pay for school fees, buy food and other daily necessities, or to afford a medical aid. Household income levels are unlikely to see any improvement unless there is a corresponding improvement in skill profile through attaining higher levels of education. The lower income levels in study area indicate a high demand for employment. The Agri-park 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 3 would be met.

7 Agricultural Industry Analysis

Harry Gwala contains some of the best agricultural land found within South Africa. Agriculture is a critical sector within the District economy, being second largest in GVA terms and has the potential to continue to contribute to the growth and development of the area. Overall the majority of the land in Harry Gwala (73%) falls into category A-C which indicates good agricultural potential (See map 1 and map 2 below). The potential within areas that have good agricultural potential could be unlocked and brought into primary production and linked into the Harry Gwala Agri-park development.

MAP 1: AGRICULTURAL LAND CATEGORIES IN HARRY GWALA DISTRICT



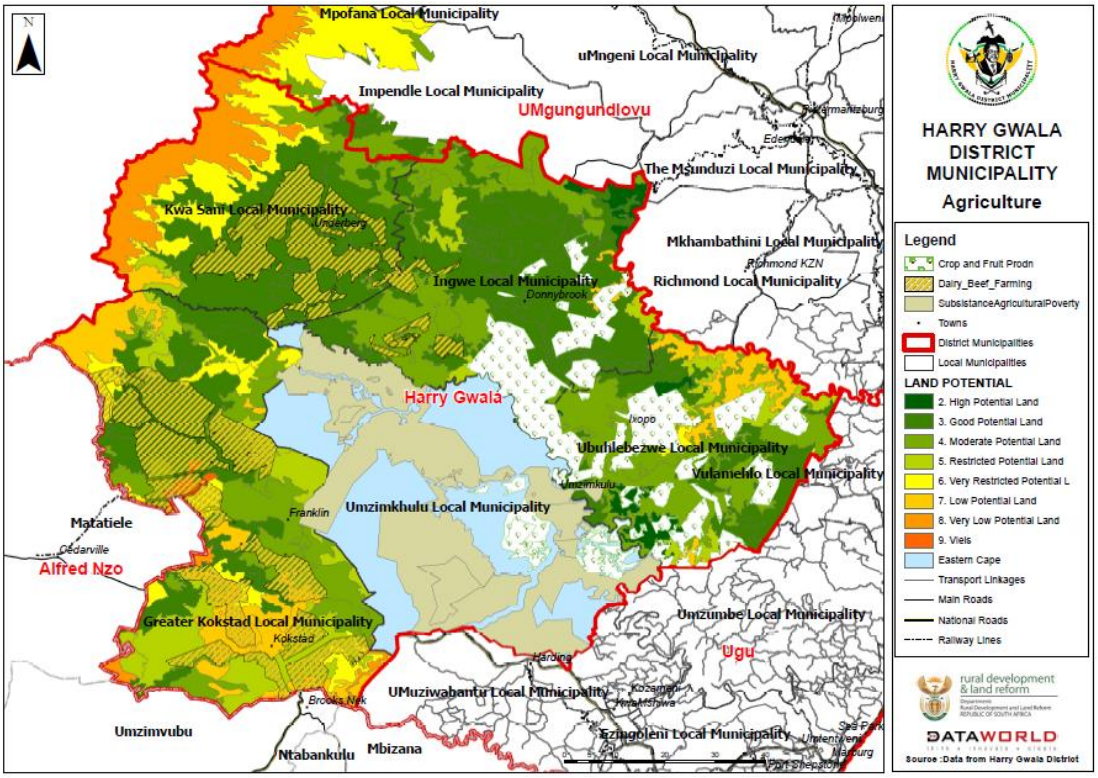
(Source: Source: Dataworld Mapping and KZN DARD, 2015)[3]

The agriculture sector is one of the main sectors in the region contributing to the regional economy. As indicted in the Harry Gwala Development and Growth Strategy (DGDS) (2014), the agricultural sector is critical to the economy of the District contributing up to 25% towards the GVA in 2011. The commercial farming regions of the District is largely characterized by beef, dairy and forestry. The District also contains large tracts of undeveloped rural areas where predominantly subsistence farming occurs on small plots of land.

[3] Development of Rural Development Plan for Harry Gwala District Municipality KwaZulu-Natal Province Phase 4 and 5 Report (Draft)

The map below indicates the agricultural potential of the Harry Gwala District Municipality.

MAP 2: AGRICULTURE MAP OF HARRY GWALA DISTRICT MUNICIPALITY



(Source: Source: Dataworld Mapping and Harry Gwala District Municipality, 2015)[4]

The map illustrates that the District has large pockets of high and good potential agricultural land. The Harry Gwala District has been recognized for its high agricultural potential and the agriculture sector is also an important sector for employment.

7.1 Main agricultural activities

The main agricultural activities within the Harry Gwala District Municipality are centred on crop, dairy farming and forestry. As indicated in the Harry Gwala IDP[5], commercial farms play an important role in the agriculture sector of the Harry Gwala District economy with crop farming (potatoes and cabbages) and dairy farming forming important subsectors. There are also commercial forestry plantations that provide raw materials for wood-related products. A significant portion of dairy consumed in within KwaZulu-Natal is produced within the District. The dominant commodities and value chains within Harry Gwala are as follows[6]:

- Timber/Forestry;
- Milk;

[4] Development of Rural Development Plan for Harry Gwala District Municipality KwaZulu-Natal Province Phase 4 and 5 Report (Draft)

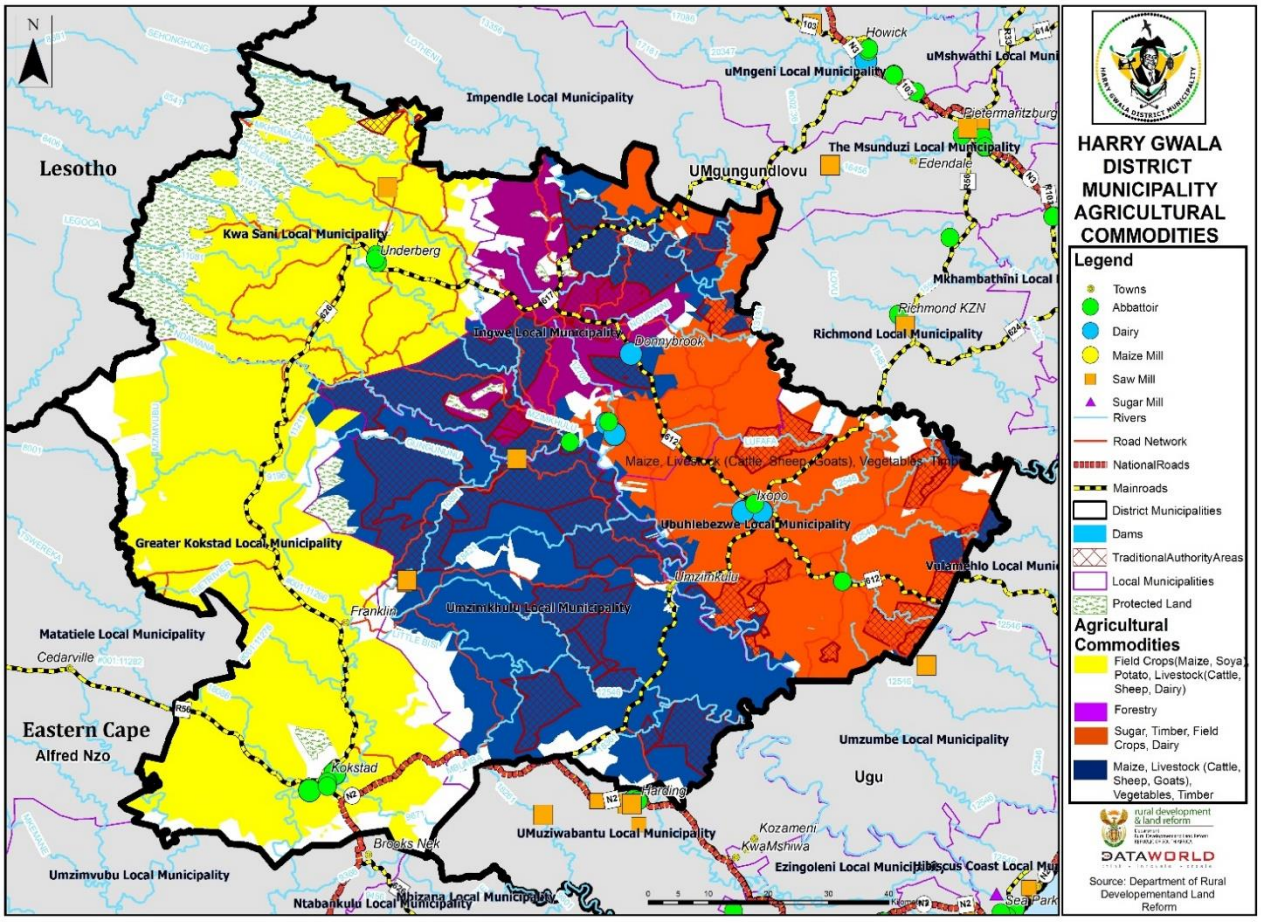
[5] Harry Gwala District Municipality Integrated Development Plan 2014-2015

[6] Development of Rural Development Plan for Harry Gwala District Municipality KwaZulu-Natal Province Phase 4 and 5 Report (Draft)

- Field crops/Grains; and
- Livestock (beef cattle, sheep and goats).

The map below shows the spatial distribution of where these commodities are produced within the Harry Gwala District relative to agricultural infrastructure (abattoirs, dairies, maize mills and saw mills).

MAP 3: COMMODITIES PRODUCED AND AGRICULTURAL INFRASTRUCTURE IN HARRY GWALA DISTRICT



(Source: Source: Dataworld Mapping and Harry Gwala District Municipality, 2015)[7]

Areas highlighted in yellow in the map above show that field crops (maize and soya), potato and livestock (cattle, sheep and dairy) are the predominant agricultural commodities found in the Greater Kokstad and Kwa Sani regions. The area highlighted in purple indicates that the forestry agriculture commodity is predominantly located in the Ingwe region. Areas highlighted in blue indicate areas where maize livestock (cattle, sheep and goats) vegetables and timber agricultural commodities are found which is mostly in the Umzimkhulu region and parts of Ingwe as well. Areas highlighted in orange indicate that sugar, timber field crops and dairy agriculture commodities are mostly found in the Ubuhlebezwe region.

[7] Development of Rural Development Plan for Harry Gwala District Municipality KwaZulu-Natal Province Phase 4 and 5 Report (Draft)

The Harry Gwala IDP[8] further indicates that the District has an abundance of high quality soils, high altitude, abundant water, and climatic extremes, which makes the area suitable for dairy farming. Agricultural activities (i.e. sugar cane and timber plantations) provide employment to local communities, although limited and seasonal. Other suitable agricultural activities identified in the IDP[9] as having potential for growth in the region include carrots, maize, oats, soybeans, tomatoes, wheat, sorghum, sunflower and livestock.

Climatic extremes make the area suitable for a variety of products including crops and vegetables, livestock and sugar cane around Ixopo/ High flats area. Areas in Greater Kokstad and Kwa Sani Municipality have potential for Beef/ Dairy farming which needs to be enhanced. Ingwe and uBuhlebezwe municipalities have potential for crop and fruit production. Most of the land in uMzimkhulu municipality has potential for forestry plantation, followed by crop and fruit production and lastly subsistence agriculture.

The suggested enterprises that could possibly have a comparative advantage for each of the local municipalities found within Harry Gwala District include[10]:

- Kwa Sani: Dairy, beef, timber – pine, wattle and gum, maize, potatoes, soybeans, dry beans;
- Ingwe - timber – pine, wattle and gum, dairy, beef, timber, sheep, potatoes, maize, soybeans;
- Ubuhlebezwe – chicory, cowpeas, timber – pine, wattle and gum, dairy, beef, timber, sheep, potatoes, maize, soybeans;
- uMzimkhulu – beef, sheep, goats, maize, soybeans, timber – pine, wattle and gum, potatoes, vegetables;
- Greater Kokstad – dairy, beef, sheep, goats, maize, soybeans, timber – pine, wattle and gum, potatoes, vegetables

7.2 Current and proposed projects in the region

There are a number of existing and proposed agriculture related projects that fall within the Harry Gwala District of which 11 are Rural Enterprise and Industrial Development (REID) projects, 11 are CASP/ Ilima-Letsema projects, followed by 5 Rural Infrastructure Development (RID) projects. A full list of REID and RID projects is shown in Table 8 and Table 9 below.

There are a number of rural development related projects which include land claims to be resolved, catalytic projects identified in the Harry Gwala Growth and Development Strategy

[8]Harry Gwala District Municipality Integrated Development Plan 2014-2015

[9]Development of Rural Development Plan for Harry Gwala District Municipality KwaZulu-Natal Province Phase 4 and 5 Report (Draft)

[10] Development of Rural Development Plan for Harry Gwala District Municipality KwaZulu-Natal Province Phase 4 and 5 Report (Draft)

(2014). Under its Rural Enterprise and Industrial Development (REID) and Rural Infrastructure Development (RID) initiatives, the DRDLR is supporting and funding a number of rural development projects with Harry Gwala. These projects focus mainly on income generation and job creation in uMzimkhulu. High impact projects that impact more than 10 beneficiaries are:

- The Dwabase Coop grain production project (50 beneficiaries);
- The Maziqokele Coop vegetable and broiler production project (18 beneficiaries); and
- The Sizanani Coop vegetable and broiler production project (18 beneficiaries).

Of the 11 CASP/Ilema-Letsema projects located within the Harry Gwala District, 3 are based in Greater Kokstad, 2 in Ingwe, 3 in Ubuhlebezwe and 3 in Umzimkhulu.

TABLE 8: REID PROJECTS WITHIN HARRY GWALA DISTRICT MUNICIPALITY[11]

Project Name	LM	Commodity	Project Description	Project Objectives	Extent (Ha)	No. Of Beneficiaries
DMT Agricultural	Umzimkhulu	Essential Oil and Vegetable	This is an agricultural enterprise in the rural area of Umzimkhulu Local Municipality in ward 11 at KwaMeyi village. The project is a producer of essential oils and vegetables. The project registered as a legal entity in 2008. They are operating on a 63 ha land at farm Nooitgedacht.	Income generation, skills transfer and job creation	63	5
Mabandla Poultry	Umzimkhulu	Poultry	This is an egg production project managed by 5 members. They rear 500 layers in cage system. The project is at Umzimkhulu Local Municipality at Khayeka Village.	Income generation and job creation	1	5
Dwabase Coop	Umzimkhulu	Grains	The project was established in 2014 by a group of 45 community members (33 females & 12 males. The project produce crop (maize, beans) for the local, neighbouring villages and nearby towns (Umzimkhulu& Ixopo). The projects occupies 50ha of land which is not properly fenced.	Income generation and job creation	42	50
Ziyaphambili Poultry	Ubuhlebezwe	Poultry	This is a free range project from KwaNokweja at UBuhlebezwe Local Municipality. The project is registered as a legal entity and it is managed by 5 members. They sell the free range as live birds to local communities; however, their future plan is also to selling eggs and possibly slaughter their chickens	Income generation and job creation	1	5
Lwandle Mechanics	Ubuhlebezwe	Mechanical engineering	The project is situated in Ward 11 of Ubuhlebezwe Local municipality at KwaNokweja village. The core business of this project is to fix light and heavy vehicles. It registered as a legal entity in 2013 and it is managed by 5 people. They manage to provide service to 10 or 15 vehicles a month depending on the type of service rendered to each car.	Income generation and job creation	1	5
Ukwenzakufani	Umzimkhulu	Vegetable	This is a vegetable and broiler production project that is managed mainly by youth. The project is operating at Ndzombane at Umzimkhulu Local Municipality. They sell their vegetable and chickens mainly to local market, however they sell some to Boxer and other shops around Umzimkhulu Town.	Income generation and job creation	2	8

[11] Sonjica (2015) in Development of Rural Development Plan for Harry Gwala District Municipality KwaZulu-Natal Province Phase 4 and 5 Report (Draft)

Project Name	LM	Commodity	Project Description	Project Objectives	Extent (Ha)	No. Of Beneficiaries
Maziqokele Coop	Umzimkhulu	Vegetable and broiler	This is a vegetable and broiler production project that is managed by 18 members. The project is operating at Magcakini at Umzimkhulu Local Municipality. One member of this project have been trained in vegetable production by the Department under the APPDP programme. They sell their vegetable and mainly to local market, however they sell some to Boxer and other shops around Umzimkhulu Town.	Income generation and job creation	1.4	18
Masibambane Coop	Umzimkhulu	Vegetable	This is a vegetable and broiler production project that is managed by 7 members. The project is operating at Mathseni village at Umzimkhulu Local Municipality. One member of this project have been trained in vegetable production by the Department under the APPDP programme. They sell their vegetable and mainly to local market, however they sell some to Boxer and other shops around Umzimkhulu Town.	Income generation and job creation	1	7
Sizoyinqoba Coop	Umzimkhulu	Vegetable	This is a vegetable and broiler production project that is managed mainly by youth. The project is operating at Ulusizini at Umzimkhulu Local Municipality. Two members of this project have been trained in vegetable production by the Department under the APPDP programme. The produce is sold mainly to local market, however they sell some to Boxer and other shops around Umzimkhulu Town.	Income generation and job creation	2	8
Sizanani Coop	Umzimkhulu	Vegetable	This is a vegetable and broiler production project that is managed mainly by youth. The project is operating at Ulusizini at Umzimkhulu Local Municipality. One member of this project have been trained in vegetable production by the Department under the APPDP programme. The produce is sold mainly to local market, however they sell some to Boxer and other shops around Umzimkhulu Town.	Income generation and job creation	1	18
Eyethu Agric & Livestock	Ingwe	Vegetable, Livestock	Eyethu Agricultural & Live-Stock Farming is a cooperative that was formed by 6 youth (3 males & 3 females). The project owns a 6ha of land.	Income generation and job creation	6	

TABLE 9: RID PROJECTS WITHIN HARRY GWALA DISTRICT MUNICIPALITY [12]

Name of Project	Description	Beneficiaries	Local Municipality	Ward Number	Contract Value	Status
Umzimkhulu Maize Masification Project	Fencing for 31.6 km of Crop Fields	5 Communities	Umzimkhulu	1, 13 & 20	1,950,000	Complete
Parkkies, Thuthukani, Ekuthuleni	Fencing of +/- 17.3 km of Grazing Camps and Crop Fields	3 Communities	Greater Kokstad	6	1,200,000	Complete
Malenge Irrigation Scheme	Fencing for 20.2 km of Crop Fields	3 Communities	Umzimkhulu	3	1,000,000.00	Complete
Greater Kilimon Water Supply Project	Construction of 2ML Reservoir, and 8km bulk pipeline and internal reticulation for Kilimon	500HH	Ingwe	1&2	22,500,000	Under Construction – to be completed in December 2014
Harry Gwala Livestock Infrastructure Projects	Construction of Livestock Infrastructure Projects including: 32 dip tanks rehabilitation; Sales & Handling Facility	32 Communities	Ubuhlebezwe Umzimkhulu Ingwe	Various Wards	10,000,000	Designs Complete, Tenders for Construction underway, Construction to commence during November 2014

[12] Development of Rural Development Plan for Harry Gwala District Municipality KwaZulu-Natal Province Phase 4 and 5 Report (Draft)

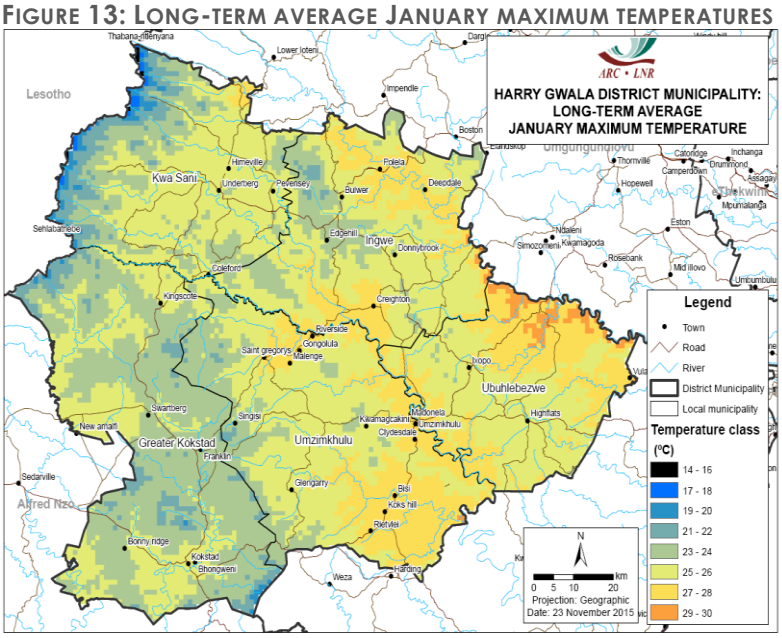
7.3 Environmental conditions and resource analysis

7.3.1 Temperature, frost and heat and chill units

Decadel (ten-day period) 1km X1km surfaces were created from temperature data (1920 to 1999) downloaded from the AgroMet databank at the ARC-ISCW (South African Weather Service and ISCW weather stations) from stations with a recording period of 10 years or more. Regression analysis and spatial modelling were utilized taking into account topographic indices such as altitude, aspect, slope and distance to the sea during the development of the surface. Monthly averages were calculated (Malherbe & Tackrah, 2003).

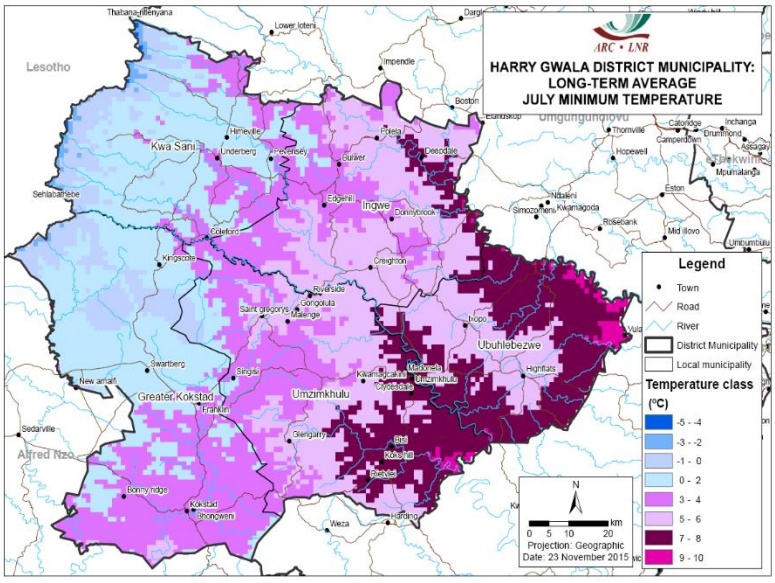
The long-term average maximum temperatures for Harry Gwala are mostly between 26^0 and 27^{0}C for January (Figure 13 on the right) and the long-term average minimum temperatures between 11^0 and 12^0 near the coast and between 9^0 and 10^0 C for July (Figure 14 on the right).

FIGURE 13: LONG-TERM AVERAGE JANUARY MAXIMUM TEMPERATURES



According to Schulze (2008) the heat units (^{0} days) for January for the area is < 280. The July values is a very low < 5. The positive chill units for July is mostly between 250 and 350 PCUs for Harry Gwala.

FIGURE 14: LONG-TERM AVERAGE JULY MINIMUM TEMPERATURES



The climate of Harry Gwala is influenced by the cool Drakensberg Mountains to the west. Temperatures vary with altitude, there is a range from warm and humid conditions at sea level, contrasting with very hot and often dry in the bushveld, to very cold at 2000-3000 m above sea level in the

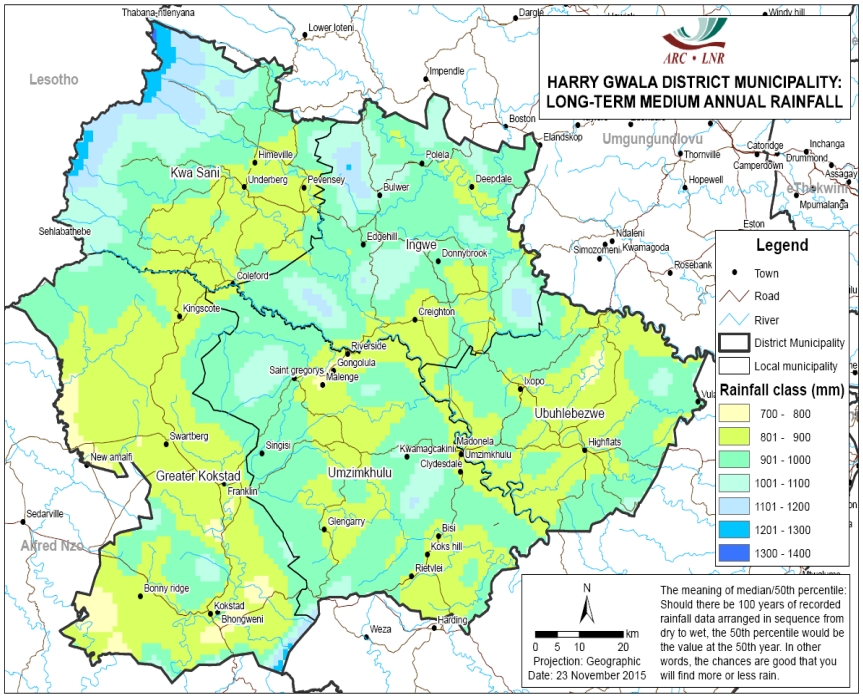
Drakensberg. The highest rainfall areas are in the Drakensburg, in winter, spring and early summer most of the rain is caused by cold fronts, moving in from the south-west. These are often preceded by hot, desiccating, dry "Berg" winds from the north and north-west. Snowfalls are common mainly in the Drakensberg, where snow usually melts within a few days, though heavy snowfalls can blanket the summit for weeks. Many species of plants are adapted to the harsh conditions, and thrive in areas prone to frost and snow (HGDM IDP, 2012-2017 Term).

7.3.2 Rainfall, hail risk, humidity and water availability for irrigation or animal watering

Decadel (ten day period) 1km X1km surfaces were created from rainfall data (1920 – 1999) downloaded from the AgroMet databank at the ARC-ISCW (South African Weather Service and ISCW weather stations) from stations with a recording period of 10 years or more. Regression analysis and spatial modelling were utilized taking into account topographic indices such as altitude, aspect, slope and distance to the sea during the development of the surface. Monthly averages were calculated (Malherbe & Tackrah, 2003).

Harry Gwala falls within the South African summer rainfall region with mean annual precipitation (MAP) ranging from 800mm to 1400mm depending on the local area in question MAP generally declines from the coast to inland areas. The majority of the District receives relatively high rainfall in excess of 900mm (Figure 15).

FIGURE 15: LONG-TERM MEDIAN ANNUAL RAINFALL



From the long-term 33rd and 67th percentile annual rainfall (Figure 16 and Figure 17) it can be seen that the north-eastern part of the DM has the highest probably of high rainfall (900 mm) even during drought conditions.

FIGURE 16: LONG-TERM 33RD PERCENTILE ANNUAL RAINFALL

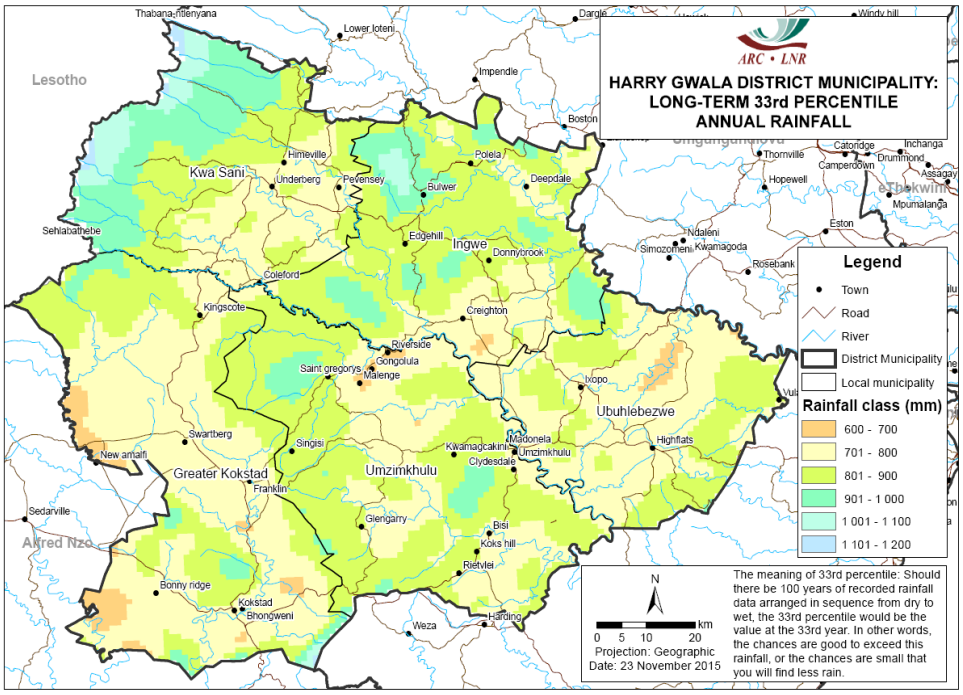
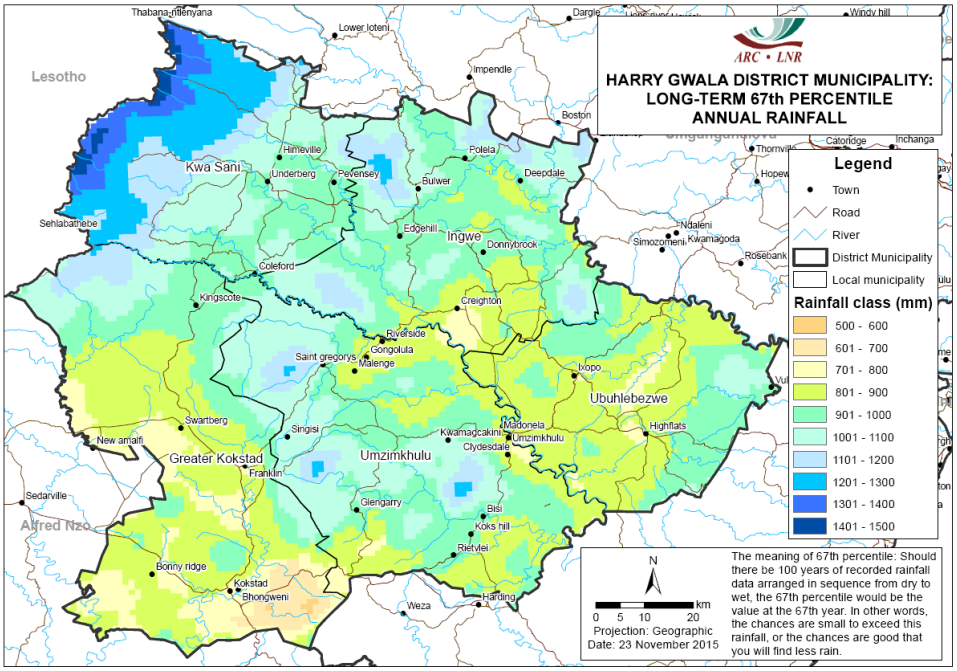


FIGURE 17: LONG-TERM 67 PERCENTILE ANNUAL RAINFALL



According to Sisonke District Municipality's (Harry Gwala) IDP 2008/09 the DM has a mean annual rainfall is between 900 to 1400mm with a mean annual temperature of 11^0 C. Summers are cool and winters are mild with frequent severe frost and snowfalls especially in the Kwa Sani Municipal area and hail. UBuhlebezwe has a mean annual temperature of proximately 18^0C with an approximate mean annual rainfall of between 600 to 850 mm. Summers are warm with Mild winters. Moderate frost occurs with occasional severe frost. Mists occur in spring and

early summer. Surrounding Ixopo occasional drought occurs, with heavy mists, occasional hail and frost also being experienced. Berg winds and sudden cold fronts in the area result in unpredictable weather conditions particularly in spring and early summer. Ingwe experiences average annual rainfall of approximately 800 to 1116 mm with much less rainfall surrounding Creighton. In Kwa Sani the mean annual rainfall is from 800 to 1265 mm with a frequent occurrence of mist and occasional snow, with a mean annual temperature of approximately 14^0C. Surrounding and to the east of Underberg however frost is common in occurring most commonly on the flats or in hollows while the slopes experience lighter, less frequent frost. There is a clearly defined cold dry season with mist and snow occurring less frequently than in the rest of the Municipality. In the Greater Kokstad municipality is summer rainfall group with a mean annual temperature of 14 C. In Umzimkhulu municipality summer is predominantly warm and winter is cold with frost in some areas. Rainfall ranges from 750mm to 1050mm per annum.

The high rainfall and relatively cold conditions in the district are favourable for timber and dairy production. Vegetable production is restricted to plants that tolerate cold conditions.

Forestry is an important part of the economy for Harry Gwala District Municipality. In 2010 the forestry sector contributed over R331 million to the district's GDP and constituted more than 8% of the district's economy (HGDM IDP, 2012-2017 Term). In uBuhlebezwe Local Municipality for example, as in most of the district, most of the land is arable for forestry. Timber is mainly produced by Sappi, Mondi, Mondi/Shanduka, Mesonite, NTC and some private farmers. Some of the private farmers have their own plant (e.g. Flaxton) and treat their own timber. Timber production involves growing eucalyptus, pine and wattle species, with the eucalyptus species predominating, Timber operations involve silviculture, harvesting, protection, roads and open area management. There are also value-added opportunities in pyro wood, as an alternative low smoke energy source.

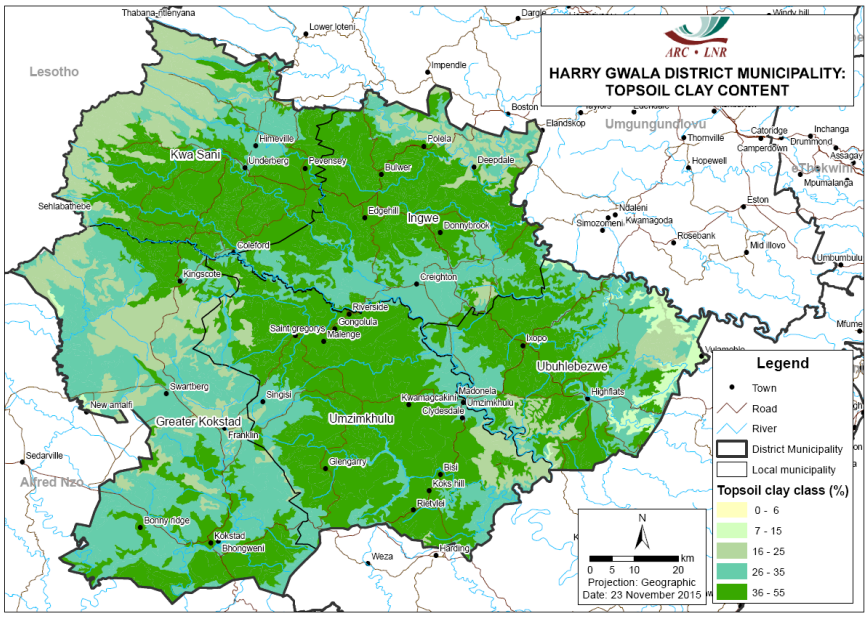
The Harry Gwala District Municipality currently has a competitive advantage in terms of the domestic dairy industry. The district produces 10% of the milk consumed in South Africa. In Kwa-Sani Municipality alone, 400 000 litres of milk are produced a day.

7.3.3 Land and soil resources

Digital Land type information and the spatial component were used to determine the top soil clay content and the soil depth. Soil depth is recorded as a range for each soil entry. A weighted average was calculated for each land type unit (Land Type Survey Staff, 1972 to 2006).

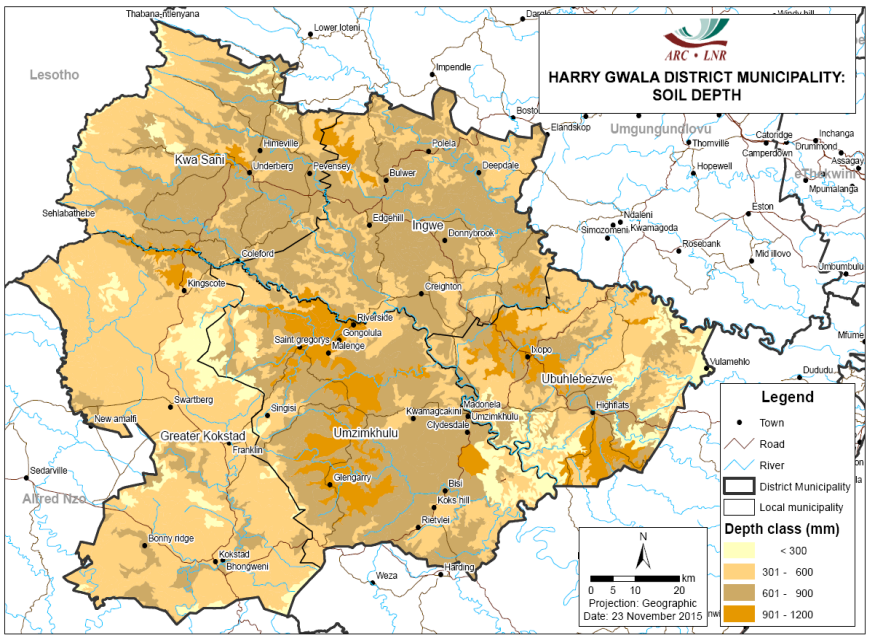
The topsoil clay is mostly between 35 and 55% (see figure 18 on right) in the area, an indication of a low infiltration rate and high water-holding capacity.

FIGURE 18: HARRY GWALA TOPSOIL CLAY CONTENT



The majority of the area has a soil depth between 600 and 900 mm (see figure 19 on right), which is suitable for the production of most crops, but steep slopes are major stumbling block for intensive production in some areas.

FIGURE 19: HARRY GWALA SOIL DEPTH



Soils and geology vary greatly throughout the District. Around Ixopo soils are leached and of low inherent nutrient status with problems with Phosphorus fixation and aluminium toxicity, they have low agricultural potential. East of Ixopo soils on hillsides are shallow of the Mispah and Glenrosa. In the valley bottoms pockets of deep alluvial soils are found. Areas of calcareous duplex soils are also found east of Ixopo; these soils are highly erodible. Around the edges of UBuhlebezwe soils are of the Table Mountain Sandstone plateau, with rugged low potential soils in the north of the Local Municipality. On the eastern boundary of the Municipality the soils are acid and leached. They consist of shallow sandy soils derived from the Table Mountain Sandstone with heavier soils are derived from dolerite and Dwyka Tillite. Within the UBuhlebezwe Local Municipality however small pockets of high potential soils do occur, erosion on the steep slopes is however problematic in these

areas. Surrounding Creighton soils are highly variable in both depth and drainage. These soils have a relatively low agricultural potential. The rest of the Ingwe Local municipal area however has soils of higher potential. East of Underberg and Himeville soils are sedimentary derived and tend to be shallow and dry or poorly drained. The rest of the Municipality is characterised by high potential soils that support a large variety of crops. The majority of the DM however is dominated by sedimentary derived soils that tend to be shallow and dry or poorly drained. The DM consists of highly erodible humic soils with high aluminium toxicity, which limits rehabilitative growth. Soils in Umzimkhulu consist of moderately deep to deep red and yellow structure-less soils with moderate agricultural potential.

7.3.4 Weed, pest and disease control

Weed, pest and disease control will differ between areas and crops within the different areas and tailor-made programs should be developed for each case study.

7.3.5 General adaptability and resilience to extreme weather and climate change

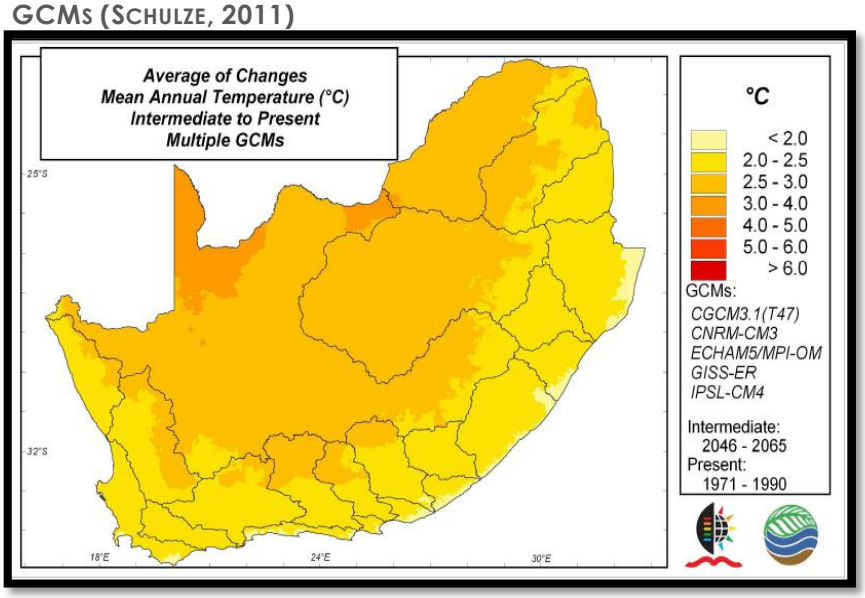
Projected changes to temperature and rainfall

Temperature affects a wide range of processes in agriculture and is used as an index of the energy status of the environment. It is the one climatic variable for which there is a high degree of certainty that it will increase with global warming.

Annual temperatures

- Into the intermediate future (2046 – 2065) annual temperatures are projected to increase by 1.5 °C to 2.5 °C along the coast (illustrating the moderating influence of the oceans) to 3.0 °C to 3.5 °C in the far interior.
- By the end of the century an accelerating increase in temperatures becomes evident with projected increases between 3.0 °C to 5.0 °C along the coast and up to > 6.0 °C in the interior.
- Year-to-year variability of annual temperatures tends to increase in the northern half of the country and decrease in the south.

FIGURE 20: AVERAGES OF CHANGES (°C) BETWEEN THE INTERMEDIATE FUTURE AND PRESENT CLIMATES IN MEAN ANNUAL, DERIVED FROM MULTIPLE GCMS (SCHULZE, 2011)



Heat waves

In regard to heat waves (i.e. occurrences with T_{mxd} > 30 °C on 3 or more consecutive days) and extreme heat waves (occurrences with T_{mxd} ≥ 35 °C on 3 or more consecutive days), the median number of heat waves per annum is projected to increase by anything from 30% to more than doubling from the present to both the intermediate and more distant futures (Schulze (2011) cited by Oosthuizen, 2014).

Cold spells

While the numbers of cold spells (defined as ≥ three or more consecutive days with minimum temperatures < 2.5 °C) and severe cold spells (≥ three or more consecutive days with minima < 0 °C) are shown not to change along the coast of South Africa under future climatic conditions, in the more continental interior a reduction to < 70% of present cold spells is projected used (Schulze (2011) cited by Oosthuizen, 2014).

7.3.6 Projected changes to Rainfall

In agriculture, limitations in water availability are a restricting factor in plant development, with water being essential for the maintenance of physiological and chemical processes within the plant, acting as an energy exchanger and carrier of nutrient food supply in solution. In any regional study of agricultural production, rainfall, as a basic driving force and pulsar input in many agricultural processes, is therefore of fundamental importance. Focus is invariably on the patterns of rainfall in time and over an area, by enquiring how much it rains, where it rains,

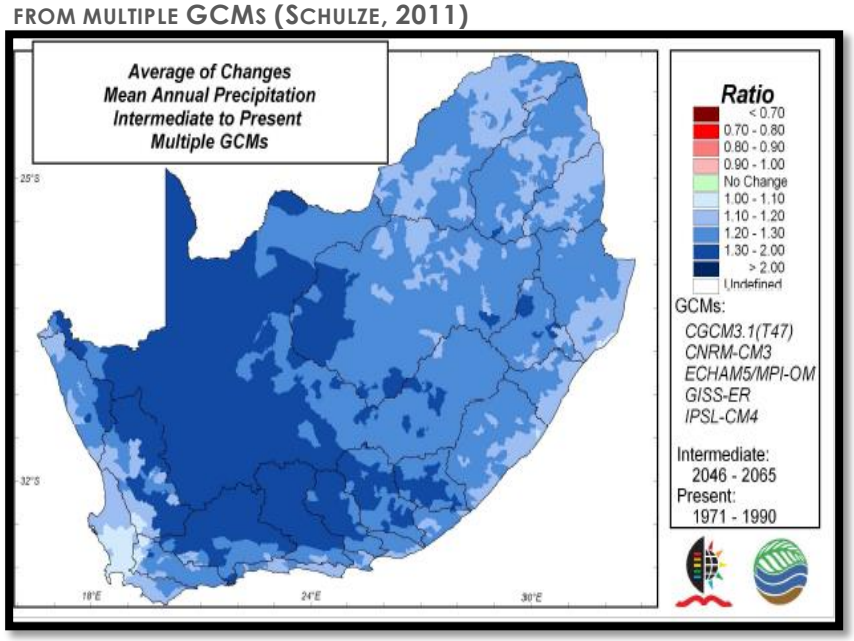
when it rains, how frequently it rains, and what the duration and intensity of rainfall events are (Schulze, 2011).

Annual rainfall

It has already been alluded to that overall changes in future scenarios of climate depend strongly on which GCMs were used, and how many GCMs were in the ensemble used. Output from GCMs applied in this study indicated that:

- Even under current climatic conditions, South Africa is regarded as a semiarid country with 20% receiving < 200 mm per annum, 47% < 400 mm and only 9% with a Mean Annual Precipitation (MAP) in excess of 800 mm. Inter-annual variability is high (Lynch, 2004).

FIGURE 21: AVERAGES OF RATIO CHANGES IN MEAN ANNUAL PRECIPITATION BETWEEN THE INTERMEDIATE FUTURE AND PRESENT, DERIVED FROM MULTIPLE GCMS (SCHULZE, 2011)



- Projected medians of changes in MAP from the ensemble of GCMs used show an overall wetting into the intermediate future, very slight in the west and more pronounced in the east, particularly in the more mountainous areas. In the more distant future intensifications of changes in MAP become evident, with areas of decreases in the west and the increases in the east from 200 mm and up to 500 mm in the escarpment and mountainous runoff producing areas. The period of significant change in the west appears to be in the latter half of the century.
- The averaged ratio changes from multiple GCMs in the inter-annual variability of rainfalls show standard deviations (a measure of absolute variability) to be intensifying from the intermediate to the more distant future, with significant increases in the year-to-year variability of annual precipitation in the east (from 30% up to a doubling), but with decreases in the west.

- The overall increase in rainfall variability has severe repercussions for the management of water resources and operations of major reservoirs as well as on the year-on-year consistency of agricultural production.

Monthly rainfall

- Changes in distribution patterns over South Africa of medians of precipitation in cardinal months are not uniform, but can vary markedly:
  - in direction
  - in intensity
  - spatially within South Africa in a given month
  - between different months of the year for the same statistic
  - between the intermediate future and the more distant future for the same statistic
  - in intensification and acceleration of impacts of climate change over time.
- A recurring feature is a general wetting trend of varying intensity and distribution in all three periods of change considered, particularly in the east. This wetting trend is, in general, projected to be beneficial to South Africa's agricultural production and to water availability for agriculture, but the flood damage or erosion associated with this trend could cause it to be detrimental.
- There is a drying trend evident in the west, mainly towards the end of its rainy season. Combined with increases in temperature, the repercussions for agricultural production, irrigation demand and water resources could thus be severe in the west.
- The GCMs used in this study also display a drying trend in the northern areas of South Africa in the latter half of this century, mainly in the middle and towards the end of the wet season (i.e. January and April), with projected negative impacts on crop yields and water availability.
- The area which is transitional between the summer and winter rainfall areas in South Africa frequently displays marked relative increases in rainfall.
- For the period up to the intermediate future marked differences in averaged ratio changes of standard deviations are seen in the four cardinal months, as are differences in direction and intensity within a given month. January and April display a narrow coastal strip of decreased rainfall variability into the future, but with a general increase over the interior which intensifies into autumn.
- By mid-winter virtually the entire South Africa displays significant increases in the inter-annual variability of rainfall. Over much of the country this has little impact on agriculture and water resources as mid-winter coincides with the dry season, but it does impact on the winter rainfall region of the southwest. By October, when the rainy season starts for much of the country, the eastern half of South Africa and the southwest

show reductions in variability, with only the semiarid central interior displaying averaged increases in variability.

Rainfall concentration

- The rainfall concentration statistics indicate whether the rainfall season is concentrated over a short period of the year only or extended over a longer period.
- Median changes in ratios of intermediate future to present rainfall concentration computed from the five GCMs used, display a general reduction over much of South Africa, indicative of a slightly more even spread of the rainy seasons by the mid-century.
- However, in the all year rainfall belt, as well as the transitional area between the winter and summer rainfall regions, the rainy season is projected to become more concentrated into shorter periods than at present.
- Confidence in these projections is generally in the 'High' category in the northern areas of South Africa, but reduces to the 'Low' category in the south and east.

Rainfall Seasonality

- Large tracts of the current winter and summer rainfall regions are projected with high certainty by the various GCMs used in this study to remain as they are now.
- However, the major uncertainties between the models in changes of future rainfall seasonality are in the transitional areas between the winter and summer regions in the west, and in the future location of the all year rainfall region, with confidence in the composite projections only in the 'Medium High' to 'Medium Low' categories.
- Within the summer rainfall region individual GCMs display a contraction in the mid-summer rainfall region into the intermediate and the more distant future, and a corresponding expansion of late and very late rains.

In regard to annual precipitation, the averages of the ratio changes in MAP show relatively high increases from the present into the intermediate future, i.e. 40 years from now, especially in the western transitional belt between the winter and summer rainfall regions. The year-to-year variability of annual precipitation, is expected to increase throughout South Africa between the present and intermediate future.

A comprehensive analysis on impacts of climate change (Lobell et al., 2008) indicates that Southern Africa is likely to suffer negative impacts on several crops (e.g. maize and sorghum) that are very important to large food-insecure populations. The table below summarizes the likely impact on crop and livestock production for Southern Africa.

TABLE 10: IMPACTS OF PROJECTED CLIMATE CHANGE ON CROP AND LIVESTOCK PRODUCTION FOR SOUTHERN AFRICA

Crop production	**Direct impacts**	• Even small increases in mean temperature between 1° and 2° C are projected to lead to a decrease in crop productivity
		• Changes in temperature regimes could affect growing locations, the length of the growing season, crop yields, planting and harvest dates
		• Increased need for irrigation in a region where existing water supply and quality is already negatively affected by other stressors
	Indirect impact	• Predicted higher temperatures are likely to negatively impact organic matter, thereby reducing soil nutrients
		• Higher temperatures may favour the spread of significant pests and pathogens to a range of agricultural systems
Livestock	**Direct impacts**	• Changes in forage quality and quantity (including the availability of fodder
		• Changes in water quality and quantity
		• Reduction in livestock productivity by increasingly exceeding the temperature thresholds above the thermal comfort zone of livestock which could lead to behavioural and metabolic changes (including altering growth rate, reproduction and ultimately mortality)
		• Increased prevalence of "new animal diseases"
		• Increases in temperature during the winter months could reduce the cold stress experienced by livestock, and warmer weather could reduce the energy requirements of feeding and the housing of animals in heated facilities
	Indirect impact	• Increased frequency in disturbances, such as wildfires
		• Changes in biodiversity and vegetation structure
Socio-economic/ livehood impacts		• Changes in income derived from crops and livestock production
		• Shifts in land use (including consequences of land reform)
		• Overall changes in food production and security

Source: Davis (2011)

7.4 Commodity selection criteria (APAP)

The commodity selection criteria is used to determine the most appropriate commodity for a particular area, it is also dependant on three aspects; these are the feasibility, viability and sustainability. On certain occasions it may be the case where a single commodity may meet this criteria for half of the year due to seasonality, in this regard optimising another commodity to ensure that the agricultural land does not lie fallow would contribute towards a best fit model ensuring minimal wastage and productivity loss.

A. Biophysical criteria

Assumptions made include:

1) Temperature and carbon dioxide concentration cannot be modified.
2) Solar irradiation is not a limiting factor in all districts at regional level.
3) Artificial growth mediums are not viable at massive scale for most districts in South Africa.

A1. Temperature, frost and heat and chill units

In the case of plants and crops, the temperature during growth season is considered. Temperatures falling within the growth season are only considered as using the average

temperatures will distort the accuracy of the selection criteria. Frost has been identified as a threat, crops have been investigated in this respect with regards to tolerance frost sensitivity.
In case of animals and livestock we examine the temperature range which the animal is adapted to, whether the animal will be able to cope with extremes experienced in the area.

A2. Rainfall, hail risk, humidity and water availability for irrigation or animal watering

In the case of plants and crops whether sufficient rainfall is received during the seasonal months. The average rainfall will not be used in this case but rather that which occurs during growth season. Availability of water in the area is also considered as well as the areas susceptibility to drought. Another consideration for the crop was if there was sufficient irrigation and protected areas from hail, given the hail frequency of the area and sensitivity of the particular crop to hail damage.

In the case of animals and livestock, whether there was a sufficient quantity of water available from surface or groundwater resources for animal consumption and usage, other factors were considered additionally such as ground water quality, humidity and drought.

A3. Land and soil resources

In the case of plants and crops whether the soil is suitable in terms of texture (relative composition of sand, silt and clay), drainage (well vs poorly drained) and depth (deep, moderate and shallow). Land type and capability for each crop was thoroughly investigated considering aspects such as the land topography which the crop would be farmed on.

In the case of animals and livestock, the purpose of the livestock usage will determine what land is required. Land suitability is based on the surrounding topography and whether such land will be suitable for grazing, this is in turn dependent on the breed of animal farmed having varying levels of tolerance to differing topography. Other factors also considered were the vegetation type suitability, the grazing capacity and feedstock proximity.

A4. Weed, pest and disease control

In the case of plants and crops, weed threats have been deliberated, this too together with the impact of pest and disease and the tolerance of the commodity to commonalities in these areas.
In the case of animals and livestock the bush encroachment and poisonous plant infestation has been identified as a potential threat, animal tolerance and hardiness to these conditions have been evaluated. Pest and disease have also been realised as a significant threat, evaluation of whether the animal breed is generally resistant to pests and diseases and the relative immunity of the animal to the disease was undertaken.

A5. General adaptability and resilience to extreme weather and climate change

In the case of plants and crops we have examined the crops resilience to climate change and whether each crop can specifically adapt to drought conditions.

In the case of animals and livestock, the climate change resilience for each animal breed was considered and measured against extreme heat waves, parasite infestations and other possible impacts of climate change, to determine the suitability of the animals to each particular district.

B. Enterprise viability criteria

B1. Transport, market access and demand criteria

Distance to markets and transport cost efficiency: Is transport likely to be cost efficient considering the following two rules:

Value density vs distance to market rule: is the enterprise compatible with the general rule that it is not economically viable to transport bulky, large volume, heavy or low value products over large distances to markets, while high value products can be transported over much larger distances.

Perishability vs distance to market rule: Is the enterprise compatible with the general rule that it is not economically viable to transport highly perishable products over long distances unless fast, cost efficient cold chains are available?

Current demand: Is current demand for the product sufficient, and is there an established market for the product, including existing marketing channels and demand amongst customers already having a strong preference for the product? Or does the market require broad consumer awareness creation and a change in customer behaviour in addition to conventional marketing practices.

Future market growth potential: Given global and local market trends and further marketing potential, is demand for the crop likely to grow into the short to medium term?
Market openness: Are buyers of the particularly farm product willing to buy from new suppliers and small-scale farmers (even if small-scale farmers market their produce cooperatively)?

B2. Business strategy, payback period and profitability criteria

Business strategy and positioning: Is the enterprise compatible with the likely range of viable business strategies and positioning strategies adopted by small-scale farmers and cooperatives?

Payback period: Will the enterprise generate sufficient income to justify the period before profits are returned?

Profitability: Given the average expected enterprise budget, is it likely to be a profitable enterprise in the particular area?

B3. Human, physical and financial capital requirements

Familiarity and local knowledge and skills: Is the crop/livestock already familiar amongst farmers in the area or will significant awareness creation be needed? Are local farmers and workers likely to have the required skills or could fairly easily obtain the required skills to farm with the crop and to add value to it, or will extensive education, training and recruitment of outside workers be required?

Labour cost and productivity: Are the local labour costs, willingness of workers to perform farm and agro-processing work and overall labour productivity at competitive levels, given the labour intensity/requirements of the particular enterprise?

Implements and infrastructure: Are local farmers likely to have or to obtain the required implements and infrastructure fairly easily, or will extensive capital financing be required?
Finance: How difficult will it be to access finance?

C. Economic development criteria

C1. Forward and backward economic linkages and agro-processing opportunities

Forward and backward economic linkages:
Does the enterprise utilize significant quantities of farm input (as opposed to insignificant/small levels of input) that will significantly contribute to business and job opportunity creation throughout the value chain?

Agro-processing opportunities at district level: Does the crop/animal present extensive value adding or primary as well as secondary agro-processing opportunities to be exploited specifically by intended beneficiaries of the Agri-parks scheme?

C2. Job creation

Direct on-farm job creation: Is the enterprise itself sufficiently labour intensive (e.g. cotton) rather than capital intensive (e.g. grain) or not labour intensive at all (e.g. beef cattle), thereby contributing significantly to on-farm direct job creation and rural development?

Direct, indirect and induced job creation through the value chain: Are opportunities associated with forward and backward economic linkages and value adding more labour intensive than capital intensive, thereby contributing to broader regional job creation?

Job decency: Overall, are the enterprise and its value adding opportunities likely to create higher quality job opportunities as opposed to minimum wage, unskilled, seasonal, temporary or part time opportunities?

C3. Local as opposed to distant development

Business opportunities, agglomeration effects and job creation at local or district level: Are value chain business opportunities and job creation associated with the particular crop/animal's value chain likely to lead to rural and local economic development as opposed to jobless growth?

Agricultural intensification and increased local GDP: Is the enterprise characterized by a relatively high level of agricultural intensification, and high income per surface area unit?

C4. Global competitiveness and trade balance criteria

Global competitiveness: Is the region truly globally or at least regionally competitive to produce the crop/animal, or are "cheap imports" likely to be or become a threat?

Export potential: Does the crop and possibly its value added products have strong export potential?

Import substitution potential: Does the crop or its value adding products present an opportunity to contribute to import substitution, at local, regional or national level?

D. Political/institutional, social and food security/sustainability criteria

D1. Political and institutional criteria

The commodities were then evaluated to ensure that crops which were accorded APAP priority were granted preferential selection. Other factors which were considered include existing successful or planned projects, these were used likelihood of success for the particular commodity venture.

D2. Social criteria

Socially the factors considered were the acceptability ("buy-in") by the farmers, the income equality, labour rather than capital intensity, which will contribute to job creation and income flows and whether forward and backward supply chain and value adding opportunities can

be exploited by small entrepreneurs rather than large businesses. Other factors which were considered were the black smallholder suitability, and the crime and vandalism resilience.

D3. Food security and sustainability criteria

Elements examined include the contribution to food security and the sustainability of the commodity to maintain these levels of food security.

All these factors take into consideration the requirements needed in order to ensure the most sustainable commodity selection, these aspects are then classified in terms of low, medium and high impact to ensure the rating scale is synchronised with the impact model.

7.5 Commodity identification

Commodities were identified using the commodity selection criteria discussed above. On certain occasions it may be the case where a single commodity may meet these criteria for half of the year due to seasonality, in this regard optimising another commodity to ensure that the agricultural land does not lie fallow would contribute towards a best fit model ensuring minimal wastage and no productivity loss is incurred.

The following factors are benchmarked and evaluated against each other to determine which commodity best suits the area:

- Maize,
- Dairy,
- Timber and timber processing,
- Vegetables,
- Tomatoes,
- Beef,
- Oats,
- Wheat,
- Soybeans,
- Sorghum.

7.6 Commodity prioritisation

The table below classifies each of the commodities according to a predetermined scale which has variable impact levels.

TABLE 11: COMMODITY SELECTION CRITERIA

Possible crop/livestock for District	Biophysical total	Enterprise viability total	Economic development total	Political and social total	Overall total
Vegetables	24	63	51	53	191
Soybean	25	47	41	53	166
Maize	25	54	37	49	165
Dairy	29	51	45	39	164
Timber and timber processing	29	49	38	47	163
Beef	30	50	35	48	163
Tomatoes	21	48	37	51	157
Sorghum	26	48	35	45	154
Oats	20	46	35	49	150
Wheat	23	49	32	46	150

Please refer to Annexure 1: Detailed Commodity Criteria assessment.

7.7 Description of the three highest ranked commodities

It is evident that the three top ranked commodities are listed are Vegetables, Soybean and Maize.

Vegetables

Vegetables are ranked first and achieved an overall score rating of 191. Vegetables was ranked first this due to it being classified as a priority in 27 high impact areas and 9 medium impact areas. Ecological conditions, soil conditions and the different climates experienced in the Harry Gwala District makes it highly suitable for a variety of vegetable production.

Vegetables are the primary source of food and nutrition in both the country and the Harry Gwala District. A large part if population of the District practice subsistence farming and rely on vegetable production for food consumption. Higher productivity of vegetables within the

District will have a positive impact on food security in the country and therefore scores high in terms of food security based on the commodity selection criteria as indicated in Annexure 1.

There are minimal political and social issues related to vegetable production which is found to be acceptable by farmers within the District, makes it a highly suited commodity to grow in this region.

Vegetables are currently not cost efficient and are majorly uncompetitive with other more developed countries, however exports dictate the demand for this commodity and hence the potential for success and future import substitution.

Vegetables face little political and social issues and are widely accepted by Harry Gwala's farmers, however vegetables contribute relatively less towards food security than maize, nevertheless its sustainability is moderately strong and subject to grow.

Soybean

Soybean is ranked second and achieved an overall score rating of 166. Soybean was ranked seconds due to it being classified as a priority in 15 high impact areas and 20 medium impact areas.

Climate, soils, water availability and altitude makes it ideally suited for soybean, however it must be noted that the recent droughts throughout the KZN region has had a negative impact on the agriculture industry as a whole, the soybean industry included.

Soybean is high in protein and can form a major ingredient in livestock feed which can also be linked to the existing and well established dairy industry in the Harry Gwala District.

Maize

Maize is one of the most important grain crops in South Africa and is the staple food of a large portion of the population. The South African maize industry was deregulated in 1997 and is operating in a free-market environment where producers sell to whomever they wish and the prices are determined by supply and demand.

Maize is produced throughout the country in various environments. The production is dependent on rainfall that exceeds 350 mm per year.

The climate conditions of the Harry Gwala District make it well suited for maize production, with the biophysical conditions providing the ground for medium- to large-scale production

opportunities. There is excellent water supply available in the district for maize, with adequate environmental conditions to promote maize growth. There is good potential for maize under rainfed conditions and it should be done on a larger scale. There are also large expanses of land are available for maize production, particularly state land.

Maize forms an important component in livestock feed. Maize can also be easily linked into the existing and well established dairy industry found within the Harry Gwala District.

7.8 Products related to selected commodities

Below is a description of the products that are related to the three highest ranked commodities; vegetables and fruit, dairy, timber and timber processing.

Vegetables

Some of the products that can be produced from vegetables and fruit include:

- Dried vegetables.
- Frozen vegetables.
- Chutney, pickles, and sauces.
- Purees, pastes and syrups.
- Packaged vegetables.
- Vegetable preserves.
- Canned soups and stews.
- Vegetable concentrates.
- Vegetable juices.

Soybean

Some of the products that can be produced from soybean include:

- Soy milk.
- Soybean oil.
- Soynut butter.
- Soybean flour.
- Soy sauces.
- Soy based infant formula.
- Soy based food products.
- Tofu.
- Biodiesel.
- Paints, inks and candles.
- Livestock feed.

Maize

Some of the products that can be produced from maize include:

- Livestock feed
- Biofuel.
- Maize flour and corn meal.
- Starch.
- Corn oil.
- Ethanol production.
- Corn syrup.
- Corn sweetener.
- Sorbitol.
- Corn steep liquor.
- Adhesives.
- Cosmetics.
- Gluten.
- Glycerine.

8 Commodity Analysis

8.1 Vegetables

8.1.1 Market Assessment

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.

8.1.1.1 Local markets

Production

The production of vegetables in South Africa for the period 2009/10 to 2013/14 is summarised in the table belowTable 12 .

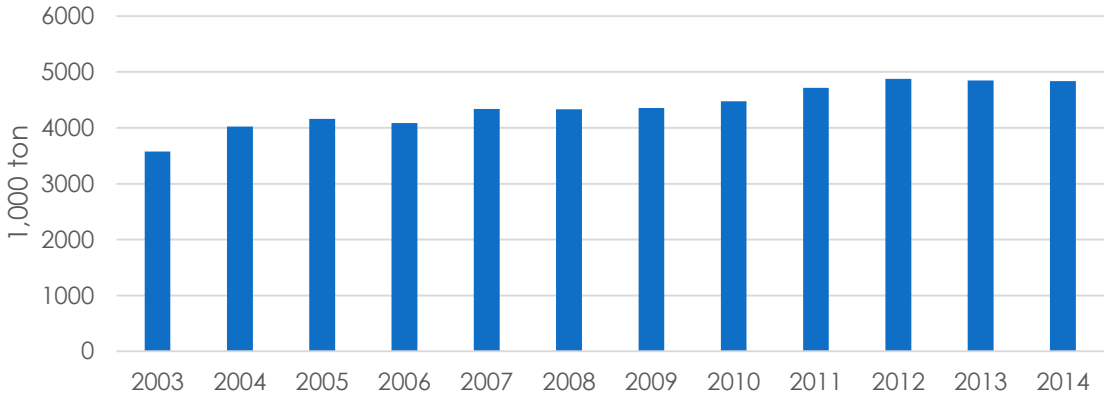
TABLE 12: PRODUCTION VOLUMES OF VEGETABLE TYPES

Year	2009/10	2010/11	2011/12	2012/13 '000 tons	2013/14	Average % increase
Potatoes	1 955	2 165	2 205	2 202	2 193	3%
Tomatoes	575	523	545	527	525	-2%
Pumpkins	234	237	244	247	245	1%
Green mealies	339	340	347	361	362	2%
Onions	489	563	625	596	592	5%
Sweet potatoes	60	63	55	57	69	4%
Green peas	17	12	8	11	12	-8%
Beetroot	67	62	66	68	61	-2%
Cauliflower	25	16	16	14	12	-17%
Cabbage	141	153	141	136	145	1%
Carrots	151	152	178	183	184	5%
Green beans	23	25	25	24	19	-5%
Other	400	406	421	420	416	1%
Total	**4 476**	**4 717**	**4 876**	**4 846**	**4 835**	**2%**

Source: Abstract of Agricultural Statistics, 2015

Since 2003, there has been a general increase in vegetable production in South Africa. Although, since 2012, production has started to decrease. 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 potatoes increased by approximately 12 000 tons or 21.2%. Most of the vegetable crops, however, decreased over the period. These trends are illustrated in the figure below.

FIGURE 22: TOTAL VEGETABLE PRODUCTION



Source: DAFF, 2015

From 2012/13 to 2012/13 (July–June), the total production of vegetables decreased by 0.22%, from approximately 4 846 000 tons to 4 835 000 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.

According to the agricultural census survey conducted in 2011, a total of 1 123 520 households are involved on the production of vegetables. The summary of findings is summarised in the table below.

TABLE 13: NUMBER OF AGRICULTURAL HOUSEHOLDS IN A SPECIFIC ACTIVITY BY PROVINCE

Province	Livestock Production	Poultry Production	Vegetable Production	Production of other crops	Fodder / grazing production	Other
Western Cape	28 334	29 176	39 337	22 725	16 516	23 804
Eastern Cape	330 354	334 665	246 412	99 052	24 335	33 493
Northern Cape	28 040	25 853	9 334	11 324	4 518	5 415
Free State	45 207	51 414	106 809	63 193	11 106	13 811
KwaZulu-Natal	268 656	356 881	340 743	109 580	27 393	45 715
North West	88 633	117 453	36 620	42 923	16 013	25 301
Gauteng	62 047	82 403	147 870	89 167	50 650	78 847
Mpumalanga	72 896	127 759	91 214	59 885	11 439	20 595
Limpopo	172 683	173 681	105 181	161 888	13 995	31 067
South Africa	1 096 850	1 299 285	1 123 520	659 737	175 965	278 048

Source: Abstract of Agricultural Statistics, 2015

The table above suggests that KwaZulu-Natal has the largest number (30%) of households involved in vegetable production, followed by Eastern Cape (22%) and Gauteng (13%). Gauteng has approximately 147 870 households that are involved in vegetable production. The table below summarises gender of household heads of the vegetable producers.

TABLE 14: NUMBER OF AGRICULTURAL HOUSEHOLDS IN VEGETABLE PRODUCTION BY GENDER AND PROVINCE

Province	Male	Female	Total
Western Cape	11 618	27 719	39 337
Eastern Cape	132 952	113 460	246 412
Northern Cape	3 370	5 963	9 333
Free State	50 914	55 895	106 809
KwaZulu-Natal	184 361	156 381	340 742
North West	12 869	23 750	36 619
Gauteng	51 082	96 788	147 870
Mpumalanga	41 581	49 633	91 214
Limpopo	52 159	53 021	105 180
South Africa	540 906	582 610	540 906

Source: Abstract of Agricultural Statistics, 2015

The table above indicates that, overall, 70% of the households involved in vegetable production are headed by female members. Limpopo has an even split of male and female household heads, while Western Cape has the highest number of households lead by women in vegetable production. Within Gauteng 65% of the households are female headed households.

The relative importance of the major vegetable types, according to gross value of production, during the 2013/14 season, is tabulated below:

TABLE 15: RELATIVE IMPORTANCE OF VEGETABLE TYPES, 2013/14

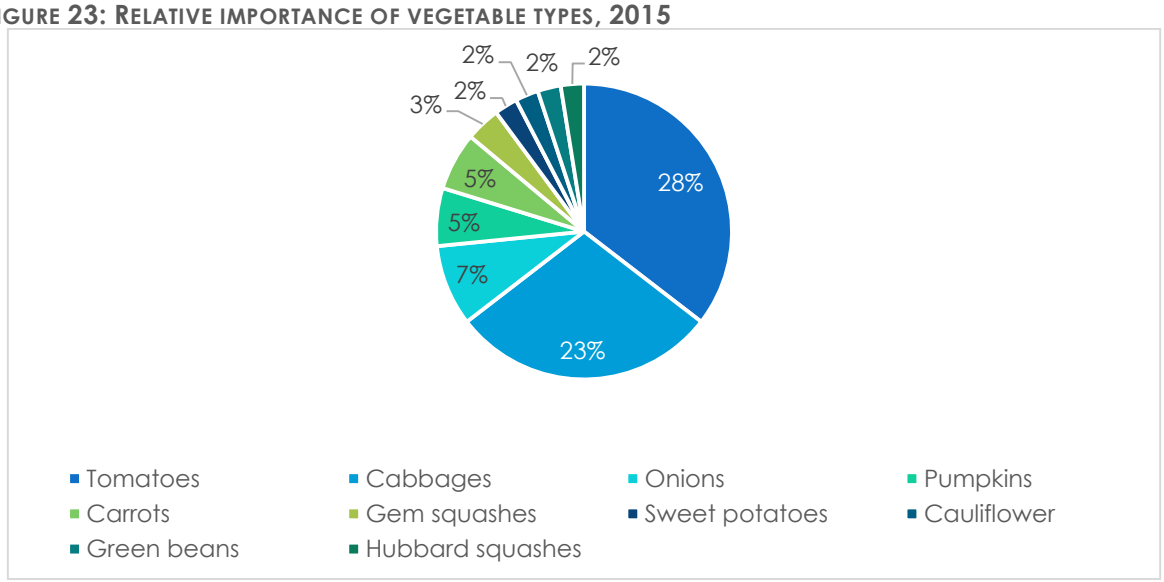
Rank	Product	% Share
1	Potatoes	42%
2	Tomatoes	16%
3	Cabbages	13%
4	Onions	4%
5	Pumpkins	3%
6	Carrots	3%
7	Gem squashes	2%
8	Sweet potatoes	1%
9	Cauliflower	1%
10	Green beans	1%

Source: Abstract of Agricultural Statistics, 2015

The above table indicates that 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%.

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

FIGURE 23: RELATIVE IMPORTANCE OF VEGETABLE TYPES, 2015



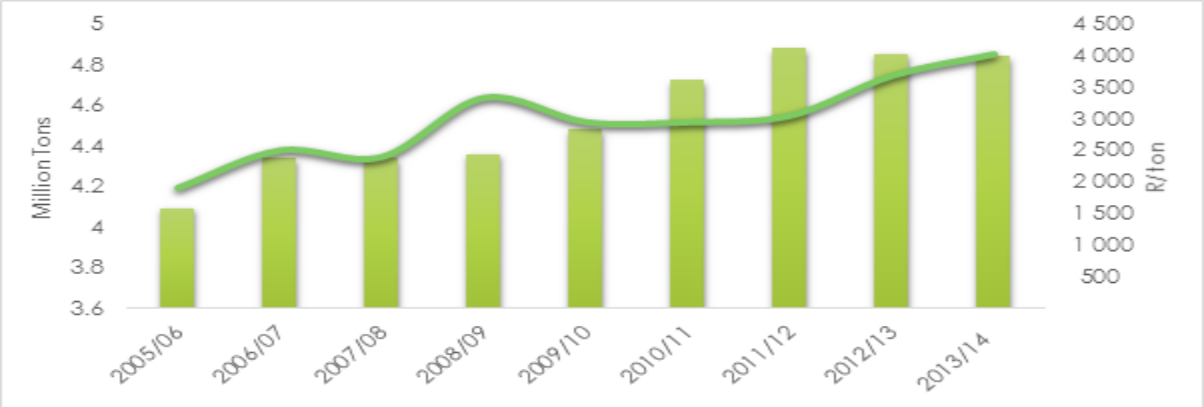
Source: Abstract of Agricultural Statistics, 2015

The above figure indicates that tomatoes and onions are clearly a vegetable of high relative importance, with an approximate gross value of production equal to 51% of the total for vegetables when potatoes are excluded. Squashes, such as butternut and pumpkins, and also cabbages are also important crops with over 10% of the production.

Price

The volumes of sales of vegetables on the major South African fresh produce markets for the period 2005/06 to 2013/14 are as follows:

FIGURE 24: AVERAGE VOLUME AND AVERAGE PRICE OF VEGETABLES, 2005/6 – 2013/14



Source: Abstract of Agricultural Statistics, 2015

The average price of vegetables realised on the fresh produce markets for the period 2011 to 2014 were as follows:

TABLE 16: AVERAGE PRICE OF VEGETABLE TYPES, 2014

Product	2011	2012	2013	2014	Average Price Increase (%)
			R/ton		
Potatoes	2 591	2 645	3 379	3 428	10%
Tomatoes	4 339	4 407	4 847	6 082	12%
Cabbages	1 516	1 772	2 109	2 180	13%
Onions	2 221	2 587	3 433	3 334	15%
Pumpkins	1 675	1 617	2 156	2 128	8%
Carrots	2 815	2 633	3 154	3 644	9%
Gem squashes	2 615	2 702	2 666	3 248	7%
Sweet potatoes	2 995	3 636	2 798	3 724	8%
Cauliflower	4 145	4 960	5 066	8 380	26%
Green beans	6 572	6 815	7 263	8 454	9%
Hubbard squashes	1 880	1 844	1 954	2 283	7%
Beetroot	2 821	2 365	3 858	4 335	15%
Cucumbers	5 862	7 337	7 320	8 487	13%
Lettuce	4 263	4 828	4 573	5 508	9%
Green peas	21 035	27 516	23 923	37 621	21%
Green mealies	9 471	11 409	8 344	13 089	11%
Marrows	8 575	7 648	9 085	10 718	8%
Turnips	3 651	2 728	3 527	4 052	4%
Butternut squashes	2 420	2 408	2 871	3 227	10%
All vegetables	2 944	3 047	3 683	4 024	11%

Source: Abstract of Agricultural Statistics, 2015

The table above indicates that, on average, price of vegetables has increased by 11% annually between 2011 and 2014. Of the vegetables above, cauliflower, beetroot, and green peas increased the most over the period, with increases of 29%, 20% and 25% respectively. Sweet potatoes, gem squash, hubbard squash and turnips realised the smallest gains during the same period, increasing by an annual average of 8%, 7%, 7% and 4% respectively.

Current market prices for fresh vegetables are: Potatoes (R2,40/ kg); Tomatoes (R10,00/ kg); Onions (R2,20/ kg) and Pumpkins (R3,00/ kg).

Utilisation and Consumption

The importance of vegetables in a healthy diet is being strongly 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.

Consumption summarises consumption of vegetables (excluding potatoes) between 2010 and 2014.

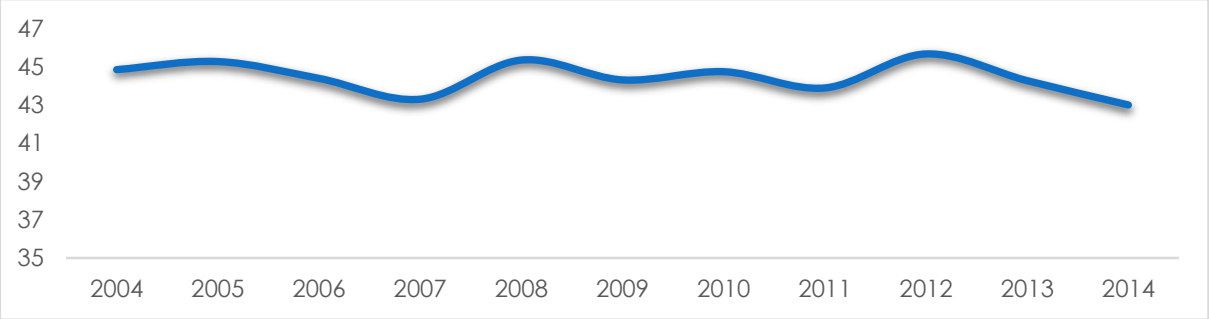
TABLE 17: PER CAPITA CONSUMPTION

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

Source: Abstract of Agricultural Statistics, 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. Figure 25 illustrates the fluctuations in per capita consumption of vegetables between 2004 and 2014.

FIGURE 25: PER CAPITA CONSUMPTION TREND



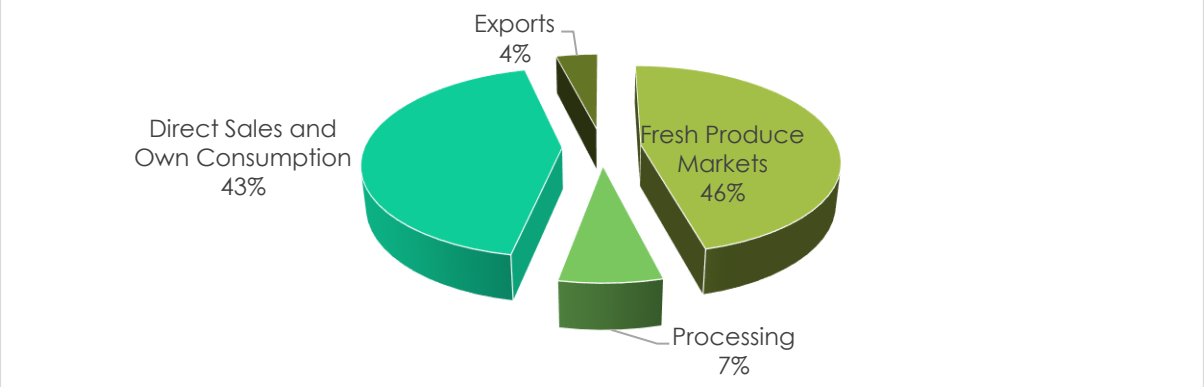
Source: Abstract of Agricultural Statistics, 2015

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 yield figures.

Distribution channels

The figure below indicates the volume of vegetables that are traded through various distribution channels that are available to farmers.

FIGURE 26: DISTRIBUTION CHANNELS FOR VEGETABLES



Source: Agricultural Statistics and Urban-Econ, 2015

It is clear from the figure above 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 approximately 2.3 million tons, compared to the 2.1 million tons that sold during 2010, an increase of approximately 8.8% (2.1% average per annum).

TABLE 18: QUANTITY OF VEGETABLES SOLD ON THE MAJOR FRESH PRODUCE MARKETS, 2010 - 2014

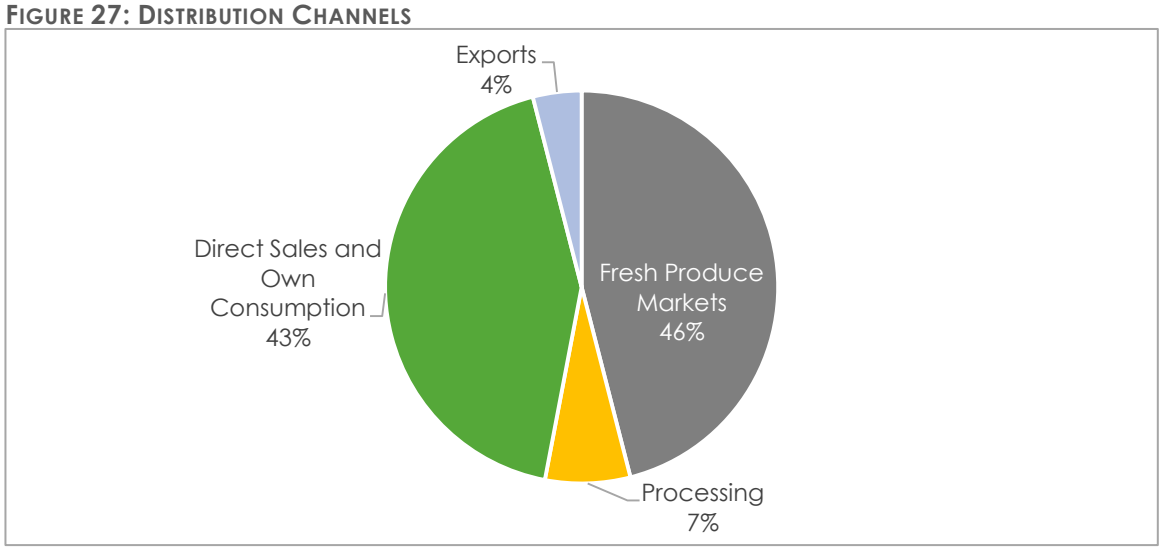
Year	2010	2011	2012	2013	2014
Total (tons)	2 107 800	2 222 100	2 334 400	2 290 200	2 293 600

Source: Abstract of Agricultural Statistics, 2015

8.1.1.2 Global markets

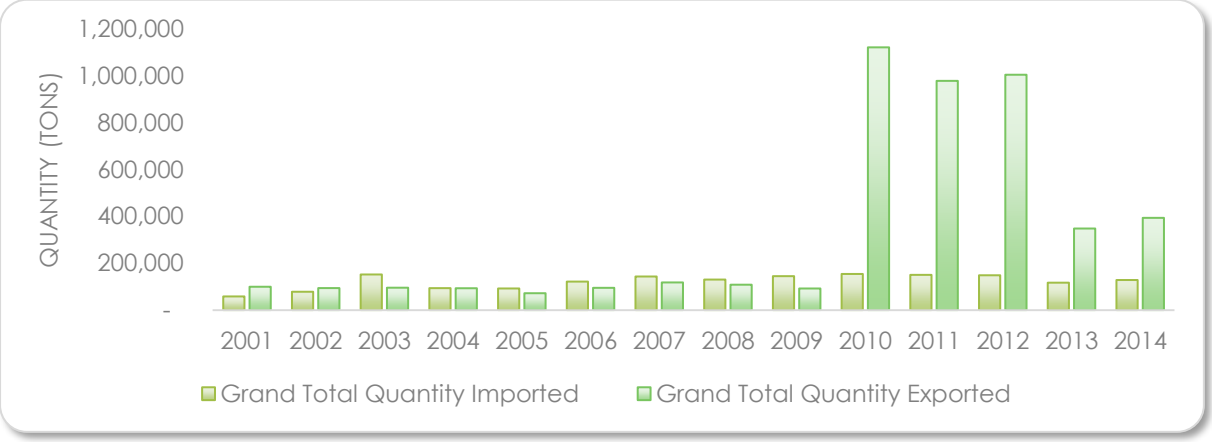
The majority of fresh vegetables are either sold directly by farmers or it is sold at fresh produce markets. Only 7% of vegetables are used for further processing while only 4% is exported.

FIGURE 27: DISTRIBUTION CHANNELS



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. The figure below indicates the quantity of vegetable products imported and exported by South Africa between 2001 and 2014.

FIGURE 28: IMPORT AND EXPORT OF VEGETABLES AND VEGETABLE PRODUCTS , 2001 - 2015



Source: ITC, Trade Map, 2015

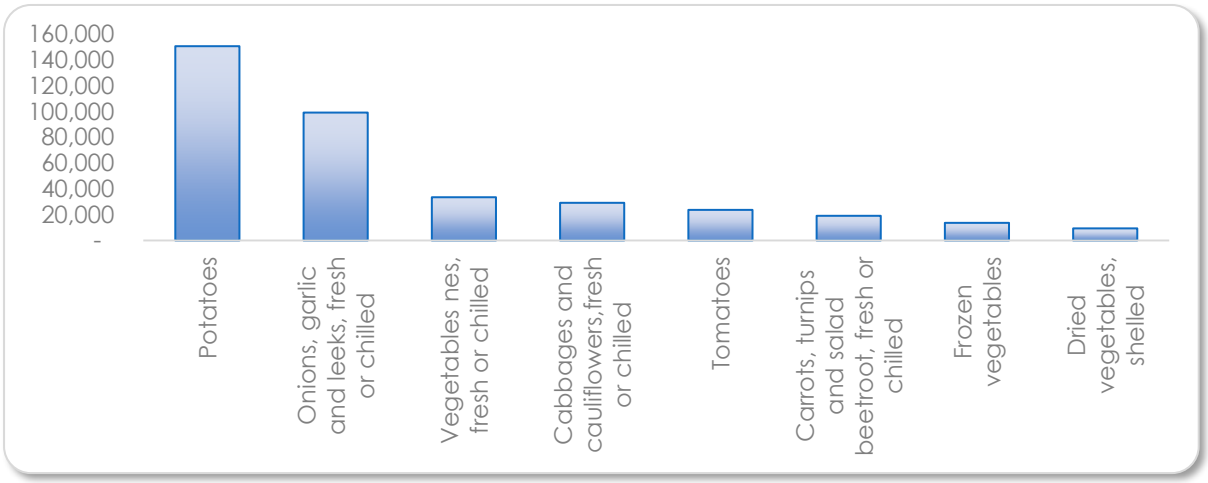
The figure above suggests that exports of vegetables and vegetable products was significantly higher than exports from 2010 to 2014. Most export figures for 2010 were, however, estimated by ITC Trade Map and could be over-estimated. Figures for 2012, 2013, and 2014 are more exact figures and not estimated.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

TABLE 19: IMPORT AND EXPORT PRODUCTS FROM AND TO SA

Import products	Export products
1. Dried vegetables, shelled	1. Potatoes
2. Frozen vegetables	2. Onions, garlic and leeks, fresh or chilled
3. Dried vegetables	3. Vegetables, fresh or chilled
4. Onions, garlic and leeks, fresh or chilled	4. Cabbages and cauliflowers, fresh or chilled
5. Vegetables, fresh or chilled	5. Tomatoes
6. Tomatoes	6. Carrots, turnips and salad beetroot, fresh or chilled
7. Leguminous vegetables, shelled or unshelled, fresh or chilled	7. Frozen vegetables
8. Manioc, arrowroot salep (yams) etc.	8. Dried vegetables, shelled
9. Vegetables, provisionally preserved (unfit for immediate consumption)	9. Leguminous vegetables, shelled or unshelled, fresh or chilled
10. Cabbages and cauliflowers, fresh or chilled	10. Manioc, arrowroot salep (yams) etc.
11. Potatoes	11. Lettuce and chicory, fresh or chilled
12. Carrots, turnips and salad beetroot, fresh or chilled	12. Cucumbers and gherkins, fresh or chilled
13. Cucumbers and gherkins, fresh or chilled	13. Dried vegetables
14. Lettuce and chicory, fresh or chilled	14. Vegetables, provisionally preserved (unfit for immediate consumption)

Some of the major commodities exported from South Africa include potatoes, onions, fresh and chilled vegetables, tomatoes, carrots, and frozen vegetables. The export quantities of the respective products are indicated in the figure below.

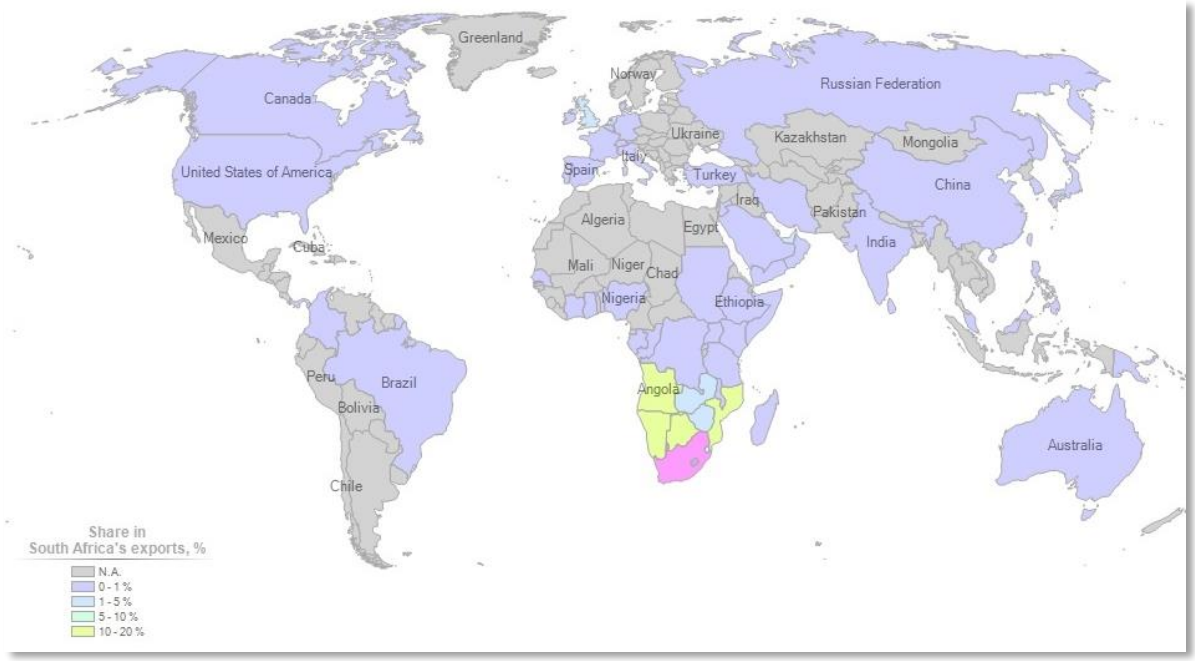
FIGURE 29: MAJOR VEGETABLE EXPORT PRODUCTS FROM SOUTH AFRICA, 2014



Source: ITC, Trade Map, 2015

It is clear from the figure above 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 the map below.

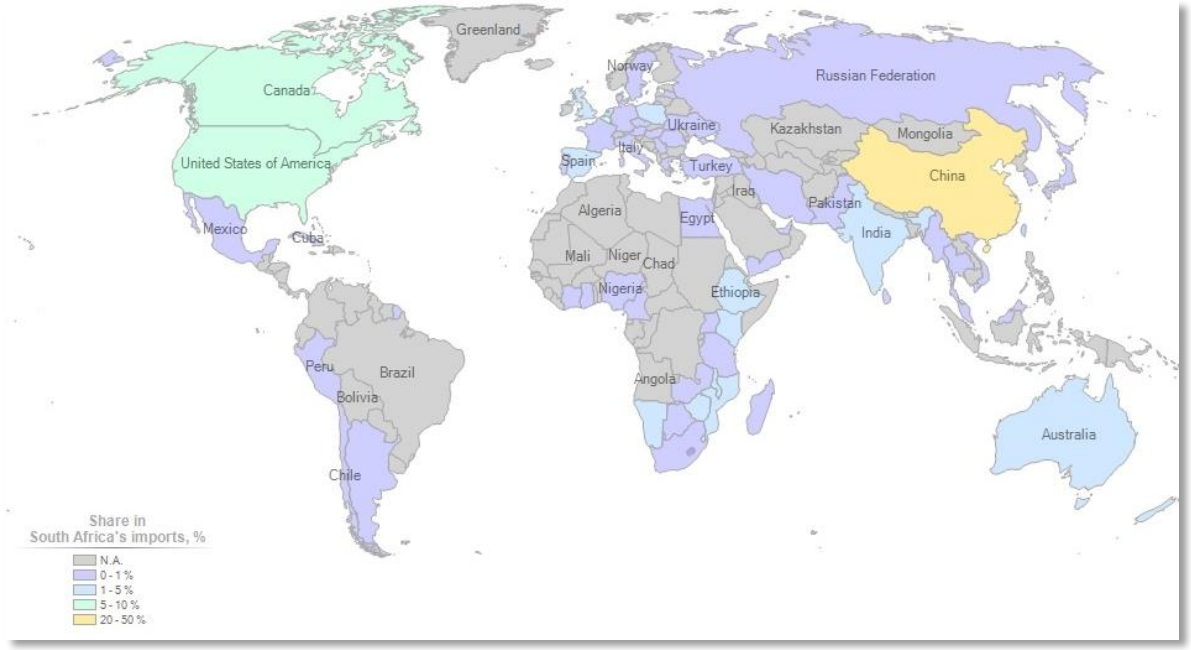
MAP 4: EXPORT MARKETS, 2014



Source: ITC, Trade Map, 2015

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

MAP 5: IMPORT MARKETS



Source: ITC, Trade Map, 2015

It is clear from the above import-export analysis that South Africa is a nett exported 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.

8.1.1.3 Capital Markets

Capital Markets specific for the vegetable value chain is limited. Most producers raise funding through main stream finance houses comprising of the commercial banks, Land Bank and Co-operative finance houses. The major commercial banks, Land Bank and Co-operative finance and their respective financial offerings are summarised respectively below:

Land Bank

Land Bank is a statutory body with a mandate from Government to support the development of the agricultural sector. The Bank's key strategic intent is to achieve financial sustainability focused on social and development impact. Meeting client needs by means of cost-effective and competitive products and services, building a representative, committed and an efficient workforce and good relations with stakeholders are critical elements in this strategy. The Bank provides a comprehensive range of retail and wholesale financial products and services designed to meet the needs of commercial and developing farmers and agriculture-related businesses. As a statutory development finance institution, the Bank must fulfil a government mandate requiring it to:

- support the development of all elements of the agricultural economy
- give special attention to the needs of previously-disadvantaged people in the sector
- benchmark its operating efficiencies and service delivery against financial-sector norms
- ensure its financial sustainability.

Land Bank gives low, medium and high-risk clients access to a full range of long, medium and short-term loans to meet all financial needs, including land and equipment purchases, asset improvement and production credit. During 1999 the bank added Gold Premium and Platinum risk categories to its existing Gold low-risk category. Clients who qualify on the basis of exceptional security and high loan values pay reduced interest rates. Specific criteria for medium and high-risk clients with limited security increases access to credit while minimising the risk of default.

Commercial Banks

The four major commercial banks target market comprises of both the commercial as well as developing agriculture. Their focus is on retaining and selective acquisitioning of their market share in commercial agriculture. Products and services offered are, amongst others, cheque accounts, overdraft facilities, term loans, mortgage loans, asset finance, investments, estate and asset management, insurance and assurance, international banking services, contract growing, hedging and trading as well as electronic banking services and advisory services. Agricultural Long-term Loans are used to buy farm property, make capital improvements such as fencing, water provision and soil conservation or to consolidate short-term debt (where farmers have previously financed fixed assets out of working capital or short-term finance). Agricultural Project Loan is a medium-term loan product. It is a multipurpose agricultural loan suited for the acquisition of livestock, orchards, farm buildings, etc., which generates an income only after a certain establishment period. Agricultural Cheque Account fulfils the

transmission of funds requirements of a farming business, as well as providing a dedicated product for short-term (less than 12 months) production credit.

Agricultural Co-operative Finance

The Co-operative finance divisions of the various Agricultural Co-operatives provide production loans or seasonal facilities for period of up to one year. These facilities are granted for the purchase of production resources and services rendered. Interest is calculated on the basis of simple interest per day on the outstanding balance owed. The interest rate applicable on the account is the interest rate determined per individual depending on the risk profile. Month accounts are used to make purchases at trading branches. These accounts are short-term credit and the full outstanding balance must be settled monthly, 30 days after statement. The primary goal of a long term loan is to finance the purchase of productive agricultural land. The purpose of asset finance is to assist clients financially in purchasing durable capital goods, like tractors, combines and implements.

In addition to the above commercial finance institutions the following Development Finance Institutions are functional within the Harry Gwala District Municipality:

Harry Gwala Development Agency (HGDA)

The Harry Gwala Development Agency has a strategic mandate to help promote economic development and create jobs in the Harry Gwala District. This enjoins the HGDA to play a leadership role in the efforts aimed at creating work and real economic growth and thus imperative that the entity embarks on such an exercise to ensure it can survive in the ever changing environment. The HGDA offers the following services:

- Investment facilitation
- Trade Promotion
- Small business Support
- Facilitation of Joint Ventures, Mergers, and Acquisitions
- BBBEE promotion
- Land Reform Support
- Private Sector Development
- Facilitation of Environmental Impact Assessments (EIA's)
- Town Planning for Investment Support
- Local Economic Development
- Cooperatives Development and Support
- Provision of industrial Infrastructure
- Skills Development and Training

SEDA (Small Enterprise development Agency)

The Small Enterprise Development Agency (SEDA) is an agency of the Department of Small Business Development. SEDA was established in December 2004, through the National Small Business Amendment Act, Act 29 of 2004.It is mandated to implement government's small business strategy; design and implement a standard and common national delivery network for small enterprise development; and integrate government-funded small enterprise support agencies across all tiers of government. Soda's mission is to develop, support and promote small enterprises throughout the country, ensuring their growth and sustainability in co–ordination and partnership with various role players, including global partners, who make international best practices available to local entrepreneurs.

Agribusiness Development Agency

The Agribusiness Development Agency is a public entity that was established in 2009 to serve as a special purpose vehicle to drive socio-economic transformation in the agricultural and agribusiness sector in KwaZulu-Natal.

The Agency provides holistic agricultural support services to entrant commercial farmers, focusing mainly on previously disadvantaged farmers, who have acquired land through the government's Land Reform Programme and on private basis. The ADA also aims to develop strategies to address inequities, create opportunities for the farmers to participate in the value chain, provide access to markets and foster sustainability in the agricultural sector. Since its inception, the major focus has been on the turnaround strategy to resuscitate distressed farmers who had suffered skills gaps, financial support and access to the markets. In the three years of operation ADA has managed to support over 180 large and small commercial farms under individuals, restitution, recapitalization, labour tenant, cooperatives, etc.

Other Smaller Development Agencies that also function in the Harry Gwala District Municipality are listed below

- World Vision
- Save Act

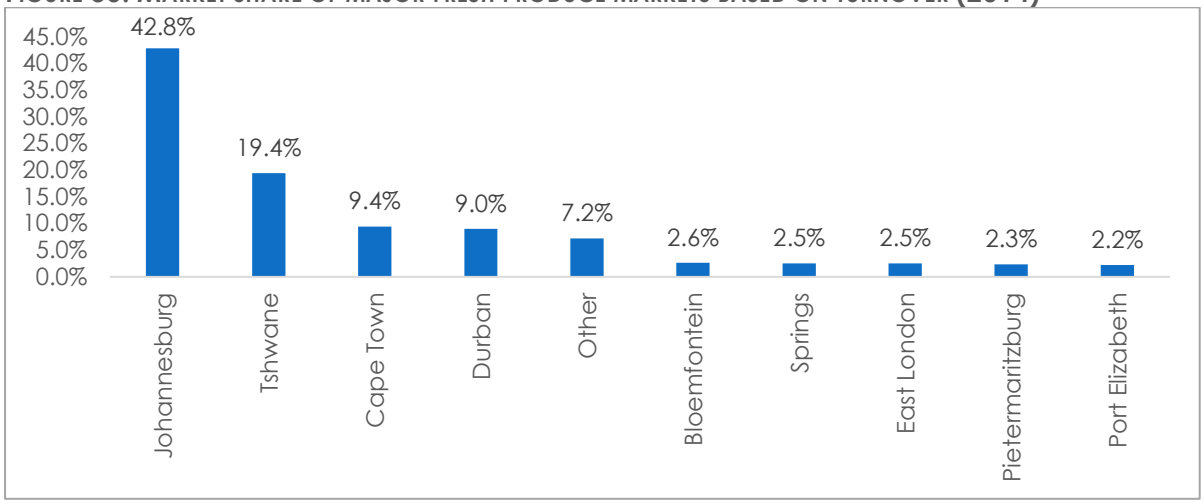
8.1.1.4 Commodity markets

A commodity market is one that trades in the primary economic sector rather than manufactured products. 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 National Fresh Produce Markets (NFPMs) like the Johannesburg Fresh Produce Market, South Africa's largest of its type, or the Durban Fresh Produce Market, the province's (KZN) largest.

Approximately 46% if vegetables in South Africa are traded through NFPMs indicating its relative importance as a market destination 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. The market shares of the fresh produce markets are indicated in Figure 30.

Durban's Fresh Produce Market, located in close proximity to the harbour, is the largest market of its kind in the province and there are good transport linkages from uMkhanyakude to Durban via the N2. The figure below illustrates the national market share of the NFPMs based on turnover.

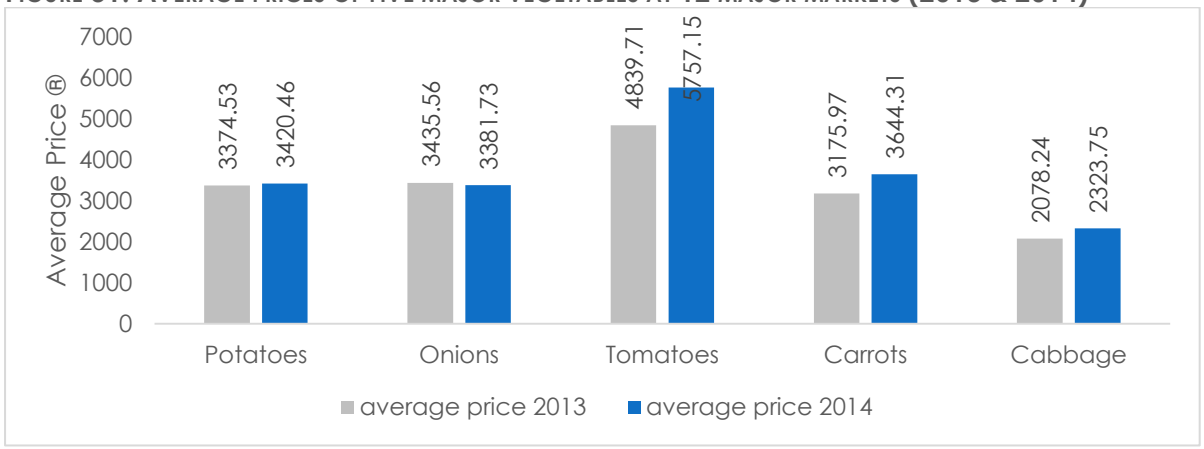
FIGURE 30: MARKET SHARE OF MAJOR FRESH PRODUCE MARKETS BASED ON TURNOVER (2014)



Source: Statistics on Fresh Produce Markets, 2014

The five major commodities that move through these markets include potatoes, onions, tomatoes, carrots and cabbage, all major staple foods. Figure 31 indicates the average price per tonne for the five major commodities.

FIGURE 31: AVERAGE PRICES OF FIVE MAJOR VEGETABLES AT 12 MAJOR MARKETS (2013 & 2014)



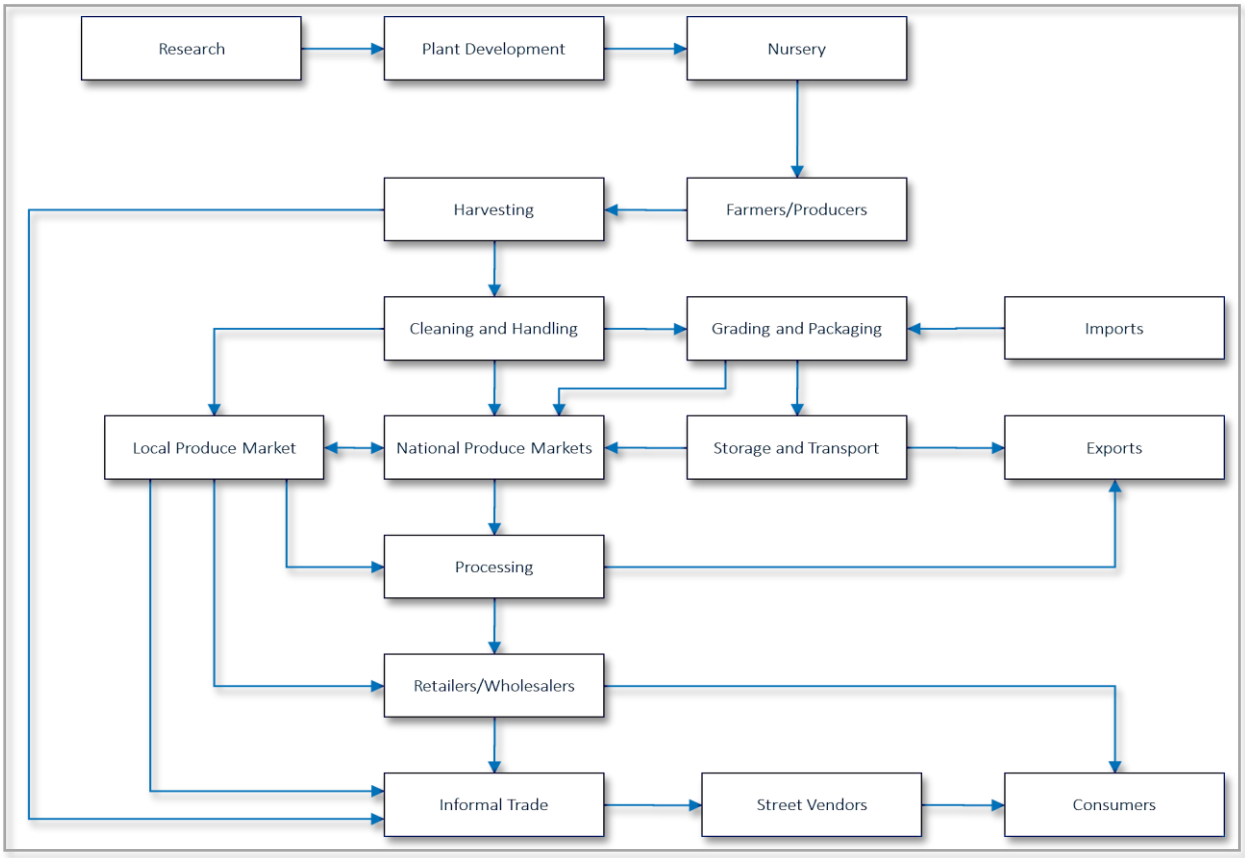
Source: Statistics on Fresh Produce Markets, 2014

Tomatoes are clearly the most valued of the five major vegetable with an average price of R5 757/ tonne in 2014, a 19% increase over the previous year. Cabbage was valued at an average of R2 323/ tonne 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.

8.1.2 Value Chain Assessment

Harry Gwala District is ideally suited for field crop production. Several factors impact on the productivity and growth of the sector, namely: 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.

FIGURE 32: VEGETABLE VALUE CHAIN



Source: Urban-Econ, 2015

Potatoes are the most important crop in SA, are particularly prominent in Harry Gwala District Municipality. This is because the climate and the soils are well suited for potato farming. Most production is for domestic markets, however processed potatoes are exported. Moreover, domestic demand for potatoes and potato-related products is increasing. Potatoes make up 44% of total gross value of vegetable production, 14% of horticultural production, and 7% of total agricultural products. 1.86 million tons were produced in 2009.

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.

Upstream activities

As vegetable 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. Most of these inputs are supplied by Agricultural Co-operatives in the respective areas. The KwaZulu-Natal Province has two major Agricultural Co-operatives namely:

- TWK – Agriculture LTD
- Coastal Farmers Co-op

Primary production activities

Primary production activities may include:

- Beetroot
- Brinjal - Eggfruit
- Capsicums
- Carrots
- Celery
- Cole Crops
- Cucurbits
- Green Beans
- Green Peas
- Horseradish
- Lettuce
- Loofah
- Onion
- Sweet Potato
- Sweetcorn
- Swiss Chard
- Tomato

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:

- 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.

Critical points 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, sales agents, and so on.

Processing. Processing companies cannot compete with the premium prices paid for out-of-season produce, but are usually highly competitive with prices in peak season. However, some processing, or value-added practices, such as pre-packing of certain crops, could be done on the farm. Special markets might need to be developed for such products

Significant Points of Sale for Vegetables produced in the Harry Gwala District Municipality are listed below:

- East London Fresh Produce Market
- Port Shepstone Fresh Produce Market
- Kokstad Prison
- SPAR (Vegetable Buyers)
- Significant informal trade
- Durban Fresh Produce Market
- Kei Fresh Produce Market

Significant Marketing Considerations of Vegetables produced in the Harry Gwala District Municipality

- 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.
- Various other possible requirements for the specified outlet.

8.1.3 Agro-processing opportunities

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.

The table below highlights a few of the products that can be developed through agro-processing.

TABLE 20: AGRO-PROCESSING OPPORTUNITIES FOR VEGETABLES

Primary Vegetable	Processing Opportunity	Final Product
1. Cabbages	• Juicing • Slicing and Dicing	• Slaw • Juice
2. Carrots	• Washing and sorting • Fresh packing and branding • Freezing • Juicing • Slicing and dicing •	• Baby Carrots • Coloured Carrots • Mixed frozen veg • Baby food
3. Potatoes	• Washing and sorting • Fresh packing and branding • Slicing and dicing • Drying • Baking (crisps) • Canning	• Crisps • Frozen fries • Fresh fries • Canned veg • Mixed frozen veg • Baby potatoes • Powdered • Baby food
4. Tomatoes	• Storage, ripening, washing and sorting • Fresh packing and branding	• Tomato puree: Canned or frozen • Tomato soup: Canned or frozen

Primary Vegetable	Processing Opportunity	Final Product
	• Freezing • Slicing and dicing • Cooking • Drying • Canning/bottling of tomatoes • Tomato jam or preserve	• Tomato paste • Dried tomatoes, possibly stored in oil • Tomato powder • Tomato cooking sauce or pizza/pasta sauce base (frozen or canned) • Ketchup style tomato sauce • Pickled tomatoes • Ripe tomato chutney • Green tomato chutney • Baby tomato's
5. Onions	• Canning • Dehydration • Storage, ripening, washing and sorting • Fresh packing and branding • Onion preserve, marmalade	• Powdered for the use in soups and flavouring • Canned onion • Canned onion and tomato mix • Frozen onion slices or onions mixed in with other frozen vegetables
6. Other	• Canning • Slicing and dicing • Extraction • Drying • Juicing	• Frozen mixed vegetables • Readymade salads • Vegetable fats and oils • Vegetable juices • Homogenised vegetables

8.1.4 Main input suppliers

The table below presents the main input suppliers into the vegetables value chain and briefly lists the inputs they provide.

TABLE 21: VEGETABLES VALUE CHAIN INPUT SUPPLIERS

Input Supplier	Services
Coastal Farmers' Cooperative Ltd	◦ Fertiliser ◦ Fuel ◦ Bulk animal feed ◦ Agro-chemicals (on behalf of Farmers Agri-Care) ◦ Hardware (gumboots, fencing, lubricants, cleaning aides etc.)
Dicla Farm and Seed	◦ Seed ◦ Tunnels ◦ Poultry Supplies ◦ Irrigation Equipment ◦ Tractors and Implements
Monsanto	◦ Agricultural seed
NWK	◦ Irrigation ◦ Hardware ◦ Animal health and nutrition ◦ Seeds

	◦ Spare parts ◦ Chemicals and fertiliser
Obaro	◦ Irrigation ◦ Hardware ◦ Animal health and nutrition ◦ Seeds ◦ Spare parts ◦ Chemicals and fertiliser
Omnia	◦ Fertiliser
Plant Forum	◦ Vegetable seedlings
SENWES	◦ Agronomy ◦ Soil surveys and mapping ◦ Developing agriculture and ◦ GIS and cartography
Starke Ayres	◦ Vegetable seed
TWK Agriculture Ltd	◦ Vegetable seed ◦ Fertiliser and organic supplements ◦ Tractors and Implements ◦ Repairs and servicing ◦ Tyre sales and re-treading

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.

8.1.5 Competitors

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 displayed in Table 22:

TABLE 22: COMPETITORS WITHIN THE VEGETABLE VALUE CHAIN

Type of processing activity	Competitor
Fresh Produce	◦ Fresh produce markets: – Johannesburg Fresh Produce Market – Vereeniging – Tshwane Fresh Produce Market – Durban Fresh Produce Market
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

8.1.6 Technology

Technology is an important aspect to consider in the Agri-park. Despite increasing mechanisation of agriculture practices and a corresponding decreasing reliance on manual labour, it is important to maintain a balance of mechanisation and job creation which improves skills and creates meaningful jobs.

The table below indicates the various technologies that the Agri-park can use within the Harry Gwala District Municipality. 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 23: 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 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	
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	
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	
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.

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.

8.1.7 Socio-economic (job creation)

Labour input is a key element of the production process and one of the main production factors in any economy. The table below displays the Sectoral labour multipliers applicable to the vegetable industry, i.e. the number of the job opportunities created at different levels for every additional hectare of production.

TABLE 24: VEGETABLE POTENTIAL EMPLOYMENT

Sector (vegetables)	Direct	Indirect	Direct + Indirect
Potatoes	0.8	0.56	1.36
Tomatoes	3.5	1.05	4.55
Onions	0.98	0.29	1.27
Carrots	3	0.9	3.9
Pumpkins	2.1	0.63	2.73
Green Mielies	1	0.3	1.3
Potatoes	0.8	0.56	1.36
Tomatoes	3.5	1.05	4.55

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

Direct Multipliers

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.

Indirect Multipliers

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.

8.1.8 Contribution to food security

Food security, also a major objective of the Agri-Parks 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 Agri-Parks contributes positively to issues of food security.

The growing of the vegetable industry within the Harry Gwala District 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 the table below.

TABLE 25: ESTIMATED PRODUCTION

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

The estimated production in the table above suggests that for every hectare that is brought into vegetable production, 25 tons of vegetables could potentially be produced.

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

The table below provides the estimated income generation per hectare of production, as well as the potential portion of that income that could be spent on food and food products.

TABLE 26: ESTIMATED INCOME GENERATION

Vegetables	
Multiplier	2.52
Avg. Annual Income (R)	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 2.52 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.

8.1.9 Regulatory requirements

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

TABLE 27: POLICIES FRAMING THE VEGETABLE INDUSTRY

Act	Description
Agricultural Product Standards Act, 1990 (Act No. 119 Of 1990)	This act aims to standardise quality norms for agricultural and related products by establishing the criteria for such norms and distributing the information to all interested parties. These criteria may include the quality, packaging, marking and labelling as well as the chemical composition and microbiological contaminants of the products. This relates to all goods made from vegetables e.g. labelling of carrots juice (100% carrot juice; 60% carrot juice with 40% tomato juice) (RSA, 1998). **Implication for the Agri-park:** The Agri-park must ensure that all vegetable products produced comply with the various criteria in order for products to be 100% compliant.
Draft Plant Health (Phytosanitary) Bill 2014	Provides phytosanitary measures to prevent the introduction, establishment and spread of regulated pests in South Africa and the control of regulated pests. It also provides regulation of the movement of plants, plant products and other regulated articles into, within and out of South Africa include exports of agricultural goods (RSA, n.d.). **Implication for the Agri-park:** The Agri-park must comply with all regulation and measures in order to ensure that all phytosanitary requirements are met.

Agricultural Pests Act, 1983 (Act No. 36 Of 1983)	The purpose of the Agricultural Pests Act, 1983 (Act No. 36 of 1983) and its subordinate legislations is to provide for measures by which agricultural pests may be prevented and combated and for matters connected therewith. The Act also mandates the Directorate Plant Health to regulate plants, plant products and other regulated articles when imported into South Africa. Plants, plant products and related materials are capable of harbouring quarantine pests, which if they enter South Africa with imported commodities and establish, may endanger the South African agricultural sectors. Similarly, pests that occur in South Africa may endanger countries to which we export and as a result South Africa may lose its export markets (RSA, 1983a). **Implication for the Agri-park:** The Agri-park must ensure that all plants, products and related material harbour no pests by complying with measures by which pests may be prevented and combated. APs management should develop programmes/schedules to ensure the control of pests.
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 (RSA, 1947). **Implication for the Agri-park:** The Agri-park 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 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.
National Water Act, 1998 (Act No.36 Of 1998)	This act encompasses laws relating to water resources and the use thereof (RSA, 1998b). **Implication for the Agri-park:** The Agri-park must ensure that water used is used in a sustainable way to ensure the sustainability of the nation's water resources.
The Food Safety Management System FSSC 22000 Certification	The FSSC 22000 Food Safety System Certification provides a framework for effectively managing your organization's food safety responsibilities. FSSC 22000 is fully recognised by the Global Food Safety Initiative (GFSI) and is based on existing ISO Standards. It demonstrates your company has a robust Food Safety Management System in place that meets the requirements of your customers and consumers (FSSC 22000, 2015). **Implication for the Agri-park:** By complying with the Food Safety Management System FSSC 22000 Certification the Agri-park is ensuring that it products meet required standards thus meeting requirements of both the customer and consumer.
Hazard Analysis and Critical Control Points (HACCP)	HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product (U.S. Food and Drug Administration, 2015).

	Implication for the Agri-park: By ensuring that food safety requirements are met the Agri-park is taking into account the needs of both the customer and consumer as well as enabling a safe and hazard free work environment.
Basic Conditions of Employment Act, 1983 (Act No. 3 of 1983)	The act encompasses those regulations associated with fair labour practices (RSA, 1983c). **Implication for the Agri-park:** The Agri-park 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.
Municipal By-Laws and Regulations, Where Relevant	Municipal by-laws will need to be investigated with regard to the establishment of the vegetable processing facilities in a municipal area. **Implication for the Agri-park:** The Agri-park will not be able to operate vegetable processing facilities unless any by-laws are met.
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 (RSA, 1968). **Implication for the Agri-park:** The Agri-park 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 (RSA, 1990a). **Implication for the Agri-park:** 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 Agri-park establishes a team that will be responsible for carrying out activities that will meet the requirements of the Act
Stock Theft Act, 1959 (Act No. 57 of 1959)	This Act encompasses those laws associated with the theft of animal stock and produce (RSA, 1959). **Implication for the Agri-park:** The act will assist the Agri-park in recovering any stolen produce.
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 Agri-park:** The act indicates that the Agri-park 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 (RSA, 1963a). **Implication for the Agri-park:** The Agri-park 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,	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 (RSA, 1963b).

1983 (Act No. 43 of 1983)	**Implication for the Agri-park:** The Agri-park 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 (RSA, 1976). **Implication for Agri-park:** By acquiring the required licence, it would allow AP farmers to use (re-sow) any protected plant on his or her holding should the Agri-park 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 (RSA, 1983b). **Implication on Agri-park:** 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 (RSA, 1992b) 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 Agri-park:** The Agri-park 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 (RSA, 1966). **Implication for Agri-park:** The Harry Gwala District Agri-park management should provide a service to its producers in the way of easing access to credit. The Agri-park 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. **Implication for Agri-park:** Funding is a fundamental cornerstone to the development of the Agri-park and its stakeholder. The Agri-park management should play an intermediary role in accessing and use of such funding.

8.1.10 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.

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. Potential substitutes for vegetables and vegetable products are listed below.

Substitute Product/ Service:

- Other vegetables;
- Grains and cereals; and
- Meat and seafood.

The impact that substitutes for vegetables might have on the Harry Gwala District Agri-park is likely to be minor, given the relative non-availability of substitutes for vegetables. The Agri-park model should maintain a diverse vegetable product offering in order to compete with other vegetables available on the market. In addition, producing and processing of staple food vegetables will be a key undertaking in competing against potential substitutes.

8.1.11 New entrants/potential entrepreneurs (B-BBEE)

Annexure 2 provides a list of potential entrepreneurs and emerging farmers that could potentially participate in the Agri-parks programme within the Harry Gwala District.

8.1.12 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. As such, it is important that the Agri-park positions itself to take advantage of such trends by meeting the demands of society through the processing of relevant products. The following, vegetable-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 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 South Africa, 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. A healthy vegetarian diet should be balanced and contain vegetables, fruit, eggs, beans, some dairy products, etc. Becoming a vegetarian has been associated with 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 provide consumers with produce 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, tumours, etc. (however these effects were noted under laboratory conditions). There are public concerns regarding GMO in terms of food safety, regulation, and 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 is to raise awareness of the detrimental environmental impact of eating meat, to slow climate change, preserve precious natural resources and improve consumer health by having at least one meat free day each week.

8.1.13 SWOT analysis

The following table summarises the strengths, weaknesses, opportunities and threats for the vegetables:

TABLE 28: SWOT ANALYSIS FOR VEGETABLES

Strengths	Weaknesses
• Major economic advantages • Highly nutritive products • Contributor to food security • Proximity to major market • Availability of natural resources • Maximal soil usage • 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 (GAP) principles • Short marketing window (perishable product) • Small-scale production not competitive • Lack of access to market • High level of post-harvest losses • Inadequate working capital
Opportunities	**Threats**
• Intensive production • Organic production • Local labelling (food labelling) • 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	• Increasing input costs • Market limitations • Consumer habit • Competition • Extreme weather conditions (drought, hail, frost) • Pest problems • Disease • Barriers to entry • Food safety issues • Regional competition • Retailer consolidation (preference toward particular producers)

8.2 Soybean

Indigenous to China and considered one of the five oldest cultivated crops, soybeans were first introduced into South Africa in 1903. Traditionally South Africa has always been a net importer of soybean, however, since the late 1990s production levels have grown substantially and have expanded from Bapsfontein and the northerly Lowveld areas to become a key crop in rotation with wheat and maize in irrigation areas. More recently, in line with health trends claiming the advantages of soy in combatting high cholesterol and heart disease, there has been a growing interest in soybean and soybean related products (DAFF, 2014).

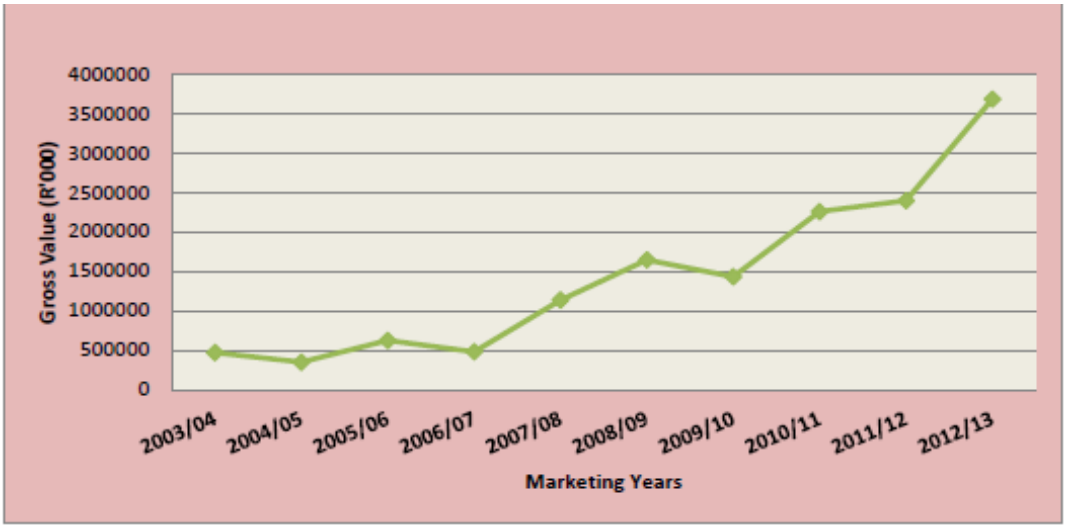
8.2.1 Market Assessment

8.2.1.1 Local Markets

Production

The figure below shows the gross value of soybean production over a ten (10) year period (2004-2013). In general, there has been upward growth throughout this period and the contribution of the soybean industry to the gross value of agricultural production corresponds with the total area planted and total production for soybeans. The industry's contribution to gross value of agricultural production has shown particular growth post the 2006/07 season, dipping slightly in 2009/10 and reaching its peak in 2012/13. According to DAFF (2014) The observed fluctuation in Soybeans GVP is as a result of inconsistencies in both production volumes and prices of soybeans over the period under analysis.

FIGURE 33: SOYBEANS GROSS VALUE OF AGRICULTURAL PRODUCTION



Source: (DAFF, 2014)

Although soybeans are produced in nearly all the nine provinces in South Africa, there is significant variation in output from one province to another. Out of all the provinces, Mpumalanga appears to be the one that produces the largest quantities of soybeans (43%).

Free State produces around 33% of the total harvest, while KZN produces 10%, Limpopo 7%, Gauteng 4% and North West 2%. Despite the potential of the former homelands in soybean production, there is little progress most likely owing to infrastructural problems and unfamiliarity with the crop. (DAFF, 2014)

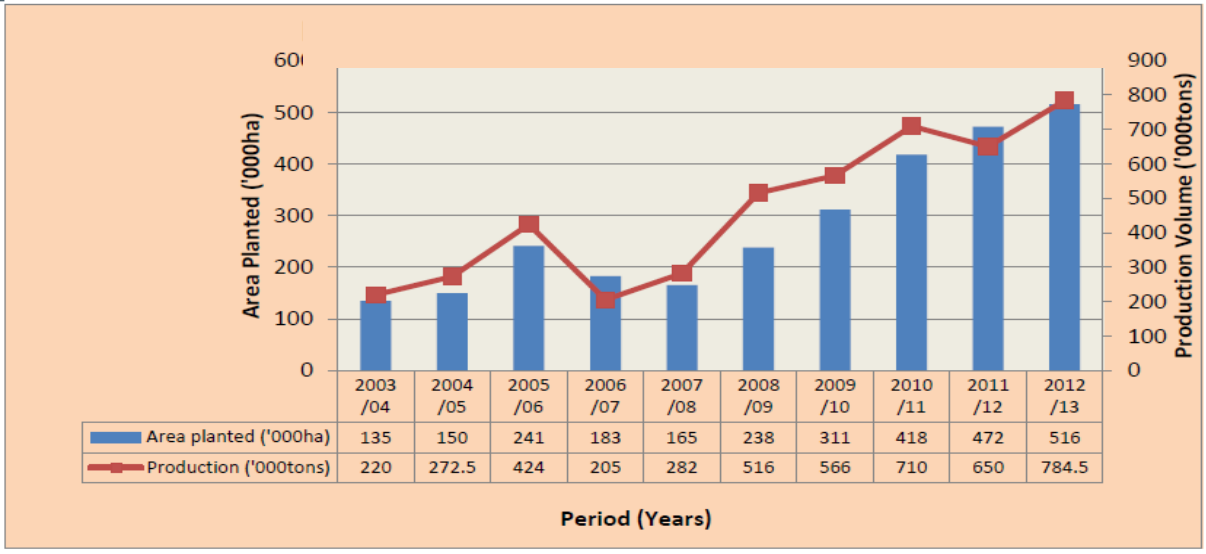
TABLE 29: SOUTH AFRICAN SOYBEAN PRODUCTION BY PROVINCE

Province	Production (tons)	Percentage
Mpumalanga	239250	43%
Free State	147250	33%
Kwa-Zulu Natal	73250	10%
Limpopo	50400	7%
North West	27000	2%
Gauteng	20400	4%
Other.	3150	1%

Source: (DAFF, 2014 and Urban Econ, 2016)

South Africa produces on average between 100 000 and 800 000 tons per annum at an average yield of 1.7 to 2 tons per hectare under dry land conditions. As shown in figure below, there have been fluctuations in soybean production volumes between the 2004/05 and 2013/14 seasons, showing a dramatic drop in 2006/07 due to unfavourable weather conditions. In general, areas allocated to soybean production in South Africa have high levels of variability and this variability also accounts for the abrupt rise in production (highest) between 2009/10 and 2012/13. This rise is also coupled with considerable increase in the area planted.

FIGURE 34: SOYBEANS AREA PLANTED AND TOTAL PRODUCTION



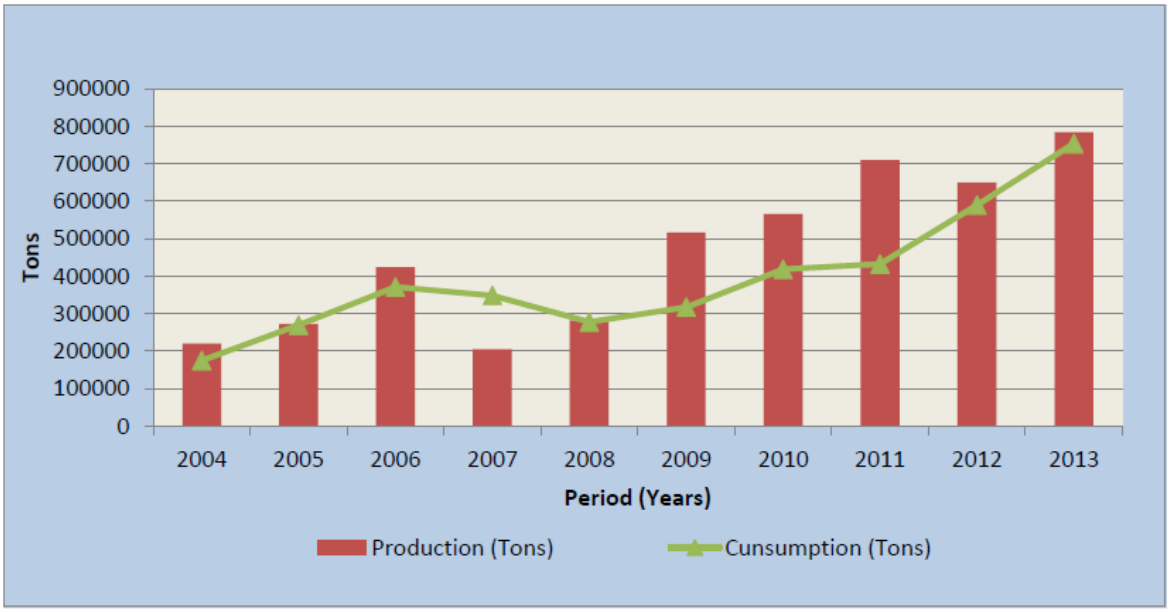
(Source: DAFF, 2014)

Utilization and consumption

The following figure shows soybean production versus soybean consumption. Apart from the year 2007 (owing to poor weather conditions) local production has remained well above local consumption. Also worth noting are the years 2009 to 2013; the production of soybean

increased significantly to the point where it ultimately exceeded consumption, implying that South Africa was producing more as a result of increased area under production during these years.

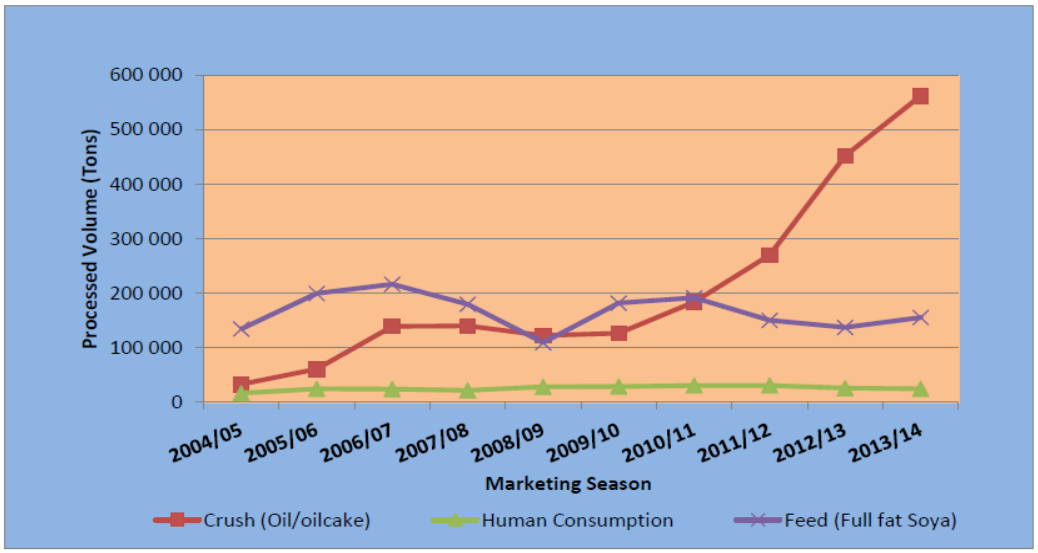
FIGURE 35: SOYBEANS PRODUCTION VERSUS CONSUMPTION



(Source: DAFF, 2014)

The demand for soybeans in South Africa is driven largely by the crushing or processing industries. The increase in demand for meal and soybean oil, however, has shown a sharp rise between 2009/10 and 2013/14 owing to the rising income levels in the consumer population as well as improved crushing capacity within the industry. Higher demand for livestock products are also linked to rising income levels (per capita GDP) and this has knock on effects in the soybean industry because of the increased demand for feed. As such the demand for oilseed meal also rises as more protein feed is being demanded. Similarly, rising incomes and populations will also lead to a greater consumption of vegetable oils as the demand for cooking oils and dairy products increases.

FIGURE 36: LOCAL SOYBEANS PROCESSING



(Source: DAFF, 2014)

Prices

Domestically, soybeans are sold directly to consumers for the edible market, but more commonly they are sold to expressers who undertake further processing into oil, oilcake and animal feed. The figure below shows the annual soybean harvest in South Africa, the value of the crop and the producer prices since the year 2004. In general soybean prices have shown a decline in 2009 and 2010 with significant decline in 2005, reaching its lowest price value of R1 157.42/ton. This decline, however, was also followed by consistent increases in producer prices from 2006 to 2008. 2009 and 2010 also show a decline in producer prices, followed by consistent increase in years 2011 to 2013. The main factors influencing local soybean prices include the rate of increase in South American soybean production, the Chinese demand for imported soybeans, marine freight rates, the value of the rand/dollar exchange, the local production, rate and the spread of genetically modified cultivars in the main production areas which could increase yields and help stabilize prices.

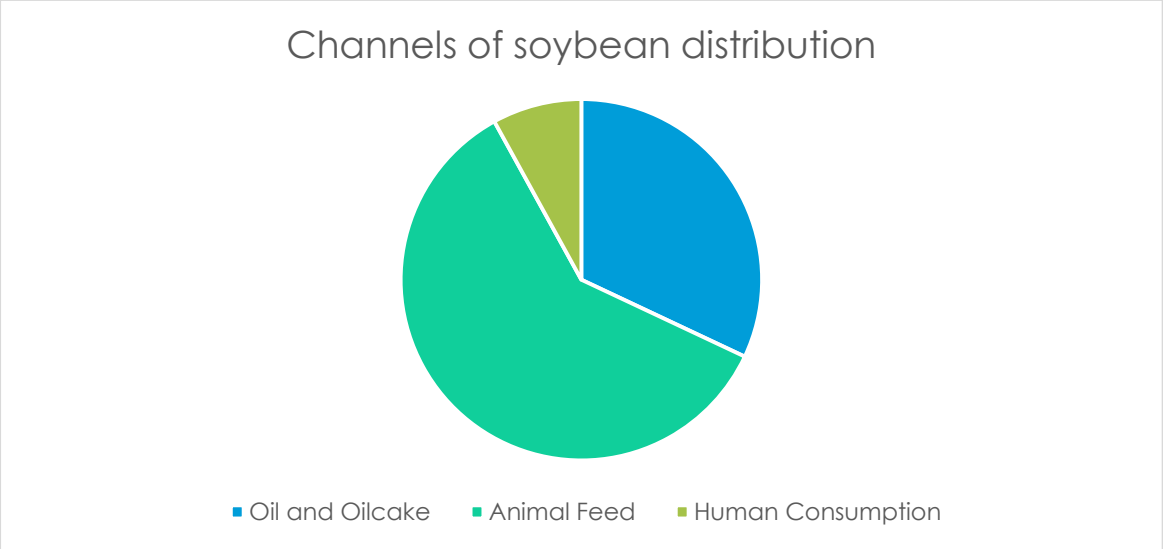
FIGURE 37: SOYBEANS PRODUCER PRICES

(Source: DAFF, 2014)

Channels of distribution

Proportional domestic usage of soybean is estimated at 32% for oil and oilcake, 60% for animal feed (particularly in the broiler and egg industries) and 8% for human consumption. Soy oil (18% of the seed) is processed to specific oil products for use in the food industry.

FIGURE 38: SOYBEAN CHANNELS OF DISTRIBUTION



(Source: DAFF, 2014 and Urban-Econ, 2016)

In South Africa, vegetable oils are only used for human consumption and not used for biodiesel production as in some other countries. The South African consumer, however, prefers sunflower oil and soybean oil is mainly used in a blend with sunflower oil for cooking purposes. The demand for soybean meal is driven by the animal feed industry, especially the poultry industry.

Exports and imports

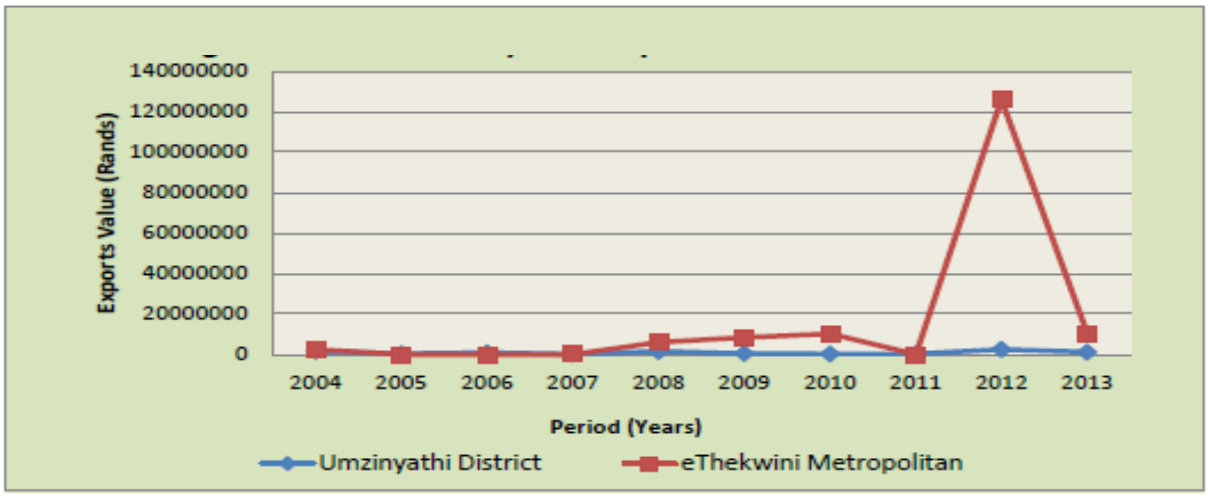
The figure below shows local sales of soybean against exports between 2004 and 2013. Despite the increase in the production of soybean over the ten-year period, exports of soybean have remained small, only exceeding 100 000 tons in 2009, 2010 and 2012. Sales of soybeans in the domestic market follow a similar trend to that of the total production, having reached their lowest level during 2004 and thereafter increasing substantially until 2006. Local sales of soybeans declined slightly in the year 2008, following a consistent increase in the years thereafter. The period under analysis closed with highest recorded local sales for soybean and lower exports volumes during the year 2013.

FIGURE 39: SOYBEANS LOCAL SALES VS EXPORTS

(Source: DAFF, 2014)

The figure that follows shows the value of soybean exports from KwaZulu-Natal province between 2004 and 2013. From KZN, soybeans are exported mainly through UMzinyathi District and EThekwini Metropolitan Municipality. Export capacity is boosted by the presence of the Durban harbour, facilitating trade. EThekwini Metropolitan Municipality has remained a primary exporter of soybean throughout the 10-year period, with most being exported during 2009, 2010 and 2012.

FIGURE 40: VALUE OF SOYBEAN EXPORTS BY KWAZULU-NATAL PROVINCE.



(Source: DAFF, 2014)

8.2.1.2 *Global markets*

The table below shows the relative shares by country comprising South Africa's soybean import market in 2013. It is clear that USA is by far the largest source of import (46%), followed by Benin (22%) and Zambia (13%). The table also shows that the value soybean imports from the rest of the world into South Africa increased by 45% between the years 2009 and 2013. Additionally, the figure shows that if South Africa is to diversify its soybean imports, prospective import markets can be found in, China, Netherlands and Mexico. These countries are among the world's fastest growing exporters of soybeans.

TABLE 30: LIST OF SUPPLIERS OF SOYBEAN IMPORTED BY SOUTH AFRICA- 2013

Exporters	Imported value in 2013 (thousand US$)	Share in South Africa's imports (%)	Imported quantity in 2013 (tons)	Unit Value (US$/unit)	Imported growth in value between 2009 and 2013 (% p.a)	Imported growth in quantity between 2009 and 2013 (% p.a)	Imported growth in value between 2012 and 2013 (% pa)
World	3453	100	4490	769	45	14	279
USA	15965	46.2	1193	1337		303	258
Zambia	754	21.8	1353	557	-43	6	-
Benin	423	12.3	699	605	-	-	-
United Kingdom	294	8.5	258	1140	140	69	213
Malawi	130	3.8	254	512	71	74	-
Ethiopia	115	3.3	240	479	-	-	-

Exporters	Imported value in 2013 (thousand US$)	Share in South Africa's imports (%)	Imported quantity in 2013 (tons)	Unit Value (US$/unit)	Imported growth in value between 2009 and 2013 (% p.a)	Imported growth in quantity between 2009 and 2013 (% p.a)	Imported growth in value between 2012 and 2013 (% pa)
Argentina	73	2.1	157	465	-	-	-31
Mozambique	27	0.8	289	93	-	-	-
China	17	0.5	31	548	108	134	-19

(Source: DAFF, 2014 and Urban-Econ, 2016)

The table below shows that the greatest quantities of soybeans exported by South Africa in various forms are destined to the export markets given as follows: Malaysia, China, Lesotho, Swaziland, Mozambique, Botswana and Namibia. The table shows that between 2009 and 2013, exports of soybeans from South Africa to the rest of the world have decreased by 21% in value terms and 34% in volume terms. The country that has imported most soybeans from South Africa in 2013 is Malaysia having absorbed 76.5% of South Africa's total soybeans exports. South Africa exported 14323 tons of soybeans to Malaysia in 2013 and 1628 tons to China during the same year. The volume of soybeans exports from South Africa to Malaysia increase by 287% between 2009 and 2013.

TABLE 31: LIST OF IMPORTERS OF SOYBEAN EXPORTED BY SOUTH AFRICA- 2013

Importers	Exported value in 2013 (thousand US$)	Share in South Africa's Exports (%)	Exported quantity In 2013 (tons)	Unit Value (US$/unit)	Exported growth in value between 2009 and 2013 (% p.a)	Exported growth in quantity between 2009 and 2013 (% p.a)	Exported growth in value between 2012 and 2013 (% pa)
World	11683	100	17652	662	-21	-34	-86
Malaysia	8936	76.5	14323	624	287	287	-85
China	1083	9.3	1628	665	25	25	-38
Lesotho	560	4.8	324	1728	-	-	-35
Swaziland	330	2.8	374	882	-	-	-73
Mozambiqe	287	2.5	406	707	172	172	-92
Botswana	155	1.3	236	657	-	-	-48
Namibia	129	1.1	212	608	-	-	269
Angola	70	0.6	40	1750	165	165	400
DRC	63	0.5	31	2032	84	84	271

(Source: DAFF, 2014 and Urban- Econ, 2016)

8.2.1.3 Capital markets

Capital Markets specific for the soybean and soybean processing value chain are limited. Most producers raise funding through main stream finance houses comprising of the commercial banks, Land Bank and Co-operative finance houses. The major commercial banks, Land Bank and Co-operative finance and their respective financial offerings are summarised respectively below:

Land Bank

Land Bank is a statutory body with a mandate from Government to support the development of the agricultural sector. The Bank's key strategic intent is to achieve financial sustainability focused on social and development impact. Meeting client needs by means of cost-effective and competitive products and services, building a representative, committed and an efficient workforce and good relations with stakeholders are critical elements in this strategy. The Bank provides a comprehensive range of retail and wholesale financial products and services designed to meet the needs of commercial and developing farmers and agriculture-related businesses. As a statutory development finance institution, the Bank must fulfil a government mandate requiring it to:

- support the development of all elements of the agricultural economy
- give special attention to the needs of previously-disadvantaged people in the sector
- benchmark its operating efficiencies and service delivery against financial-sector norms
- ensure its financial sustainability.

Land Bank gives low, medium and high-risk clients access to a full range of long, medium and short-term loans to meet all financial needs, including land and equipment purchases, asset improvement and production credit. During 1999 the bank added Gold Premium and Platinum risk categories to its existing Gold low-risk category. Clients who qualify on the basis of exceptional security and high loan values pay reduced interest rates. Specific criteria for medium and high-risk clients with limited security increases access to credit while minimising the risk of default.

Commercial Banks

The four major commercial banks target market comprises of both the commercial as well as developing agriculture. Their focus is on retaining and selective acquisitioning of their market share in commercial agriculture. Products and services offered are, amongst others, cheque accounts, overdraft facilities, term loans, mortgage loans, asset finance, investments, estate and asset management, insurance and assurance, international banking services, contract growing, hedging and trading as well as electronic banking services and advisory services. Agricultural Long-term Loans are used to buy farm property, make capital improvements such

as fencing, water provision and soil conservation or to consolidate short-term debt (where farmers have previously financed fixed assets out of working capital or short-term finance). Agricultural Project Loan is a medium-term loan product. It is a multipurpose agricultural loan suited for the acquisition of livestock, orchards, farm buildings, etc., which generates an income only after a certain establishment period. Agricultural Cheque Account fulfils the transmission of funds requirements of a farming business, as well as providing a dedicated product for short-term (less than 12 months) production credit.

Agricultural Co-operative Finance

The Co-operative finance divisions of the various Agricultural Co-operatives provide production loans or seasonal facilities for period of up to one year. These facilities are granted for the purchase of production resources and services rendered. Interest is calculated on the basis of simple interest per day on the outstanding balance owed. The interest rate applicable on the account is the interest rate determined per individual depending on the risk profile. Month accounts are used to make purchases at trading branches. These accounts are short-term credit and the full outstanding balance must be settled monthly, 30 days after statement. The primary goal of a long term loan is to finance the purchase of productive agricultural land. The purpose of asset finance is to assist clients financially in purchasing durable capital goods, like tractors, combines and implements.

In addition to the above commercial finance institutions the following Development Finance Institutions are functional within the Harry Gwala District Municipality:

Harry Gwala Development Agency (HGDA)

The Harry Gwala Development Agency has a strategic mandate to help promote economic development and create jobs in the Harry Gwala District. This enjoins the HGDA to play a leadership role in the efforts aimed at creating work and real economic growth and thus imperative that the entity embarks on such an exercise to ensure it can survive in the ever changing environment. The HGDA offers the following services:

- Investment facilitation
- Trade Promotion
- Small business Support
- Facilitation of Joint Ventures, Mergers, and Acquisitions
- BBBEE promotion
- Land Reform Support
- Private Sector Development
- Facilitation of Environmental Impact Assessments (EIA's)
- Town Planning for Investment Support

- Local Economic Development
- Cooperatives Development and Support
- Provision of industrial Infrastructure
- Skills Development and Training

SEDA (Small Enterprise development Agency)

The Small Enterprise Development Agency (SEDA) is an agency of the Department of Small Business Development. SEDA was established in December 2004, through the National Small Business Amendment Act, Act 29 of 2004.It is mandated to implement government's small business strategy; design and implement a standard and common national delivery network for small enterprise development; and integrate government-funded small enterprise support agencies across all tiers of government. Seda's mission is to develop, support and promote small enterprises throughout the country, ensuring their growth and sustainability in co–ordination and partnership with various role players, including global partners, who make international best practices available to local entrepreneurs.

Agribusiness Development Agency

The Agribusiness Development Agency is a public entity that was established in 2009 to serve as a special purpose vehicle to drive socio-economic transformation in the agricultural and agribusiness sector in KwaZulu-Natal.

The Agency provides holistic agricultural support services to entrant commercial farmers, focusing mainly on previously disadvantaged farmers, who have acquired land through the government's Land Reform Programme and on private basis. The ADA also aims to develop strategies to address inequities, create opportunities for the farmers to participate in the value chain, provide access to markets and foster sustainability in the agricultural sector. Since its inception, the major focus has been on the turnaround strategy to resuscitate distressed farmers who had suffered skills gaps, financial support and access to the markets. In the three years of operation ADA has managed to support over 180 large and small commercial farms under individuals, restitution, recapitalization, labour tenant, cooperatives, etc.

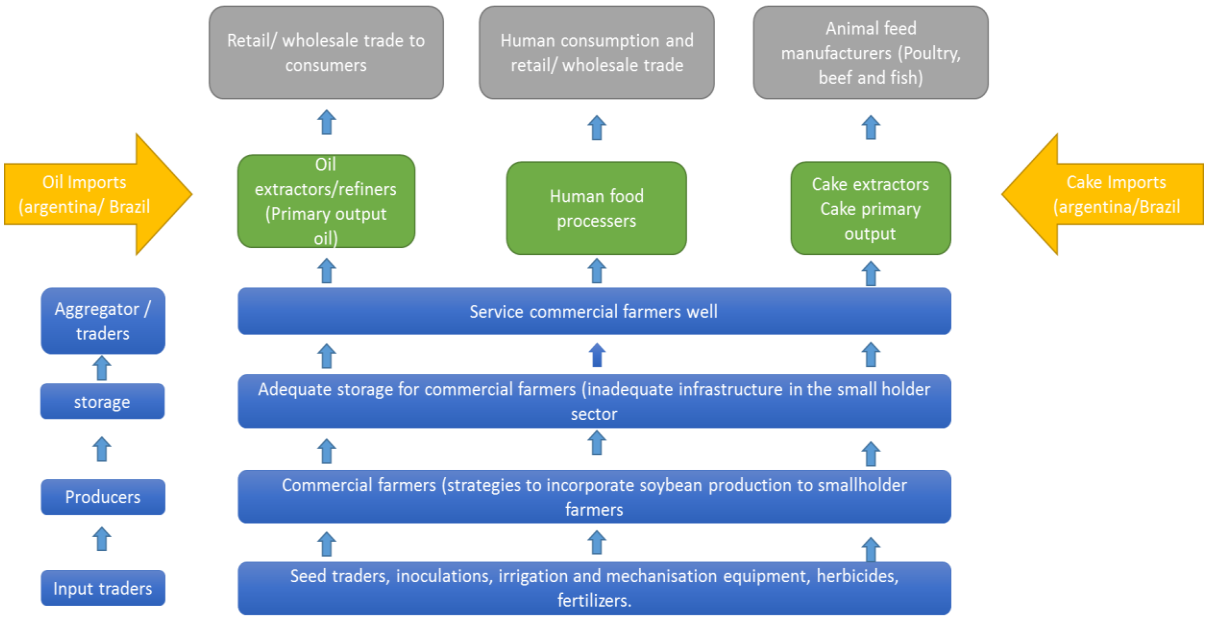
Other Smaller Development Agencies that also function in the Harry Gwala District Municipality are listed below

- World Vision
- Save Act

8.2.2 Value chain assessment

The soybean value chain for South Africa comprises the following:

FIGURE 41: SOYBEAN VALUE CHAIN



(Source: NAMC, 2011 and Urban-Econ, 2015)

The input suppliers- Supply fertilizer, seed, insecticides, herbicides, inoculants, mechanisation and irrigation equipment. The soybean seed market in South Africa has been growing in the past 10 years. The local soybean seed market was R3.6 million in 2004/05. Of this, 52% was through the sales of Genetically Modified Organism (GMO) seed. Most commercial farmers, however, (75%) use recycled soybean seed and a fair number also make use of conventional seed, most likely so as to capture the profitable UNICEF/WFP CSB market which often stipulates non GMO soybeans. Inoculants also play a vital role in South Africa's soybean production since local soils exhibit serious shortages of nitrogen fixing bacteria (NAMC, 2011). About 40% of land under soy production also uses fertilizer.

Despite inputs being readily available, adoption of soybeans by farmers in South Africa is still not at the level it should be, since considerable investment is required in order to make long term soybean production a permanent livelihood strategy at the farmer level. Most farmers are not yet aware of the potential advantages of soybeans in crop rotation and knowledge on cultivation practices is minimal (NAMC, 2011).

In order to deal with these constraints pro soy production can focus on the following:

- Encouraging soybean production in areas that have been recently acquired through land reform programs.
- Encourage (through Public-Private Partnerships) the planting of soybean by current smallholder farmers who have additional hectares of land.
- Unlock supply side constraints (extension services, access to inputs and knowledge) by encouraging partnerships between commercial and smallholder farmers.
- Investment into research and development surrounding cultivars with higher yield/ drought resistance properties.

(NAMC, 2011)

Aggregators and traders- Ensure that there is a readily available market for soybean produce and help to secure a consistent supply of inputs to producers (NAMC, 2011).

Processers- Process raw soybeans into oil, meal or soybean based foods for human consumption. The primary uses of soybeans include soybean oil, soybean cake (both full and low fat) and soybean products for human consumption, with the latter being relatively low in comparison to the former. The South African market consumes soybeans through a variety of over the counter food stuffs such as soups, soya sauces and other breakfast foods including yogurt and flavoured soymilk products. Although direct consumption remains relatively very low, it is extremely popular amongst people who are lactose intolerant (NAMC, 2011).

While the processing capacity for soybean is currently adequate in South Africa, processing plants in South Africa are being used more for sunflower oil than soybeans. Another factor constraining the processing capacity in the South African market is the inconsistent levels of protein content in soybeans produced in South Africa which makes it difficult for feed manufacturers to depend on, since these variations inevitably incur additional costs on them (NAMC, 2011).

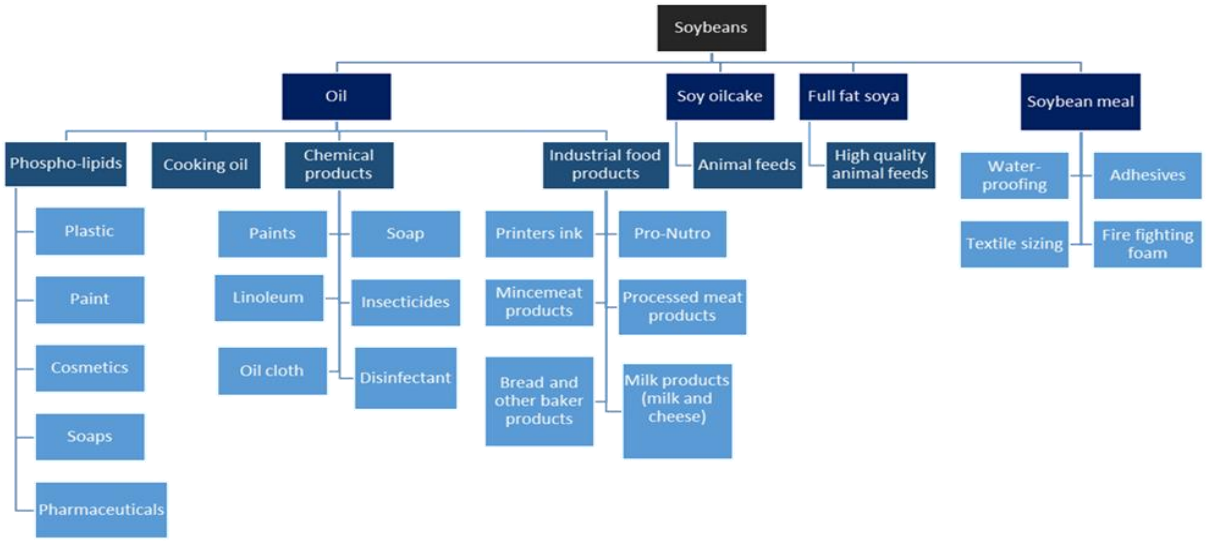
Feed manufacturers Receive soybean meal from processors and use it in the production of animal feed (mainly poultry) but also used in beef, pork and fish feed (NAMC, 2011).

Human consumption: There is currently still a low acceptance for soybeans in human consumption. Campaigns have already been undertaken to make people aware of the links with soy and its nutritional value (NAMC, 2011).

8.2.3 Agro-processing opportunities

The following figure highlights the variety of agro-processing opportunities available for soybeans. The processing of soybean involves pressing, through which crude oil is released from the seed leaving behind soybean oil cake. The crude oil is then further refined to produce soybean oil. Soybean seeds can also be eaten whole or split, without further processing. When processed, however, they produce soy milk, rich in protein, which can be further processed into milk products such as curds or cheeses. Soy sauce is derived through fermentation of mature beans and roasted seeds can be used as a coffee substitute. Full fat flour (20% oil) can also be prepared by crushing the beans and is used in bakeries and other food products as additives or extenders to cereal flour and meat products. Industrially, it can be used in the manufacture of paints, linoleum, oilcloth, insecticides, disinfectants, plastics and detergents. The lecithin phospholipids derived as a by-product of the oil industry can be used as wetting and stabilizing agents in cosmetics, food, leather, pharmaceuticals, paint, plastic, soaps and detergent industries. Soybean meal and soybean protein are used in the manufacture of synthetic fibre, adhesives, textile sizing, waterproofing and firefighting foam. The straw can be used to make paper that is stiffer than that made from wheat straw (DAFF, 2014)

FIGURE 42: SOYBEAN AGRO-PROCESSING OPPORTUNITIES



Source: (DAFF, 2014 and Urban-Econ, 2016)

8.2.4 Main input suppliers

TABLE 32: MAIN INPUT SUPPLIERS IN THE SOYBEAN AND SOYBEAN PROCESSING INDUSTRY

Inputs used in production	Key suppliers
Seed	• Pannar • Pioneer Seed

Inputs used in production	Key suppliers
	• Link Seed.
Inoculants	• Stimuplant • Soy Grower
Fertilizer	• Oskor (Pty) • Omnia Fertilizer • Sasol Nitro • Yara SA (Pty) • Profert
Lime	• Grasland Ondernemings • SA Lime and Gypsum
Herbicide	• Syngenta South Africa (multi-national) • Efkto
Pesticides	• Syngenta South Africa (multi-national) • Efkto
Mechanization	• Equipment is usually imported
Irrigation	• Equipment is usually imported

(Source: DAFF, 2014 and Urban-Econ, 2016)

8.2.5 Competitors

Currently the only major soybean production in Harry Gwala DM is in the form of public- private partnership (PPP) that was established in 2015 between the Kwa-Zulu Natal Department of Agriculture, The Department of Rural Development (DARD) and Old Mutual's Masinzane fund. The Masinzane fund has projected that it will be investing an amount of up to R26 million for planting and production of soybean in the Harry Gwala DM. The aim is to involve 144 communal estates who will be actively participating in growing and processing soybeans. The total coverage of this project is 23 000ha and KZN DARD will be allocating 300 tractors, vouchers for implements and running costs, as well as vouchers for seed, business monitoring and extension services (DARD, 2015).

8.2.6 Technology

Advances in technology have progressively made it easier for agricultural role-players to access information such as weather and market information, increase production through mechanisation and advanced fertilisers, develop artificial environments and store perishable products for longer periods of time. Access to such technologies are a significant determinant of the competitive nature of businesses, with the most technologically advanced businesses often being the more competitive operations.

As such, it is important to consider technologies that could enhance the competitive nature of producers within the Agri-Park programme. The below table lists and provides a description of various technologies that are likely to enhance the capabilities and competitive nature of producers within the programme.

The following table lists and provides a description of vegetable specific technologies that can be used for the purpose of soybean production.

Technology	Benefits to the farmer
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: 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 Grain Management Software Program with Grain Management System: Software that allows for total management of a grain farming enterprise, from production to finance and human resource management.	Integrates with other Plan-A-Head farming software to allow for whole-farm enterprise management. Widely adopted therefore most software bugs has already been fixed. Particular strong features include the program's mapping, payroll and financial management capabilities.
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.
Saaiplan: Software that facilitates comprehensive planning, monitoring and record keeping at field level for field crop enterprises.	Could serve as a base for precision agriculture.

Technology	Benefits to the farmer
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.
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.
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).
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.
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.
No-till or conservation tillage: Land preparation for crop production without	Significant cost savings in terms of diesel (very energy intensive to lift the soil of an

Technology	Benefits to the farmer
tilling the land at all, or just partially breaking up of the soil.	entire field, especially in case of deep tillage). Increased moisture retention. Reduced soil erosion.
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.

8.2.6.1 ICT

ICT is possibly the biggest development in the agricultural sector for emerging and commercial harvesters alike. The emergence of the internet and mobile phones has led to an exorbitant amount of data at the fingertips of the producers. If they require information then it can be obtained immediately and problems solved sooner than before (e-Agriculture, 2015). ICT has allowed the emergence of training software and applications (Apps) which people can use for the benefit of the staff who work for them and for themselves. Training can be done outside of training centres and content directly displayed on smartphones. Smartphones have also allowed for greater access to market prices and market related news as it happens and sooner than what used to occur (e-Agriculture, 2015). This can allow producers to make adjustments before they impacted negatively. This has also allowed access to online and cell phone banking and various finance facilities (e-Agriculture, 2015). This means that producers have access to their finances from their phones and do not have to leave the farm to bank. Online banking has also made farming safer as large amounts of cash is no longer used to pay staff and instead can be paid into bank accounts or cell phone numbers. ICT has allowed for the effective design of farms around the land that is available to producers and has allowed for producers to be more efficient and handle finance and information related queries over a long distance instead of being at a physical location in person. This has also allowed for the

effective management and understanding changing markets as they occur which allow producers to react in a timely manner (e-Agriculture, 2015).

Numerous smartphone apps also exist for the convenience of the farmer. Pantheon Farming from App Lab allows producers to enter all data directly on location, which is synchronized with a main database. This reduces the possibility of errors and eliminates duplicate data entries. eFarmer is a simple app designed for the agricultural industry that allows users to construct an electronic map of fields to create a database of various crops in the fields. The app also allows users to take notes on the fields as points of interest, keep the location of specific objects on the farm and keep a diary of the operations for each field users own.

8.2.6.2 Logistics

In order for the Agri-park to be successful there needs to be and effective and well run logistics system. Logistics is an extremely important part of forestry as it relies on transport of goods to and from the production site to the processing facilities and to markets. Trucks and other large freight vehicles which transport goods are vitally important in any industry and is also important in the soybean industry. Goods need to be transported in such a manner that they are not damaged. If goods need preservation, then it is important to consider using refrigerated trucks to transport of produce. The second aspect of logistics is the medium of transport itself. Roads or the rail system need to be in good order and should be well connected in order to reduce the loss of produce and damage to trucks which can add on unnecessary costs to the producers.

8.2.7 Socio-economic (job creation)

Labour input is a key element of the production process and one of the main production factors in any economy. The table below displays the Sectoral labour multipliers applicable to the soybean industry, i.e. the number of the job opportunities created at different levels for every additional hectare of production.

TABLE 33: SOYBEAN POTENTIAL EMPLOYMENT

Sector	Direct	Indirect	Direct + Indirect
Soybean	0.01	0.007	0.017

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

Direct Multipliers

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.

Indirect Multipliers

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.

8.2.8 Contribution to food security

Food security, also a major objective of the Agri-Parks 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 Agri-Parks contributes positively to issues of food security.

Growing the local soybean industry within the Harry Gwala District 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 the table below.

TABLE 34: ESTIMATES FOR INCOME PER HECTARE OF SOYBEAN PRODUCTION

Soybean	
Multiplier	0.017
Avg. Annual Income (Rands)	31 680.00
Approximate Income generation per hectare (Rands)	538.56
Portion of income spent on food (65%)	350.06

Given a total employment multiplier of 0.017 for every additional hectare of soybean under production, it is estimated that income generated is approximately R539 (table above), 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 soybean under production R350 would be spent on food for every job created.

8.2.9 Regulatory requirements

The various other acts and policies which also apply to the maize industry are included in the tableTable 27 below.

Act	Description
Draft Plant Health (Phytosanitary) Bill 2014	Provides phytosanitary measures to prevent the introduction, establishment and spread of regulated pests in South Africa and the control of regulated pests. It also provides regulation of the movement of plants, plant products and other regulated articles into, within and out of South Africa include exports of agricultural goods (DAFF, n.d.). **Implication for the Agri-park:** The Agri-park must comply with all regulation and measures in order to ensure that all phytosanitary requirements are met.
Agricultural Pests Act, 1983 (Act No. 36 Of 1983)	The purpose of the Agricultural Pests Act, 1983 (Act No. 36 of 1983) and its subordinate legislations is to provide for measures by which agricultural pests may be prevented and combated and for matters connected therewith. The Act also mandates the Directorate Plant Health to regulate plants, plant products and other regulated articles when imported into South Africa. Plants, plant products and related materials are capable of harbouring quarantine pests, which if they enter South Africa with imported commodities and establish, may endanger the South African agricultural sectors. Similarly, pests that occur in South Africa may endanger countries to which we export and as a result South Africa may lose its export markets (DAFF, 1983a). **Implication for the Agri-park:** The Agri-park must ensure that all plants, products and related material harbour no pests by complying with measures by which pests may be prevented and combated. APs management should develop programmes/schedules to ensure the control of pests.
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 (DAFF, 1947). **Implication for the Agri-park:** The Agri-park 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 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.
National Water Act, 1998 (Act No.36 Of 1998)	This act encompasses laws relating to water resources and the use thereof (Department of Energy, 1998). **Implication for the Agri-park:** The Agri-park must ensure that water used is used in a sustainable way to ensure the sustainability of the nation's water resources.
The Food Safety Management System FSSC 22000 Certification	The FSSC 22000 Food Safety System Certification provides a framework for effectively managing your organization's food safety responsibilities. FSSC 22000 is fully recognised by the Global Food Safety Initiative (GFSI) and is based on existing ISO Standards. It demonstrates your company has a robust Food Safety Management System in place that meets the requirements of your customers and consumers (FSSC 22000, 2015).

Act	Description
	Implication for the Agri-park: By complying with the Food Safety Management System FSSC 22000 Certification the Agri-park is ensuring that it products meet required standards thus meeting requirements of both the customer and consumer.
Hazard Analysis and Critical Control Points (HACCP)	HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product (U.S. Food and Drug Administration, 2015). **Implication for the Agri-park:** By ensuring that food safety requirements are met the Agri-park is taking into account the needs of both the customer and consumer as well as enabling a safe and hazard free work environment.
Basic Conditions Of Employment Act, 1983 (Act No. 3 Of 1983)	The act encompasses those regulations associated with fair labour practices (Department of Labour, 1983). **Implication for the Agri-park:** The Agri-park 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.
Municipal By-Laws And Regulations, Where Relevant	Municipal by-laws will need to be investigated with regard to the establishment of the vegetable processing facilities in a municipal area. **Implication for the Agri-park:** The Agri-park will not be able to operate vegetable processing facilities unless any by-laws are met.
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 (DAFF, 1968). **Implication for the Agri-park:** The Agri-park 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 (DAFF, 1990a). **Implication for the Agri-park:** 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 Agri-park 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 Agri-park:** The act indicates that the Agri-park 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 (Fencing Act, 1963).

Act	Description
	Implication for the Agri-park: The Agri-park 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 (DAFF, 1963). **Implication for the Agri-park:** The Agri-park 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 (DAFF, 1976). **Implication for Agri-park:** By acquiring the required licence, it would allow AP farmers to use (re-sow) any protected plant on his or her holding should the Agri-park 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 (DAFF, 1983c). **Implication on Agri-park:** 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 (DAFF, 1992b) 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 Agri-park:** The Agri-park 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 (FAOLEX, 1966). **Implication for Agri-park:** The Ugu Agri-park management should provide a service to its producers in the way of easing access to credit. The Agri-park 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).

Act	Description
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. **Implication for Agri-park:** Funding is a fundamental cornerstone to the development of the Agri-Park and its stakeholder. The Agri-Park management should play an intermediary role in accessing and use of such funding.
GMO Act 1997	This Act allows for the use of genetically modified(GM) soy seeds that are herbicide or drought resistant or modified for higher yield **Implication for Agri-park:** Allows the Gri-Park to source seeds that are modified to produce higher yields with higher, more consistent protein content, however, this is limited to domestic trade since most other countries do not import GMO beans
Biofuel Industrial strategy (2007)	There is a short term focus to achieve a two percent increase in the level of biofuels in the national liquid biofuels supply. In this strategy soybeans have been recommended in the manufacture of biodiesel. **Implication for Agri-park:** The soybean industry has huge potential for growth as feedstock for biodiesel; for the Agri-Park this means new markets through which the Agri-Hub and RUMC can distribute its goods.

8.2.10 Substitute products and services

There are few substitutes for soybean since soybean is more often used as a substitute for meat/protein in vegetarian and vegan diets. There are however some vegetables and legumes with similar taste and properties and these include; green peas, lima beans and chickpeas for unprocessed soybeans; and rice and almond milk that can substitute soy milk.

8.2.11 New entrants/ Potential Entrepreneurs (B-BBEE)

Annexure 2 provides a list of potential entrepreneurs and emerging farmers that could potentially participate in the Agri-parks programme within the Harry Gwala District.

8.2.12 Societal and cultural trends

Although soy has been widely acclaimed for its value as a cheap source of protein with the ability to combat heart disease and high cholesterol, there has recently been a growing trend in highlighting the negative side effects which could possibly lead to a drop in demand for Soy as part of the human diet.

Soy is said to be one of the top eight allergens that can lead to hypersensitivity reactions such as sneezing, coughing, hives and Diarrhoea. According to Men's Health (2009) these allergens are on the rise specifically due to the growing use of soy in infant breast feeding. Another claimed side effect of soy has been its propensity to attack the thyroid as a result of the plant

hormones that the beans carry. For men soy has been said to affect fertility by interfering with the body's natural testosterone levels. For women, oestrogen levels are said to be affected, causing early onset of puberty in some. Furthermore, WWF (2015) criticize soy for the pressures that it places on the natural environment. In particular soy production in South America has been responsible for the loss of millions of hectares of savannah, forest, and grassland in recent decades, threatening biodiversity, depleting ecosystem services and being responsible for massive carbon dioxide emissions.

Despite these critiques, however, others continue to advocate the new-found benefits to soy in the human diet and these include; prevention of osteoporosis and prostate cancer as well as promoting weight loss and strengthening blood vessel integrity. Soy also has obvious support from many vegetarians, vegans and animal rights activists as a substitute for meat protein. Furthermore, many of the claims against soy have yet to receive any solid scientific backing. Nonetheless, popular opinion in the media still shapes consumption patterns in domestic and export markets and should not be ignored.

8.2.13 SWOT analysis

The following table summarises the strengths, weaknesses, opportunities and threats for soy and soy processing.

TABLE 35: SWOT ANALYSIS FOR SOYBEAN

Strengths	Weaknesses
• The health benefits associated with soybeans mean that there is a growing interest in soybeans and soybean products both domestically and globally. • Soybeans are a cheap source of high quality protein which is free of cholesterol.	• Low acceptance of soybeans for human consumption • In general, areas allocated to soybean production in South Africa have high levels of variability • Adoption of soybeans is still suboptimal, possibly due to investments required to make long term soybean production a permanent production strategy • Entry barriers exist for farmers who want to transition into soy production, most prominently the cost of specialized machinery. • South Africa has not yet made use of yield enhancing cultivars which means farmers are producing below optimum yields
Opportunities	**Threats**

• Soybean can be used to fight malnutrition in South Africa and other African countries. • DAFF (2014) has projected a 75% increase in the demand for protein which the production and processing of soy would help to meet. • Soybeans are legumes and can be used in crop rotational systems. They play an important role in nitrogen fixing and are more tolerant to acid and drought conditions than maize. • Market for soybean as feedstock for biofuels has recently opened up in South Africa.	• Farmers can lose out on the non-GM niche market if they become too lax in separating GM soybeans from non-GM soybeans. • The USA has established an initiative that aims to lobby for the use of more soybeans in food aid. The US is also seeking new markets for its surplus soybeans. • Tarrif policies could increase soybean imports, adding further competition to the domestic industry. • Poor government support for biofuels could inhibit future growth in soybean production. • Land reforms have the potential to displace current soy farmers while giving land to smallholder farmers who don't have the necessary knowledge and experience.

8.3 Maize

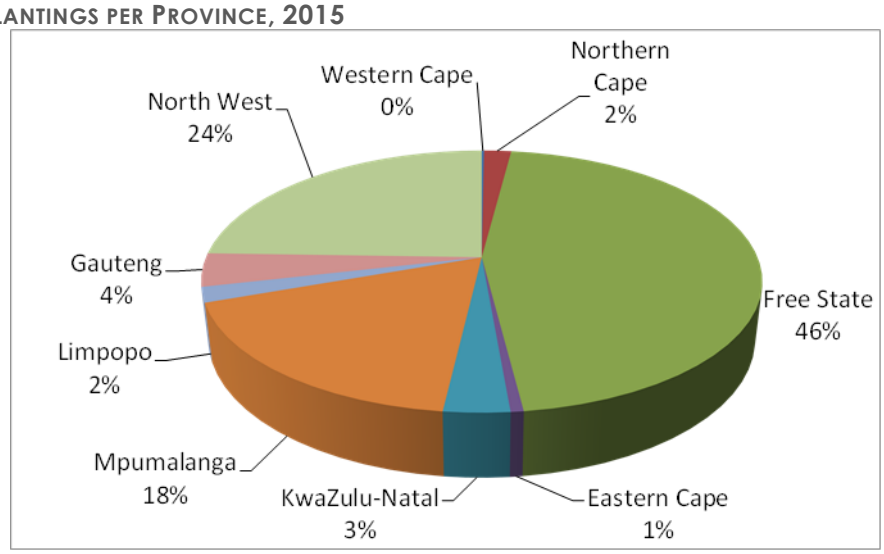
8.3.1 Market Assessment

Maize is the most important grain crop in South Africa, being both the major feed grain and the staple food of the majority of the South African population. White maize is primarily used for human consumption, and yellow maize mostly for animal feed production. The gross value of maize for 2013/14 amounts to R27 224 million.[13]

Production

The contribution by provinces to maize plantings 2015 is depicted in the figure below:

FIGURE 43: PLANTINGS PER PROVINCE, 2015



Source: Grain SA, 2015

SA maize producers planted 103 000 hectares less white maize and 68 000 hectares more yellow maize in 2015 compared to 2014, resulting in a decline of 1.3% in total 2015 maize plantings. [14]

[13] DAFF, 2015
[14] Grain SA, 2015

8.3.1.1 Local Markets

The South African maize market has matured considerably since deregulation of agricultural marketing. Producers, traders and other intermediaries interact freely in the marketing of maize. Most of the maize produced in South Africa is consumed locally and as a result, the domestic market is very important to the industry. Before deregulation the maize price was set by the marketing boards. The price was set lower at around R300/ton. Since the implementation of deregulation policy the price of maize increased gradually because of the adoption of perfect competition in the maize marketing environment in which the prices are determined by market forces i.e. supply and demand factors.

Maize outlook

In line with past projections, South African maize area declined marginally in 2015, as the expansion in yellow maize area was insufficient to offset the reduction in white maize plantings.

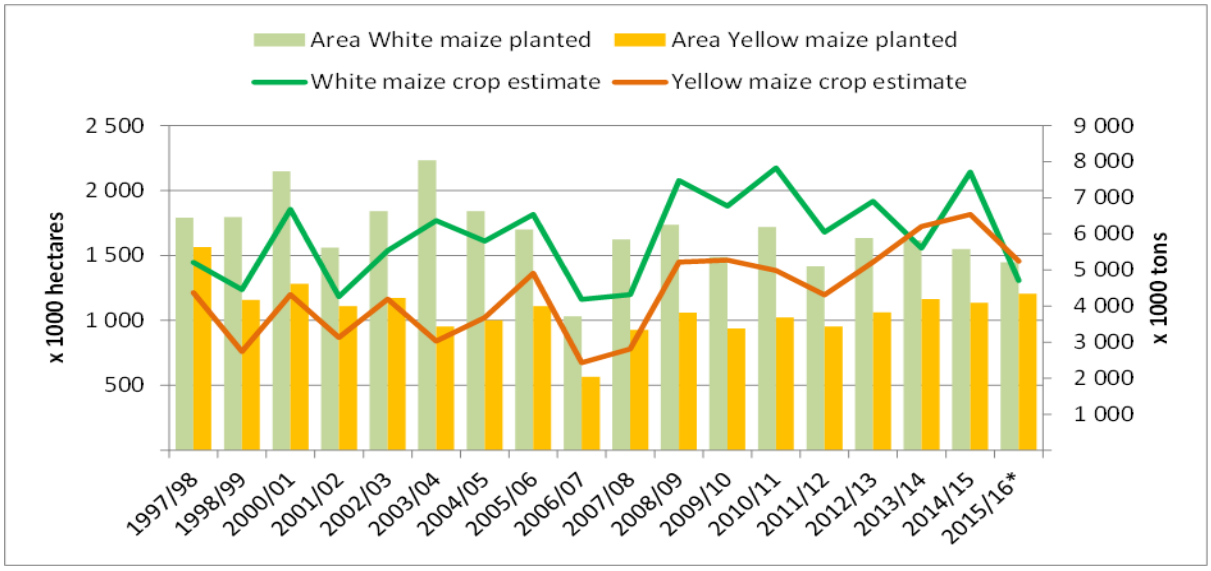
The summer grain producing regions experienced exceptionally challenging weather conditions in 2015, causing yields to fall to decade lows, with the greatest impact in the Free State and North West provinces where more white maize is traditionally produced. Low domestic supply, combined with limited surplus markets for potential white maize imports have pushed prices up sharply. Sufficient supply of yellow maize in the global market prevented prices from increasing to the same extent.

Consequently, white maize is trading at a substantial premium to yellow maize. While considerable growth is projected in the animal feed sector which traditionally relies on yellow maize, the market for human consumption is expected to remain stagnant and the premium is not projected to remain in the longer term, resulting in a continuation of the declining trend in white maize plantings. Nevertheless, a return to normal weather conditions will see South Africa remaining a net exporter, as growth in yields is expected to be sufficient to ensure ample supply for human consumption.[15]

The planting and production trends for the last 15 years are revealed in the figure below.

[15] BFAP, 2015

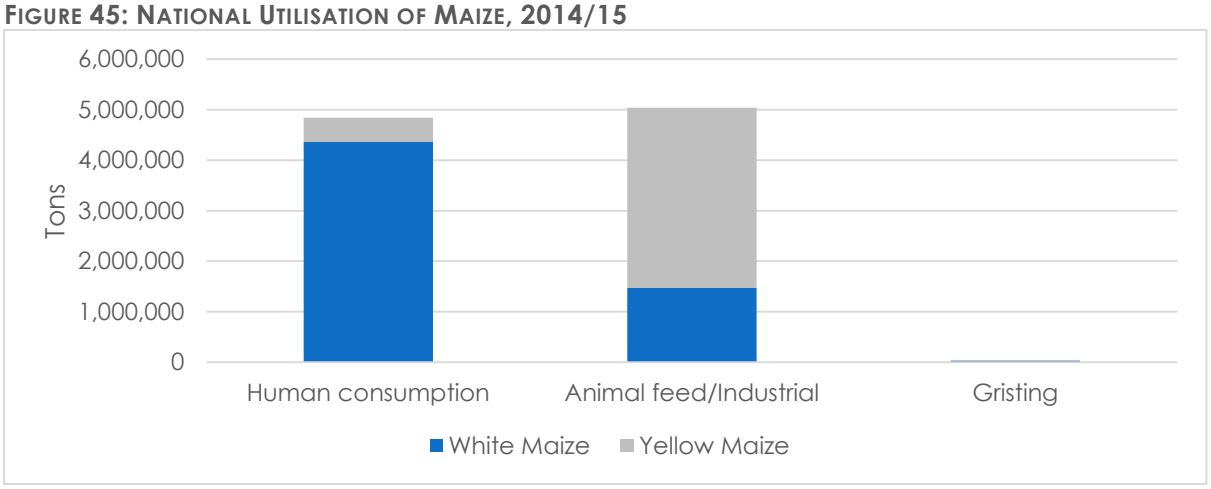
FIGURE 44: NATIONAL PLANTING AND PRODUCTION TRENDS



Source: Grain SA, 2015

The following figure provides an overview of the utilisation of maize that was processed for the local market in 2014/15.

FIGURE 45: NATIONAL UTILISATION OF MAIZE, 2014/15

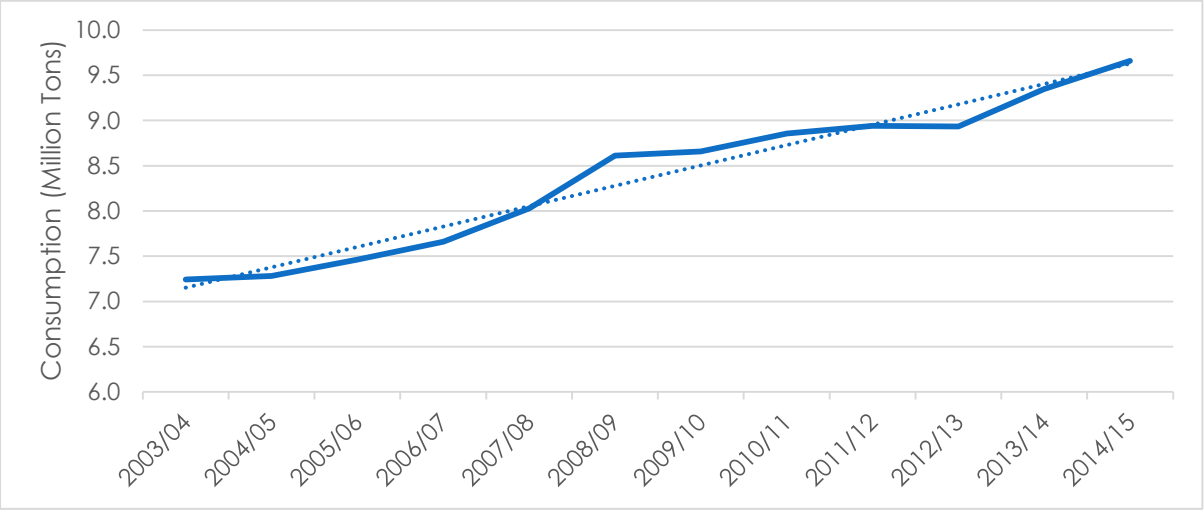


Source: South African Grain Information Service, 2015

The majority of maize (50.8%) is utilised for animal feed or industrial uses, while 48.8% is utilised for human consumption (maize processed for drinkable alcohol included). Only 0.5% of maize was utilised for gristing and no maize was utilised for biofuel. The majority of white maize was utilised for human consumption, while the majority of yellow maize was utilised for animal feed or industrial uses.

The following figure shows the total commercial maize consumption in South Africa between 2003/04 and 2014/15.

FIGURE 46: TOTAL COMMERCIAL MAIZE CONSUMPTION, 2003/04 – 2014/15

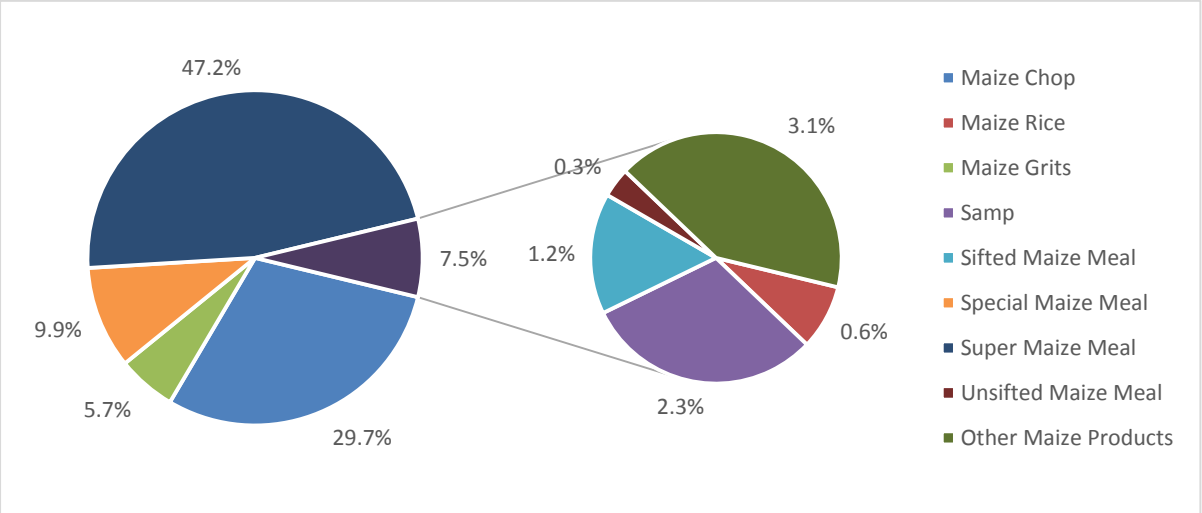


Source: DAFF, 2015

South Africa has seen a steady increase in the amount of maize consumed with an average increase of 2.9% per annum between 2003/04 and 2014/15. In 2014/15, a total of 9,659,000 tons of maize was consumed.

The following figure indicates the breakdown of the various maize products manufactured per month based on the average between July and September 2015.

FIGURE 47: BREAKDOWN OF MAIZE PRODUCTS MANUFACTURED PER MONTH



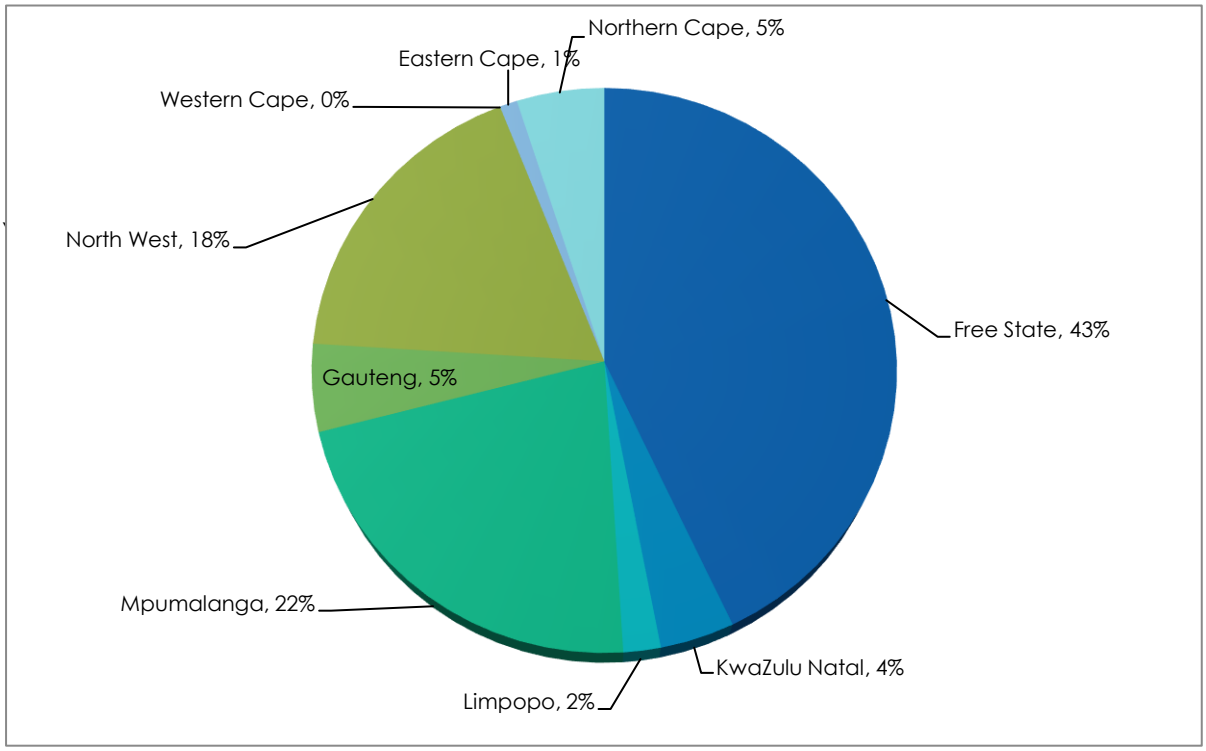
Source: South African Grain Information Service, 2015

The top maize products manufactured are Super Maize Meal (47.2%), Maize Chop (29.7%), Special Maize Meal (9.9%) and Maize Grits (5.7%).

The production of maize takes place all over South Africa with Free State, Mpumalanga and North West provinces being the largest producers, accounting for approximately 83% of total production. Almost 90% of maize in South Africa is produced under dry land condition, along

with 10% being produced under irrigated conditions. There are 36 grain production regions in South Africa. Figure Diagram 6.1 reflects the distribution of maize production in South Africa.

FIGURE 48: MAIZE PRODUCTION BY PROVINCES 2012/13



Source: Profile of Maize Market Value Chain, 2014

Over the last six years, there has been considerable fluctuations in the total maize production has in all the maize producing provinces. Maize supply consists of maize harvested during that particular season, imports, as well as carryover stocks from the seasons before. Commercial agriculture supplies about 98% of maize in South Africa, while the remaining 2% is produced by the developing agriculture (whilst this figure is somewhat misleading as a significant proportion of smallholder farmer crops are used for homestead food supplements and do not get to the market)

Over the past ten years, maize total production has significantly fluctuated, with the lowest production experienced during the 2005/06 and the highest in the 2007/08 production season. In 2014 the crop amounted to 15 million tons harvested from approximately 3 million ha planted.

A comparison of the maize production and consumption, as well as the total area planted is conducted in the table below.

TABLE 36: TOTAL COMMERCIAL MAIZE AREA PLANTED, PRODUCTION AND CONSUMPTION (2004 – 2014)

Marketing Year	Maize: Total area planted	Maize: Total production	Maize: Human consumption	Maize: animal feed & other uses
	'000 ha		'000 tons	
2003/04	3 017	9 732	3 712	3 416
2004/05	3 185	9 391	3 740	3 740
2005/06	2 843	9 482	3 825	3 360
2006/07	2 032	6 947	3 816	3 767
2007/08	2 897	7 339	3 809	4 221
2008/09	3 297	13 164	4 524	4 088
2009/10	2 896	12 567	4 471	4 187
2010/11	3 263	13 421	4 513	4 344
2011/12	2 859	10 924	4 500	4 395
2012/13	3 141	12 468	4 460	4 440
2013/14	3 238	14 982	4 499	4 736

Source: Profile of Maize Market Value Chain, 2014

The table above shows that South Africa meets its annual maize consumption requirements entirely from domestic production. This is the result of implementation of more efficient production technologies and practices by producers, the withdrawal of marginal lands from production and the development of high yielding maize cultivars. South Africa produces enough maize to export its surplus to other countries. With regards to consumption, human consumption takes half of the maize consumed domestically (50%) while the remainder is processed for animal consumption (40%) and other industrial uses (10%).

As maize is an internationally traded commodity, it is also subjected to the international market conditions. The demand and supply conditions of maize in the international market influence domestic prices directly. Another important factor that impacts on the domestic market is the import tariff, which is used to protect domestic producers from lowly priced maize imports. Whilst prices have generally been on an increasing trend over the past decade, it has also fluctuated substantially in aligned to supply and demand issues. The lowest average maize producers price was recorded in 2004/05 (R513/ton) and the highest was recorded in 2011/12 (R2144/ton).

Marketing channel	Description	Volume	Advantages	Challenges	Priority & gaps/opportunities
Silos and large regional service cooperatives and farmer support businesses (often originally started as cooperatives e.g. Senwes, Afgri etc.)	Farmer sells maize to the local branch of a large cooperative/agribusiness and/or store it at the local silo, often by forward contract. Silos are usually operated by these extensive farmer support businesses (although grain millers or other processors may also operate silos, usually at their own facilities). Some also operate their own grain mills, feed and intensive animal production units, oil crushers, abattoirs and other business units, however, for the purposes of this marketing channel classification those are considered separate channels. Although silo companies may buy and market the product themselves, they often do not buy the maize, but only store it, release a certificate to the farmer indicating the quantity of product stored, then the farmer may sell that certificate to another buyer who then present the certificate to the silo to receive the grain.	48	• Easy way to sell maize. • Provide services such as cleaning, grading, blending and drying of the maize, safe storage, marketing and transport (loading onto trucks or rail). Some also assist the farmer to trade on Safex. • The stored maize may be used by the farmer (who store it there) as collateral to obtain loans.	• Storage may be expensive. • Not an optimal channel if the farmer has sufficient negotiation and business skills to engage in more lucrative marketing channels (especially Safex). • Prices highly sensitive to international price fluctuations and production figures of the current season.	• Very high priority • Ease of access and low barriers of entry. • Throughout the district a silo is within reasonable distance.
Grain, oilseed, milling by-product and other commodity crop traders	These traders buy grain, oilseed and milling by-products such as chop, bran and oilcake from farmers or processors and distribute it to grain millers, oilseed crushers, animal feed producers or	15	• Maize is usually the main focus. • Traders often fetch the commodity on farms therefore no transport is needed.	• In case the harvested maize volume is too small (smaller than a truckload), traders might be reluctant to fetch it on the farm.	• Low priority during later phases when the farmers are well established. • This channel pays relatively low prices.

Marketing channel	Description	Volume	Advantages	Challenges	Priority & gaps/opportunities
	intensive animal farmers producing their own feed etc. Farmers usually sign a forward contract. They usually act as exporters of grain, including maize.		• Some commodity traders close forward contracts with farmers, and some act as Safex brokers, therefore enable farmers to engage in futures and options markets as well.	• In this case a solution for a small farmer might be to deliver to the nearest silo, where the trader could still become the owner of the maize. • Prices highly sensitive to international price fluctuations and production figures for the season.	• During the initial phase traders may be a convenient channel to sell to.
Futures and options contracts (SAFEX)	Trading platform operated by the Johannesburg Stock Exchange. Farmer agree to sell an agreed upon quantity and quality of maize for a specified price and on a specific date in the future.	5	• Allows the farmer to minimize price risk, i.e. protection from unexpected price fall in the future. • Price information is openly available and often perceived as fair. • Ideal when the farmer produces in sufficient quantities and has the business skills and knowledge to trade in this sophisticated market. • Farmer does not need to trade him/herself - a reliable broker may be appointed.	• Require capital and strong financial and trading skills to trade successfully in this market, except if a broker's service is made use of. • Administrative procedures could be burdensome. • Prices are highly sensitive to international price fluctuations and global competition. • Legal consequences may arise in case the farmer cannot supply as per contract.	• Low priority • High risk profile. • Farmers interested in the financial markets may be encouraged to trade on Safex, but risks remain high.
Grain millers	Sell to grain millers, often by forward contract. The miller may take ownership of the maize, or	6	• Could generate immediate cash.	• Most millers, especially large millers, do not buy directly from farmers	• Low priority.

Marketing channel	Description	Volume	Advantages	Challenges	Priority & gaps/opportunities
	could only mill the maize on behalf of the farmer then the farmer can sell the milled product via various other marketing channels. Milling companies are often owned by other forms of agri-businesses involved in the grain value chain.		• Some grain mills are reliable, consistent buyers of maize.	because of storage restrictions (neither farmer nor miller has much storage capacity), traceability requirements • Difficult task to deal with many farmers individually. • The few millers that do buy directly from farmers generally do not provide transport or other forms of support to farmers. • Prices are highly sensitive to international price fluctuations and competition.	• Local millers usually don't buy directly from farmers.
Animal feed manufacturers incl. larger animal farmers who produce their own feed formulations	Sell to animal feed manufacturers or animal farmers who produce own formulated feed, often by contract. Maize are the major ingredient in feed formulations for most animals including feedlot cattle, piggeries and poultry farms.	26	• Strong and consistent demand.	• Better prices may be negotiated via other channels, especially for better quality produce.	• Very high priority. • There are a number of potential buyers in or nearby the districts, and this channel may be a means to reduce transport costs.

*The volume is an estimated percentage of total production sold through this channel.

8.3.1.2 Global Markets

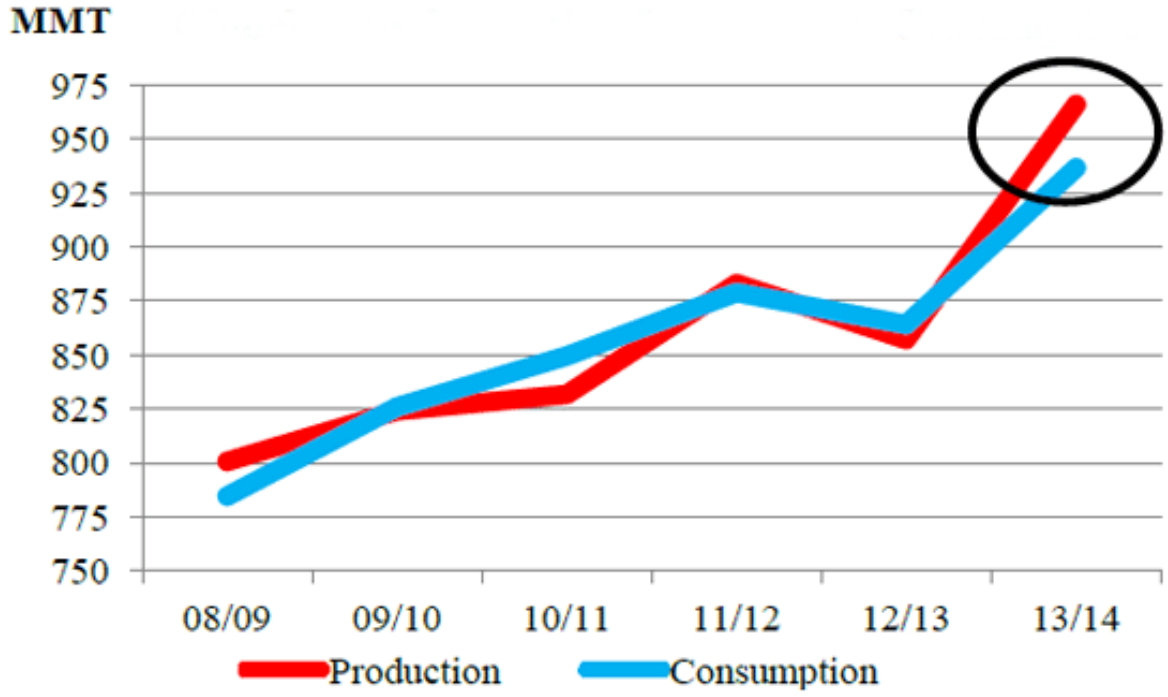
8.3.1.2.1 *Production and Consumption*

The global overview highlights key trends within the maize market and extrapolates the consumption and production volumes globally. This also taking into account the imports and exports from countries internationally.

The International Grains Council (IGC) expects world total grain production to reach 1 988 million tons by 2015/16 and consumption to reach 1 985 million tons during the same period. Opening stocks for world grains are also expected to be higher than in previous years. In real terms, the FAO (2015) expects prices for all agricultural products to decrease over the next ten years. Locally, plantings for white maize are expected to decline by 45 000 hectares in the 2015/16 season. The total area under wheat is expected to remain relatively stable in 2015 on the back of support from the variable import tariff.

This figure below illustrates the total production and consumption for maize worldwide from 2008/2009 to 2013/2014.

FIGURE 49: GLOBAL MAIZE PRODUCTION & CONSUMPTION (MILLION METRIC TONS), 2008/9 - 2013/14



Source: the Cropsite.com, 2015

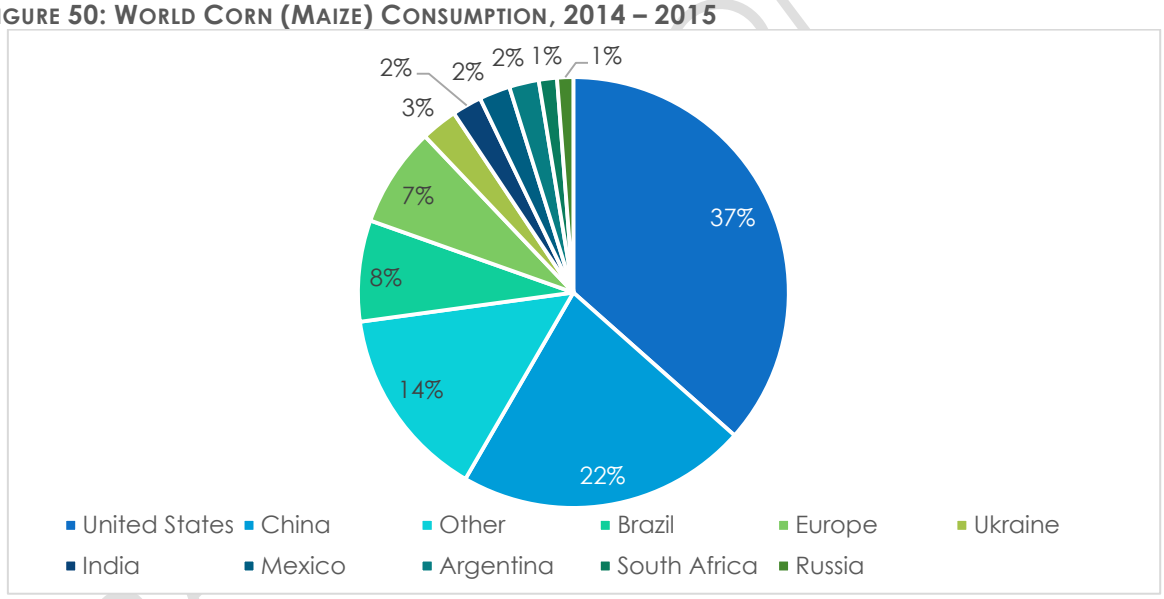
Production (Red) increased in the region of 800 to 825 million metric tons (MMT) between 2008/9 and 2009/10 and thereafter levelled out until 2010/11, whereupon a substantial increase of 60 MMT was experienced up until 2011/12. Since then production has slumped to

855 MMT in 2012/13, recovering strongly to new heights in 2013/14 where production reached 970 MMT. The total increase in production amounted to 21.3%, this means an average annual growth of 3.9%.

Approximately 785 MMT of maize were consumed in total worldwide in 2008/9, this has increased uniformly to 875 MMT in 2011/12, declining rapidly to 870 MMT in 2013/14. Production growth over the period was 20.5%, slightly less but on par with production, average annual growth of 3.8% was experienced throughout this 5 year period which is also slightly slower than production. The overall analysis of this commodity globally reveals and oversupply, however due to silos being capacitated to hold large quantities of grain, the excess production can be stored where drought and famine may be imminent, such as the circumstances currently experienced.

The figure below illustrates the extent to which maize is produced per country, globally.

FIGURE 50: WORLD CORN (MAIZE) CONSUMPTION, 2014 – 2015



Source: USDA, FAS Grain, 2015

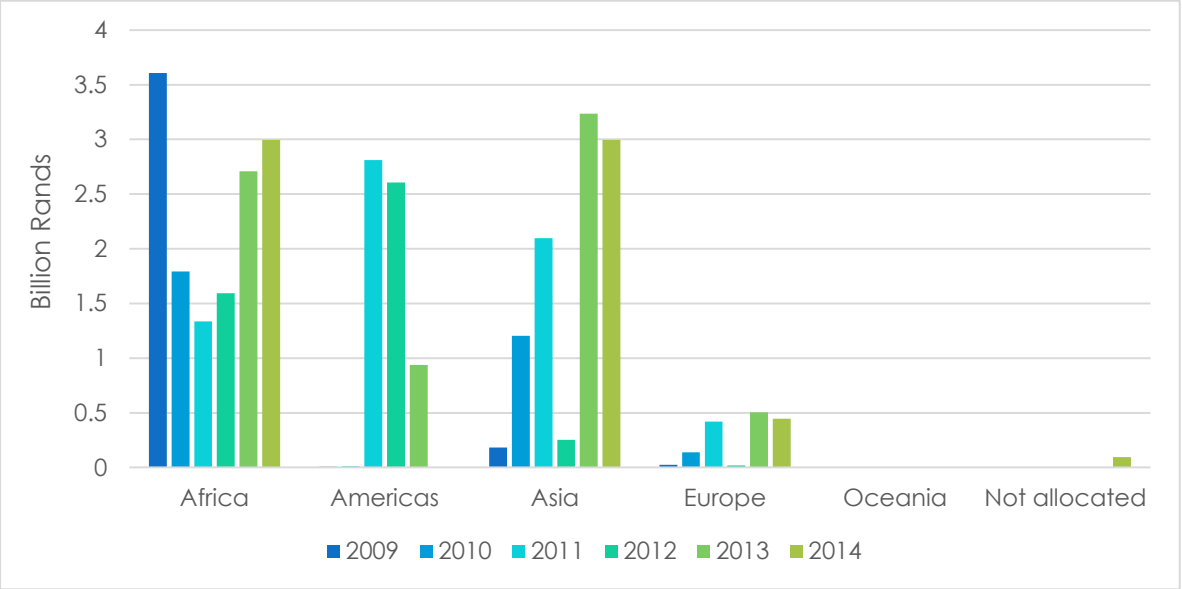
According to the global production statistics the figure above in 2014/15, the United States of America (USA) was the largest producer of maize (37%) followed by China at 22% and Brazil representing 8%. South Africa managed to produce only 1% of the maize produced globally.

Exports

The export market is one of the largest contributors to the sustainability of large and small maize producers, without export the profitability of this industry would be crippled and unemployment rates would climb.

The figure below defines the value of maize exported from South Africa to the rest of the world.

FIGURE 51: MAIZE EXPORTED FROM RSA, 2009 - 2014



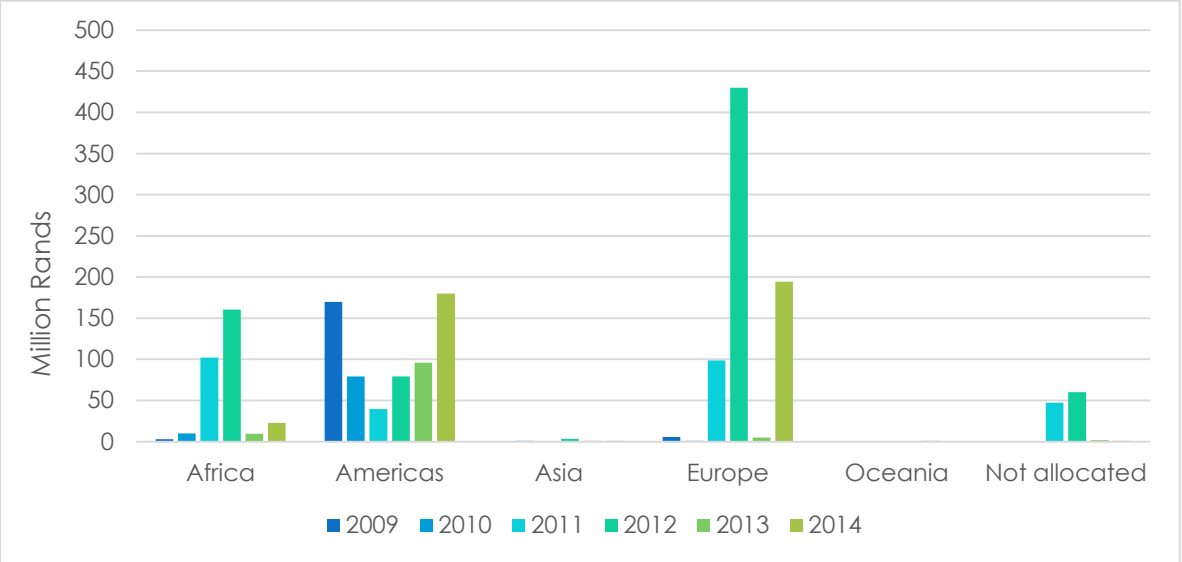
Source: Quantec, 2015

Illustrated in the above figure; the majority of maize exports during 2014 from South Africa are exported to the rest of Africa and Asia, both constituting 46% of exports singularly and jointly 92% of total exports. Additionally there seems to be an inclining trend in Africa, Asia and to a lesser degree Europe (6.8%), although America has been recipient to a substantial share of exports in 2011 and 2012, this quantity is almost completely depleted in 2014. Asia continues to import South Africa's maize at an increasing rate, with an average increase of 75% per annum between 2009 and 2014. Overall South Africa has performed well and exports have remained fairly stable over the past 5 year period.

Imports

While imports may be viewed in a "poor light", imports are necessary where production or supply does not meet demand. Imports are not necessarily a negative component of trade, it is merely simple economics that our maize industries export to the highest bidder and we are able to import at a lower price than exports, the net result is that South Africa will benefit a reduced trade deficit which will ultimately allow for greater employment creation and economic development within the country.

FIGURE 52: MAIZE IMPORTED TO RSA, 2009 - 2014



Source: Quantec, 2015

Depicted in the figure above, the majority of all imports during 2014 originated from Europe and America, comprising 49% and 45% respectively of the value of total imports, jointly accruing to 94%. Imports from America, Africa and Europe are small in comparison to exports, thus South Africa maintains its status as net exporter of the maize commodity. It is noted that the import of maize is cyclical in that every two years, maize is imported in vast quantities, and this is due to crop seasonality and harvesting. Imports have also reduced between 2012 and 2014 particularly due to the oversupply in local maize production in 2014.

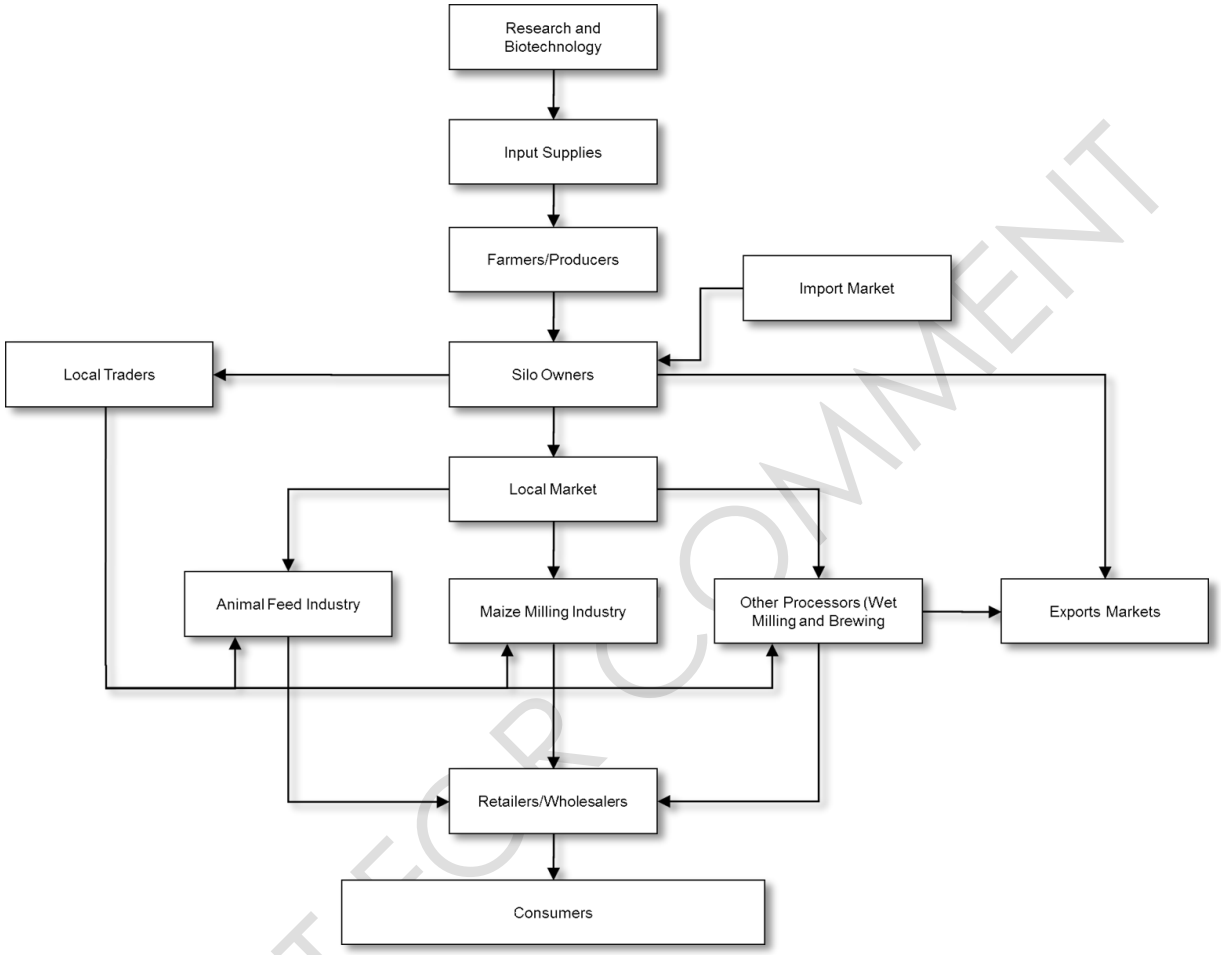
8.3.2 Value chain assessment

The following section diagrammatically represents and provides an analysis of the maize value chain. The opportunity analysis will identify potential opportunities within the value chain. The development of sustainable supply and value chains in the maize sector from production through processing to markets is important.

The Harry Gwala District is suited for maize 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.

Maize is a significantly important commodity in SA. Favourable climate and natural resources are suited for maize production in the region. Most of the production of maize in the province is geared toward the local market in Gauteng, given that it is SA's largest market. The value chain for maize production is indicated in the figure below.

FIGURE 53: MAIZE VALUE CHAIN



Source: Urban-Econ, 2015

The value chain represents all upstream and downstream opportunities for the broiler production industry in a local context, where various value adding activities take place and multipliers can be applied. The value chain is detailed further within this chapter.

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.

Upstream activities

Since maize production is classified as primary production, the upstream activities relevant to the value chain are primary input suppliers used in the production system. The major inputs for maize production include seed, fertiliser, chemicals for weed, pests and disease control,

machinery and equipment, as well as knowledge. Most of these inputs are supplied by agricultural organisations/entities in the respective areas. The main industry role-players include the likes of:

- SENWES
- Obaro
- NWK

Primary production activities

Maize grows on a great variety of soil types, however, deep, naturally rich, easily tilled soil is preferred. The soil should be free from restrictive layers (hardpan) and soils with a pH of lower than 4,5 should be avoided or can be corrected by the application of lime. The most suitable soil type for maize production is a soil with a good effective depth, favourable physical properties (especially texture and structure), good internal drainage, an optimal moisture regime, sufficient and balanced quantities of plant nutrients and chemical properties.

Climatic requirements: The critical temperature, which, if exceeded, is detrimental to yield is 32°C. Flowering occurs best at temperatures ranging from 19 to 25°C. Frost can damage maize at all growth stages and a frost-free period of 120 to 140 days is required to prevent damage.

Rainfall: Annual rainfall of 500 to 750 mm or more is required for adequate moisture. Water deficiency is usually the most yield-limiting factor where efficient maize cultivation practices are applied. A yield of 3 152kg/ha requires between 350 and 450 mm of rain per annum.

Cultivars: There are many registered cultivars within seed companies that are adapted to various maize producing areas of the country. The most important characteristics which are of assistance in cultivar selection include yield potential, length of growing season, lodging, tilling, prolificacy and percentage grain moisture. To fully utilise these different aspects, it is important that the producer be familiar with the positive and negative properties of each cultivar. For this reason, additional information regarding cultivar characteristics, long-term yield data and relative yields is made available to the producer, by either public or private agents.

Propagation: Maize is propagated from seeds. Soil preparation requires a deep, firm seedbed, free of clods, trash and surface irregularities should be prepared, either in the spring, or preferably on moderately heavy to heavy soil, in the autumn and left rough over winter, thus allowing be working and planting in spring. Soil should be worked and disked about 3–4 weeks before planting, thus allowing for partial decomposition or organic material.

Fertilisation: It is of the utmost importance that the correct soil sampling methods be used when submitting samples for laboratory analysis. Recommended sampling methods to be used are

available in the "Fertiliser Guidelines for Maize". Recommendations supplied by the institute should be strictly adhered to, to obtain the required results in the field.

Planting: Generally, broad optimum planting dates are as follows: for the cooler eastern producing areas, from the beginning of October to the first week of November, for the central regions from the last week in October to mid-November, for the drier western areas from the last two weeks in November to mid-December. Planting depth of maize varies from 5 to 10 cm, depending on the soil type and planting date. Generally, planting should be shallower in heavier soils than in sandy soils. If plantings are made early, it can be shallower.

Commodity Organisations

- The National Maize Producers' Organisation (NAMPO) is the representative body for farmers, which promotes their interests at all levels
- The Technical Advisory Forum represents all directly affected groups in the marketing of maize and maize products
- The Board of Trustees of the Maize Trust ensures that the income derived from the assets in the Trust is utilised according to the objective of the Deed of Trust but to the benefit of the entire industry
- SAGIS administers the information function
- The function of providing information on maize is currently performed by the South African Grain Information Service (SAGIS).
- Research is financed with income from the Maize Trust and is undertaken by the ARC, CSIR and other research organisations.
- Grain SA, formed by NAMPO

Downstream activities

Downstream activities include agro-processing activities, covered in section 8.2.3

8.3.3 Agro-processing opportunities

In light of the fact that South Africa has remained a net exporter of maize for several seasons and is projected to remain in a net exporting position over the coming decade, BFAP recently undertook a study for the Maize Trust related to the potential of the domestic value chain to grow and diversify the production of value added goods. Traditionally, leading maize consumers such as the United States exhibit greater diversity in the consumption structure, whereas in South Africa, the bulk of maize is utilised as animal feed (38.4%) and food (36.1%)

products. Exports accounted for 17.3% of the 2013/14 maize crop in South Africa, with the balance of 4.6% being utilised in the production of starch and glucose (Figure 4.5).

In the United States, biofuel production (38.2%) and animal feed (37.5%) accounts for the bulk of the domestic market, with exports accounting for 14.3% of domestic production. The remainder of the stock is used to produce products such as: starch, glucose and dextrose (3.9%); high-fructose corn syrup (3.6%); food and cereal products (2%) and alcohol for beverages and manufacturing (1%). Although the United States is a highly developed economy, the diversified nature of U.S. maize consumption raises the question of whether the South African maize value chain is optimally developed.

South Africa's potential to add value to the currently exported surplus maize through the expansion of the food, animal feed, ethanol, maize starch and glucose-fructose syrup markets reveal the potential tonnage that could be added to the various marketing channels as follows:

- Exports: BFAP projects that maize exports will decline from 2.23 million tons to 1.96 million tons between 2013/14 and 2023/24. The main driver of this reduction is that growth in domestic demand for maize (especially yellow maize) will marginally outpace production growth.

- Feed consumption: Rising demand for animal based products is projected to drive feed demand growth by 2.3 million tons from its current level of 4.8 million tons to just over 7 million tons between 2014/15 and 2023/24. Assuming that 370 thousand tons of dark poultry meat imports could be substituted by 370 thousand tons of white poultry meat exports, a further 410 thousand tons of maize could potentially be consumed by the South African poultry industry.

- Food: Due to the limited growth in the demand for maize-based food products, BFAP estimates that food consumption will continue to trend sideways over the next decade, only expanding by 90 000 tons by 2023/24.

- Starch and glucose: Assuming the country utilizes the available 20% wet-milling capacity, a further 150 000 tons of maize can be used in the production of starch and glucose products.

- Glucose-Fructose Syrup (GFS): Industry sources indicated that between 350 000 - 400 000 tons of sugar is consumed by the South African beverage industry. Under the

following assumptions, BFAP estimates that 581 000 tons of maize can be consumed should GFS replace 350 000 tons of sugar in the domestic beverage industry:

- 1 ton of GFS replaces 1 ton of raw sugar, based on the perfect rate of substitution observed in the US between 1977 and 1988 (USDA ERS, 2015),
- 1.66 tons of maize is required to produce 1 ton of GFS (Gray, 1991).

- Ethanol: Maize is currently excluded as a feed stock within the South African Biofuels Industrial Strategy (BIS) due to food security concerns. Until such time that maize is included as a production crop in the BIS, it is not possible to legitimately produce maize-based ethanol in South Africa and the potential market space is therefore nought.

- Total Potential: In light of the above, the total additional space in the domestic market for maize in 2023/24 is estimated at 3.46 million tons (excluding the potential 410 000 tons that could be consumed under a poultry export scenario).

The following are possible value adding opportunities that may be considered,

- Milling and maize meal
- Packaged popcorn
- Popped maize cakes
- Reconstructed maize chips
- Starch
- Corn steep liquor
- Glucose and Glucose-Fructose Syrup (GFS)
- Fermented beverages
- Ethanol
- Animal feed

Opportunity for storing (silos), milling (animal feed and maize meal for human consumption) and processing to various alternative produce. Packaging, transporting and branding are important requirements. Require sufficient supply - economies of scale. Require high level management capacity.

8.3.4 Main input suppliers

Suppliers such as Monsanto, Sensako and Carnia are the main suppliers for seeds in South Africa, as well as companies such as Panner and Pioneer Hybrid International. The main suppliers supplying the following inputs are considered:

- Seed
- Lime
- Pesticides and herbicides
- Fertilizer
- Inoculants
- Farming Equipment

8.3.5 Competitors

Some of the main competitors in the maize industry can be listed as follows (Agri-handbook):

- ABC Africa Group
- AFGRI
- Buhler
- Kaap Agri Ltd
- NWK
- Senwes Ltd
- Suidvest Grain
- VKB

There are currently no serious competitors that are specifically located within the Harry Gwala District. Competition seems to be situated predominantly around the North-West Province or "Maize Triangle".

8.3.6 Technology

Advances in technology have progressively made it easier for agricultural role-players to access information such as weather and market information, increase production through mechanisation and advanced fertilisers, develop artificial environments and store perishable products for longer periods of time. Access to such technologies are a significant determinant of the competitive nature of businesses, with the most technologically advanced businesses often being the more competitive operations.

As such, it is important to consider technologies that could enhance the competitive nature of producers within the Agri-Park programme. The below table lists and provides a description of various technologies that are likely to enhance the capabilities and competitive nature of producers within the programme.

The following table lists and provides a description of vegetable specific technologies that can be used for the purpose of maize production.

TABLE 37: TECHNOLOGY AVAILABLE FOR MAIZE PRODUCTION

Technology	Benefits to the farmer
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

Technology	Benefits to the farmer
	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: 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 Grain Management Software Program with Grain Management System: Software that allows for total management of a grain farming enterprise, from production to finance and human resource management.	Integrates with other Plan-A-Head farming software to allow for whole-farm enterprise management. Widely adopted therefore most software bugs has already been fixed. Particular strong features include the program's mapping, payroll and financial management capabilities.
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.
Saaiplan: Software that facilitates comprehensive planning, monitoring and record keeping at field level for field crop enterprises.	Could serve as a base for precision agriculture.
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.
Wind energy: Wind energy has been used for a long time in South Africa in the form of wind pumps. New generation wind	Wind is a renewable form of energy and some areas in South Africa do have sufficient wind development potential,

Technology	Benefits to the farmer
technology allows for uses beyond wind pumping, including electricity generation at micro or farm level scale.	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.
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).
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.
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.
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.
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.

Technology	Benefits to the farmer
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.

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

8.3.7 Socio-economic (job creation)

Labour input is a key element of the production process and one of the main production factors in any economy. The table below displays the Sectoral labour multipliers applicable to the maize industry, i.e. the number of the job opportunities created at different levels for every additional R1-million production.

TABLE 38: MAIZE POTENTIAL EMPLOYMENT

Sector	Direct	Indirect	Direct + Indirect	Induced	Total
Maize	0.01	0.005	0.015	*	*

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

Direct Multipliers

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.

Indirect Multipliers

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.

8.3.8 Contribution to food security

Food security, also a major objective of the Agri-Parks 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 Agri-Parks contributes positively to issues of food security.

Growing the local maize industry within the Harry Gwala District 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 the table below.

TABLE 39: ESTIMATES FOR INCOME PER HECTARE OF MAIZE PRODUCTION

Maize	
Multiplier	0.015
Avg. Annual Income (Rands)	31,680.00
Approximate Income generation per hectare (Rands)	475.20
Portion of income spent on food (65%)	308.88

Given a total employment multiplier of 0.015 for every additional hectare of maize under production, it is estimated that income generated is approximately R475 (table above), 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 maize under production R752 would be spent on food for every job created.

8.3.9 Regulatory requirements

The various other acts and policies which also apply to the maize industry are included in the table below.

TABLE 40: POLICIES FRAMING THE MAIZE INDUSTRY

Act	Description
Agricultural Product Standards Act, 1990 (Act No. 119 Of 1990)	This act aims to standardise quality norms for agricultural and related products by establishing the criteria for such norms and distributing the information to all interested parties. These criteria may include the quality, packaging, marking and labelling as well as the chemical composition and microbiological contaminants of the products. This relates to any commodity of vegetable or animal origin. **Implication for the Agri-park:** The Agri-park must ensure that all maize products produced comply with the various criteria in order for products to be 100% compliant.
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 (DAFF, 1947). **Implication for the Agri-park:** The Agri-park 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 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.
National Water Act, 1998 (Act No.36 Of 1998)	This act encompasses laws relating to water resources and the use thereof (Department of Energy, 1998). **Implication for the Agri-park:** The Agri-park must ensure that water used is used in a sustainable way to ensure the sustainability of the nation's water resources.
The Food Safety Management System FSSC 22000 Certification	The FSSC 22000 Food Safety System Certification provides a framework for effectively managing your organization's food safety responsibilities. FSSC 22000 is fully recognised by the Global Food Safety Initiative (GFSI) and is based on existing ISO Standards. It demonstrates your company has a robust Food Safety Management System in place that meets the requirements of your customers and consumers (FSSC 22000, 2015). **Implication for the Agri-park:** By complying with the Food Safety Management System FSSC 22000 Certification the Agri-park is ensuring that it products meet required standards thus meeting requirements of both the customer and consumer.
Hazard Analysis and Critical Control Points (HACCP)	HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to

Act	Description
	manufacturing, distribution and consumption of the finished product (U.S. Food and Drug Administration, 2015). **Implication for the Agri-park:** By ensuring that food safety requirements are met the Agri-park is taking into account the needs of both the customer and consumer as well as enabling a safe and hazard free work environment.
Basic Conditions of Employment Act, 1983 (Act No. 3 Of 1983)	The act encompasses those regulations associated with fair labour practices (Department of Labour, 1983). **Implication for the Agri-park:** The Agri-park 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.
Municipal By-Laws and Regulations, where relevant	Municipal by-laws will need to be investigated with regard to the establishment of the vegetable processing facilities in a municipal area. **Implication for the Agri-park:** The Agri-park will not be able to operate vegetable processing facilities unless any by-laws are met.
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 (DAFF, 1968). **Implication for the Agri-park:** The Agri-park should establish a programmes that will manage the marketing of its own products in order to 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 Agri-park:** The act indicates that the Agri-park 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 (Fencing Act, 1963). **Implication for the Agri-park:** The Agri-park 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 (DAFF, 1963). **Implication for the Agri-park:** The Agri-park 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 (DAFF, 1983c). **Implication on Agri-park:** In the event of export, it is imperative that the AP establishes and maintains control over the export products. It is the

Act	Description
	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 (DAFF, 1992b) 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 Agri-park:** The Agri-park 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 (FAOLEX, 1966). **Implication for Agri-park:** The Harry Gwala Agri-park management should provide a service to its producers in the way of easing access to credit. The Agri-park 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. **Implication for Agri-park:** Funding is a fundamental cornerstone to the development of the Agri-park and its stakeholder. The Agri-park management should play an intermediary role in accessing and use of such funding.

8.3.10 Substitute products and services

Substitutes are products that can replace the product that is grown or produced for use or consumption as a result of changed conditions. 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 increases, the price of another good is increased. The table below lists and describes potential substitutes for maize and maize products.

Maize, in many cases, is a staple household item and consumed on a daily basis, particularly in low income households. As such, maize is not easily substituted with other staples for various

reasons including the price of alternatives and nutritive quality. As household income increases, however, maize becomes more easily substitutable as consumers have access to a greater variety of food items.

Substitute maize products Include:

- Vegetable products such as potatoes, amadumbes and sweet potatoes, in particular, are alternatives and potential substitutes to maize meal.
- Other grains & cereals/beans such as lentils and various other grains such as rice have great potential to be substitutes for maize meal depending on price and nutritive quality.

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 staples, rather than more expensive staples.

A producer of maize would be able to change production given that land has the capacity to produce a variety of products. As such, producers should be aware of market conditions and change production plans accordingly.

8.3.11 New entrants/ Potential Entrepreneurs (B-BBEE)

Annexure 2 provides a list of potential entrepreneurs and emerging farmers that could potentially participate in the Agri-parks programme within the Harry Gwala District.

8.3.12 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 the growing influence of demographics, especially with respect to societal and cultural trends. As such, it is important that the Agri-Park positions itself to take advantage of such trends by meeting the demands of society through the processing of relevant products. The following, vegetable specific, cultural and societal trends have been identified and described.

Rising incomes: 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 maize products (or convenience foods as described below).

Staple household item: Maize meal (the major ingredient for what is popularly known as pap in South Africa) is one of South Africa's main staple food items, as is the case within many emerging markets. Increasingly, maize meal is being fortified with essential macro- and micronutrients in order to increase the nutritional quality of the products, given that it is a staple in many households. In addition, maize meal is a cheaper alternative to most staples and food items.

Organic Products: A new-age trend for organic products has resulted in the increased production of organic foods. The increasing demand for organic foods is a result of consumer perception that organic is healthier, more sustainable and less chemical residue is left on the product.

GMO: Most consumers are uninformed with respect to genetically modified foods and are often not aware that they may be eating GMO's. In many cases consumer attitudes and perceptions of GM food products are fears, concern for, and avoidance of the new technology as a result of the negative connotations attached to the foods.

Maize beer (Umqombothi): The traditional South African beer used as a celebratory drink is made of several ingredients including maize. There are large quantities of the beer being produced by artisans in in an unregulated fashion which raises health concerns. As, such there is an opportunity to produce the traditional beer under regulated conditions, producing a safer product, on a potentially commercial scale that will satisfy consumer demand.

There is a growing influence of demographics, especially with respect to societal and cultural trends, on the local food industry in South Africa. As such, social and cultural trends as listed and described above should be taken into consideration when considering products that should be produced for local markets. A marketing team that possesses the necessary skills to understand the local market is integral to the Agri-Parks success in accessing local and international markets.

8.3.13 SWOT analysis

The following table summarises the strengths, weaknesses, opportunities and threats for the maize industry within the district:

TABLE 41: SWOT ANALYSIS FOR MAIZE

Strengths	Weaknesses
• Major economic advantages • Highly nutritive products • Contributor to food security • Maize is both a staple food crop and source of income • Fairly good rainfall conditions • Proximity to major market • Land with fairly good soils • Maximal soil usage • Good source of input stockists and other auxiliary services • Readily available market information • Existence of an established value chain • Willingness of public sector to invest	• Shortage of skilled workers • Lack of commercial oriented production • Inadequate storage facilities • Limited expertise in diversification • Poor farming practices • Non-standard of product – limited knowledge of quality standards • Limited irrigation resources/capacity • Lack of good agricultural practice (gap) principles • Small-scale production not very competitive • Lack of access to market • Inadequate working capital • High level of post-harvest losses
Opportunities	**Threats**
• Intensive production • Increasing demand for maize and maize products • Willingness to enter commercial production • Emergence of farmer groups and organisations • Potential linkages with private sector service providers and development partners • Adoption of improved technologies and efficient labour utilisation reduces unit costs of production • Local labelling (food labelling) • Employment opportunities • Cooperative farming (alliances – economy of scale) • Technological advancement • Alliances with government • Increasing demand for flour • Maize can be processed into various products and by-products	• Increasing input costs • Market limitations • Fluctuations/volatility in prices and dependence on prices • Limited bargaining power • Over usage of land leading to depletion of soil • Erratic weather conditions • Competition • Extreme weather conditions (drought, hail, frost) • Pest problems • Disease • Barriers to entry • Food safety issues • Regional competition • Retailer consolidation (preference toward particular producers)

Source: Urban-Econ, 2015

9 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 Harry Gwala District and the product flows for each of the selected commodities.

9.1 Introduction the Agri-park concept

The Agri-park concept consists of four elements, namely: primary production (which consists of small-scale/emerging farmers and commercial farmers), Farmer Production Support Units (FPSUs), the Agri-Hub, and the Rural-Urban Marketing Centre (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 km^2 is considered to be a low density area. The Harry Gwala District is therefore considered an area of low population density with approximately 40 individuals per km^2. Thus, the proposed catchment area for the FPSUs, Agri-Hubs, and RUMCs in areas of low population density are as follows:

- FPSUs catchment area: 30km
- Agri-Hubs catchment area: 120km
- RUMCs catchment area: 250km

The Harry Gwala District has an area of approximately 10 547 km^2 and taking into consideration the proposed catchment areas, as a suggestion, the Harry Gwala will need approximately:

- 4 FPSUs, and
- 1 Agri-Hub.

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.

9.2 Proposed development for Vegetable Production

Production Flow	Smallholder farmers (SHF)	Commercial Farmers (CF)	FPSU	AH	RUMC
Key Role & Function	The core role of the SHF would be the primary production of fresh vegetables.	To provide support to SHF, guidance and training with regards to farming activities.	Input (pre-production) supplies, training and extension support, mechanisation support, local logistics support, limited sorting of fresh vegetables, some packaging, some storage, and processing for local markets, through-put of excess products to Agri-Hubs.	Training and skills development, logistics, Agro-Processing, commodity sensitive storage and warehousing and packaging facilities.	Market intelligence, providing SHF and CF with assistance and processors in managing a multitude of contracts and optimising value chains to become revenue orientated.
Location	All SHF involved in vegetable production within Harry Gwala where primary production is more concentrated. There is potential for approximately 1000ha of land to be put under additional production for vegetables.		Vegetable farmers will be supported by all the FPSU's to be situated in Harry Gwala. It is proposed that the major FPSUs for vegetable production be located in Highflats, Ndawana, Ebutha farm and Kwa Sani LM.	As proposed by the province, the Agri-Hub is to be located at Ebutha Farm in Umzimkhulu LM within Harry Gwala District.	The proposed location of the RUMC is within eThekwini Municipality. This location is proposed on the basis of the following: 1. Accessibility 2. Infrastructure (electricity/ water) 3. Agglomeration 4. ICT 5. Urban environment
Human Resources	SHF currently in the farming of vegetables aligned to the Agri-parks programme and selected by the DRDLR and DARD to be SHF representatives. (DAPOTT farming representatives).	Current staff complement comprises of Directors, Scientists, Researchers, Engineers and Operational Staff.	The FPSU will provide the following HR personnel and facilities; • Agricultural extension officer (2) / support officers; • Local mechanisation centre and workshop with (2) machine operators; • Agronomist (soil testing) (2) • Researchers (2) • Extension officers • Agronomist	The AH will provide the following HR; • Administrative manager (2) • Quality control personnel (2) • Agro-Processing facility operators • Research, Development and Training personnel (2)	The RUMC will provide the following HR; • IT expert/personnel (1) • Administrative manager (1) • Training personnel • Marketing agents (linkage and contract facilitation with wholesalers and retailers. Price sensitive information

			• Seasonal staffs (harvest labour) • Commercial farmers to mentor SHF.		communicated to the AH and FPSU.
Training	SHF to be trained on: • Best farm practices, use of tools and equipment • Market interpretation and ICT. • Extension officers that are conversant with vegetable production • Extension officers through the DAFF can also organise Agri-shows, where training can be provided.	CF to train SHF on vegetable farming through a mentorship programme.	One of the key functions of the FPSU would be to provide the SHF with training and extension support on various farm practices.	Some training would also be required at the hub: • Training of processing staffs on how to handle and operate various processing equipment. • Training on best practices, based on changing demand and supply. • Training on new innovations as they surface.	Training of training personnels on how to disseminate information to the SHF, AH and the FPSU.
Key products/ activities	The core activities are: • Land preparation (land clearing, soil preparation, pest control) • Vegetable farming (planting, fertlisation, disease control, irrigation) • Harvesting of Vegetables • Logistics and packaging		The core activities are: • Collection of fresh vegetables from the SHF • Transportion of vegetables to the packhouses within the FPSU premises • Quality inspections • Cleaning, sorting and grading • Packaging, mainly fresh vegetables for local market and small retail	The core activities are: • Receiving of vegetables including cleaing and sorting from the FPSU; • Further Quality control; • Vegetable Processing into frozen mixed vegetables; • Storage of products ; • Some marketing;	The core activities are: • Collection of final products from the AH • Marketing and distribution of final products to different wholesalers and major retail outlets • Exporting of final products • Bulk storage of final products

			outlets (80% of total production) • Transportation of processed vegetables directly from farm to the AH. (20% of production)	• Transportion of products to RUMC.	
Infrastructure/ Equipment	The SHF and CF may require the following equipments, which can be hired from the FPSU: • Tractor • Bed former • Trailers and bins. • Solid set irrigation equipment • Planter/fertiliser applicator • Fertiliser equipment (spreader) • Spray equipment • Digger/harvester (single and double row) • Windrower, wagons, wheel barrows, carriage ***Note: SHF's smaller tha 2ha in size, joint farming will necessitate support.***		Equipments/infrastructure: • Transport • Vegetable cleaning, sorting, grading, weighing and packaging machines • Local pack house • Processing and sorting facility • Storage facility	Equipment/infrastructure: • Administrative facilities • Rental facilities • Agro-Processing facilities (peeler, slicer, fryer) • Packaging facilities • Quality control facilities • Training centre • Logistics and transport facility	Equipment/infrastructure: • Large warehouses/ holding facilities • Cold storage facilities • Administrative facilities/ information centre • Agricultural input distribution and sales centre • Retail facility
Logistics	SHFs should be organised into groups. Whereby the appointed farmer representatives should report to the FPSU. **Harvesting** : Certain days of the week should be assigned for harvesting of vegetables (weather dependant) during the harvest seasons. Farmers intending to harvest on certain days to notify the FPSU. For SHFs with less than 2ha of land, vegetables to be harvested and collected from multiple SHF's[1]. For farmers with more than		The FPSU should organise for Primary logistics collection centre in the form of pack houses where vehicles would pick up vegetables from various farms and convey it to these packhouses. Cold storage transport should also be arranged for distribution to the various marketing channels and the RUMC. ***Note: some of these transport facilities will be used to deliver farm inputs to the collection centres, after which collective SHFs can collect inputs at the FPSU***.	Transport will be used to collect the vegetables from the FPSU to the AH for processing. Indictating that the transport facilities would serve multiple purposes.	The same cold storage transport will be used for distribution of final products to wholesalers and retailers.

	2ha, harvesting would be done **mechanically**[2] and vegetables to be transported to the FPSU.				
Technology/ ICT	In order to boost their production efficiency, the SHF and CF would require: • Modern tools, • Mobile devices for subscription to Apps. to enable SHFs to receive information from the RUMC on weather forecast, disease control and news updates which may affect crop productivity.		Tracking devices on all vehicles to increase security and prevent misuse. Also, the FPSU would require subscription to certain Apps from the RUMC to remain up to date with commodity prices. ***Note: the same transport facilitities would be used to service all the basic units of the Agri-park, therefore, all the Transportation facilities would have these tracking devices.***	In order to remain conversant with the current prices fetched on the global, national and local market, so as to be able to strategically supply vegetable products to the markets, the RUMC would also require subscription to certain Apps from the RMUC. This will enable the AH to remain informed.	The RUMC will provide an Information Data base that all the various basic units of the Agri-park can subscribe to.
Job Creation (Estimates)	***It is estimated that the Agri-park will provide between 1 360 and 5 460 new jobs (800- 4 200 permanent and 560-1 260 temporary) for vegetable production. Temporary emplomyment can occur during construction.***				

9.3 Proposed development concept of Maize Production

Production Flow	Smallholder farmers (SHF)	Commercial Farmers (CF)	FPSU	AH	RUMC
Key Role & Function	The core role of the SHF would be the primary production of maize.	To provide support to SHF, guidance and training with regards to farming activities.	Input (pre-production) supplies, training and extension support, mechanisation support, local logistics support, some packaging, storage, and processing of maize for local markets, through-put of excess products to Agri-Hubs.	Training and skills development, logistics, Agro-Processing, commodity sensitive storage and warehousing and packaging facilities.	Market intelligence, providing SHF and CF with assistance and processors in managing a multitude of contracts and optimising value chains to become revenue orientated.
Location	All SHF involved in maize production within Harry Gwala where primary production is more concentrated. There is potential for approximately 4 000ha of land to be put under additional production for maize.		Maize farmers will be supported by all the FPSU's to be situated in Harry Gwala. It is proposed that the major FPSUs for maize production be located in Highflats, Ndawana, Ebutha farm and Kwa Sani LM.	As proposed by the province, the Agri-Hub is to be located in Ebutha Farm, Umzimkhulu LM.	The proposed location of the RUMC is within eThekwini Municipality. This location is proposed on the basis of the following: 1. Accessibility 2. Infrastructure (electricity/ water) 3. Agglomeration 4. ICT 5. Urban environment
Human Resources	SHF currently in maize production aligned to the Agri-parks programme and selected by the DRDLR and DARD to be SHF representatives. (DAPOTT farming representatives).	Current staff complement comprises of Directors, Scientists, Researchers, Engineers and Operational Staff.	The FPSU will provide the following HR personnel and facilities; • Agricultural extension officer (2) / support officers; • Local mechanisation centre and workshop with (2) machine operators; • Agronomist (soil testing) (2) • Researchers (2) • Extension officers • Agronomist • Seasonal staffs (labour)	The AH will provide the following HR; • Administrative manager (2) • Quality control personnel (2) • Agro-Processing facility operators • Research, Development and Training personnel (2)	The RUMC will provide the following HR; • IT expert/personnel (1) • Administrative manager (1) • Training personnel • Marketing agents (linkage and contract facilitation with wholesalers and retailers. Price sensitive information communicated to the AH and FPSU.

			• Commercial farmers to mentor SHF.		
Training	SHF to be trained on: • Best farm practices, use of tools and equipment • Market interpretation and ICT. • Extension officers that are conversant with vegetable production • Extension officers through the DAFF can also organise Agri-shows, where training can be provided.	CF to train SHF on vegetable farming through a mentorship programme.	One of the key functions of the FPSU would be to provide the SHF with training and extension support on various farm practices.	Some training would also be required at the hub: • Training of processing staffs on how to handle and operate various processing equipment. • Training on best practices, based on changing demand and supply. • Training on new innovations as they surface.	Training of training personnels on how to disseminate information to the SHF, AH and the FPSU.
Key products/ activities	The core activities are: • Land preparation (land clearing, soil preparation, pest control) • Maize farming (planting, fertlisation, disease control, irrigation) • Harvesting of Maize • Logistics and packaging		The core activities are: • Collection maize from the SHF • Transportion of maize to the packhouses within the FPSU premises • Quality inspections • Cleaning, sorting and grading • Packaging, mainly maize for local dairy market and small retail outlets	The core activities are: • Receiving of maize including cleaning and sorting from the FPSU; • Further Quality control; • Maize processing into maize products; • Storage of products ; • Some marketing; • Transportion of products to RUMC.	The core activities are: • Collection of final products from the AH • Marketing and distribution of final products to different wholesalers and major retail outlets • Exporting of final products • Bulk storage of final products

			• Transportation of processed maize directly from farm to the AH.		
Infrastructure/ Equipment	The SHF and CF may require the following equipments, which can be hired from the FPSU: • Tractors • Harvesters • Grain Cart • Fertiliser/lime Spreader • No-till Planter • Sprayer ***Note: SHF's smaller tha 2ha in size, joint farming will necessitate support.***		Equipments/infrastructure: • Tractors • Harvester • Transport Vehicles • Truck and Trailer • Bakkies • Fork Lifts • Implements • Grain Cart • Fertiliser/lime Spreader • No-till Planter • Sprayer • Processing Equipment • Bulk Bags	Equipment/infrastructure: • Administrative facilities • Rental facilities • Agro-Processing facilities • Packaging facilities • Quality control facilities • Training centre • Logistics and transport facility	Equipment/infrastructure: • Large warehouses/ holding facilities • Cold storage facilities • Administrative facilities/ information centre • Agricultural input distribution and sales centre • Retail facility
Logistics	SHFs should be organised into groups. Whereby the appointed farmer representatives should report to the FPSU. **Harvesting** : Certain days of the week should be assigned for harvesting of maize (weather dependant) during the harvest seasons. Farmers intending to harvest on certain days to notify the FPSU. For SHFs with less than 2ha of land, vegetables to be harvested and collected from multiple SHF's[1]. For farmers with more than 2ha, harvesting would be done **mechanically**[2] and		The FPSU should organise for Primary logistics collection centre in the form of pack houses where vehicles would pick up vegetables from various farms and convey it to these packhouses. Storage transport should also be arranged for distribution to the various marketing channels and the RUMC. ***Note: some of these transport facilities will be used to deliver farm inputs to the collection centres, after which collective SHFs can collect inputs at the FPSU.***	Transport will be used to collect the maize from the FPSU to the AH for processing. Indictating that the transport facilities would serve multiple purposes.	The same storage transport will be used for distribution of final products to wholesalers and retailers.

	vegetables to be transported to the FPSU.			
Technology/ ICT	In order to boost their production efficiency, the SHF and CF would require: • Modern tools, • Mobile devices for subscription to Apps. to enable SHFs to receive information from the RUMC on weather forecast, disease control and news updates which may affect crop productivity.	Tracking devices on all vehicles to increase security and prevent misuse. Also, the FPSU would require subscription to certain Apps from the RUMC to remain up to date with commodity prices. ***Note: the same transport facilitities would be used to service all the basic units of the Agri-park, therefore, all the Transportation facilities would have these tracking devices.***	In order to remain conversant with the current prices fetched on the global, national and local market, so as to be able to strategically supply vegetable products to the markets, the RUMC would also require subscription to certain Apps from the RMUC. This will enable the AH to remain informed.	The RUMC will provide an Information Data base that all the various basic units of the Agri-park can subscribe to.
Job Creation (Estimates)	***It is estimated that the Agri-park will provide 60 new jobs (40 permanent and 20 temporary) for maize production. Temporary emplomyment can occur during construction.***			

9.4 Proposed development concept of Soybean

Production Flow	Smallholder farmers (SHF)	Commercial Farmers (CF)	FPSU	AH	RUMC
Key Role & Function	The core role of the SHF would be the primary production of soybean.	To provide support to SHF, guidance and training with regards to farming activities.	Input (pre-production) supplies, training and extension support, mechanisation support, local logistics support, some packaging, storage, and processing of soybean for local markets, through-put of excess products to Agri-Hubs.	Training and skills development, logistics, Agro-Processing, commodity sensitive storage and warehousing and packaging facilities.	Market intelligence, providing SHF and CF with assistance and processors in managing a multitude of contracts and optimising value chains to become revenue orientated.
Location	All SHF involved in soybean production within Harry Gwala where primary production is more concentrated. There is potential for approximately 1 600ha of land to be put under additional production for soybean.		Soybean farmers will be supported by all the FPSU's to be situated in Harry Gwala. It is proposed that the major FPSUs for soybean production be located in Highflats, Ndawana, Ebutha farm and Kwa Sani LM.	As proposed by the province, the Agri-Hub is to be located in Ebutha Farm, Umzimkhulu LM.	e proposed location of the RUMC is within eThekwini Municipality. This location is proposed on the basis of the following: 1. Accessibility 2. Infrastructure (electricity/ water) 3. Agglomeration 4. ICT 5. Urban environment
Human Resources	SHF currently soybean production aligned to the Agri-parks programme and selected by the DRDLR and DARD to be SHF representatives. (DAPOTT farming representatives).	Current staff complement comprises of Directors, Scientists, Researchers, Engineers and Operational Staff.	The FPSU will provide the following HR personnel and facilities; • Agricultural extension officer (2) / support officers; • Local mechanisation centre and workshop with (2) machine operators; • Agronomist (soil testing) (2) • Researchers (2) • Extension officers • Agronomist • Seasonal staffs (harvest labour)	The AH will provide the following HR; • Administrative manager (2) • Quality control personnel (2) • Agro-Processing facility operators • Research, Development and Training personnel (2)	The RUMC will provide the following HR; • IT expert/personnel (1) • Administrative manager (1) • Training personnel • Marketing agents (linkage and contract facilitation with wholesalers and retailers. Price sensitive information communicated to the AH and FPSU.

			• Commercial farmers to mentor SHF.		
Training	SHF to be trained on: • Best farm practices, use of tools and equipment • Market interpretation and ICT. • Extension officers that are conversant with vegetable production • Extension officers through the DAFF can also organise Agri-shows, where training can be provided.	CF to train SHF on vegetable farming through a mentorship programme.	One of the key functions of the FPSU would be to provide the SHF with training and extension support on various farm practices.	Some training would also be required at the hub: • Training of processing staffs on how to handle and operate various processing equipment. • Training on best practices, based on changing demand and supply. • Training on new innovations as they surface.	Training of training personnels on how to disseminate information to the SHF, AH and the FPSU.
Key products/ activities	The core activities are: • Land preparation (land clearing, soil preparation, pest control) • Soybean farming (planting, fertlisation, disease control, irrigation) • Harvesting of Soybean • Logistics and packaging		The core activities are: • Collection soybean from the SHF • Transportion of soybean to the packhouses within the FPSU premises • Quality inspections • Cleaning, sorting and grading • Packaging, mainly maize for local dairy market and small retail outlets	The core activities are: • Receiving of soybean including cleaning and sorting from the FPSU; • Further Quality control; • Soybean processing into soybean products; • Storage of products ; • Some marketing;	The core activities are: • Collection of final products from the AH • Marketing and distribution of final products to different wholesalers and major retail outlets • Exporting of final products • Bulk storage of final products

			• Transportation of processed soybean directly from farm to the AH.	• Transportion of products to RUMC.	
Infrastructure/ Equipment	The SHF and CF may require the following equipments, which can be hired from the FPSU: • Tractors • Harvesters • Grain Cart • Fertiliser/lime Spreader • No-till Planter • Sprayer ***Note: SHF's smaller tha 2ha in size, joint farming will necessitate support.***		Equipments/infrastructure: • Tractors • Harvester • Transport Vehicles • Truck and Trailer • Bakkies • Fork Lifts • Implements • Grain Cart • Fertiliser/lime Spreader • No-till Planter • Sprayer • Processing Equipment • Bulk Bags	Equipment/infrastructure: • Administrative facilities • Rental facilities • Agro-Processing facilities • Packaging facilities • Quality control facilities • Training centre • Logistics and transport facility	Equipment/infrastructure: • Large warehouses/ holding facilities • Cold storage facilities • Administrative facilities/ information centre • Agricultural input distribution and sales centre • Retail facility
Logistics	SHFs should be organised into groups. Whereby the appointed farmer representatives should report to the FPSU. **Harvesting** : Certain days of the week should be assigned for harvesting of maize (weather dependant) during the harvest seasons. Farmers intending to harvest on certain days to notify the FPSU. For SHFs with less than 2ha of land, vegetables to be harvested and collected from multiple SHF's[1]. For farmers with more than 2ha, harvesting would be done **mechanically**[2] and		The FPSU should organise for Primary logistics collection centre in the form of pack houses where vehicles would pick up vegetables from various farms and convey it to these packhouses. Storage transport should also be arranged for distribution to the various marketing channels and the RUMC. ***Note: some of these transport facilities will be used to deliver farm inputs to the collection centres, after which collective SHFs can collect inputs at the FPSU.***	Transport will be used to collect the maize from the FPSU to the AH for processing. Indictating that the transport facilities would serve multiple purposes.	The same storage transport will be used for distribution of final products to wholesalers and retailers.

	vegetables to be transported to the FPSU.			
Technology/ ICT	In order to boost their production efficiency, the SHF and CF would require: • Modern tools, • Mobile devices for subscription to Apps. to enable SHFs to receive information from the RUMC on weather forecast, disease control and news updates which may affect crop productivity.	Tracking devices on all vehicles to increase security and prevent misuse. Also, the FPSU would require subscription to certain Apps from the RUMC to remain up to date with commodity prices. ***Note: the same transport facilitities would be used to service all the basic units of the Agri-park, therefore, all the Transportation facilities would have these tracking devices.***	In order to remain conversant with the current prices fetched on the global, national and local market, so as to be able to strategically supply vegetable products to the markets, the RUMC would also require subscription to certain Apps from the RMUC. This will enable the AH to remain informed.	The RUMC will provide an Information Data base that all the various basic units of the Agri-park can subscribe to.
Job Creation (Estimates)	***It is estimated that the Agri-park will provide 27 new jobs (16 permanent and 11 temporary) for soybean production. Temporary emplomyment can occur during construction.***			

9.5 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 Agri-park development in comparison to the individual concepts, and therefore excludes precise detail.

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, 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: • Training • Logistics • Storage/warehousing • Packaging • Labelling • 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 Harry Gwala District.	Given that the district is a relatively low density district it is recommended that 4 FPSU's are established at Ebutha Farm, Ndawana, Highflats and Kwa Sani LM.	The Agri-Hub is to be located at Ebutha Farm, Umzimkhulu.	There will be one RUMC per province nation wide. It is proposed that the RUMC be located within the eThekwini Municipality.
Human Resources & Job Creation Estimates	On farm personnel required to manage production include: • Farm managers • Farm workers/labour • Administrators	The FPSU will provide the following HR/HR facilities: • Agricultural extension officers' / support office;	The AH will provide the following HR: • Administrative staff • Quality control personnel • Processing/floor staff	The RUMC will provide the following HR: • IT expert/personnel • Administrative staff • Training personnel

Production Flow	Small-Scale/Emerging Farmers & Commercial farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	Primary production, in total, has the potential to create between 456 and 4 256 employment opportunities.	• Machine operators/ Local mechanisation centre and workshops; • Agronomists • Researchers • Voluntary/Established commercial farmers In total, the four FPSU's has the potential to create between 236 and 516 employment opportunities.	• Research and demonstration personnel • Training personnel In total, the Agri-Hub has the potential to create between 335 and 775 employment opportunities.	• Marketing personnel
Training	The on farm personnel will require training in their respective fields of production. Training of such personnel should include: • Production practices • Business administration • 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: • Best management and production practices • Data interpretation • Marketing • Crop cultivation • Business administration In order for the FPSU to have the ability to train on farm personnel, they will need training in the various fields themselves. Trianing is available at various agricultural training institutions.	Staff within the Agri-Hub will require training in various processing best practices. Training programmes for such personnel should include: • Training of processing staff. • Training on best practices, based on changing demand and supply. • Training on new innovations as they surface.	Personnel that are actively particpating in the RUMC should be trained in the following fields: • Data collection/collation • Data interpretation and • Data dissemination

Production Flow	Small-Scale/Emerging Farmers & Commercial farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
Key Products & Services	Key products: • Fresh vegetables • Maize and by-products • Soybean and by-products Key Services: • Preparation of the facilities • Field preparation • Cultivation	The core services of the FPSU are: • Logistics • Training • Input supply • Extension services • Production planning/scheduling • Farmer production management	The core products of the AH are: • Collection of produce • Processing of product • Packaging and labelling • Storage • Marketing • Transportion of products to the markets.	The core services of the RUMC are: • Dissemination of information • Maketing and distribution of final products to different wholesalers and major retail outlets
Infrastructure & Equipment	Infrastructure & equipment requirements include: • Water systems • Irrigation systems • Greenhouses	The FPSU would require the following equipment & infrastructure: • Transport (e.g Bakkie or pick-up vehicles) • Storage facilities • Weighing and packaging equipment (crates) • Retail outlet for the local market	• The AH would require the following equipment/ infrastructure: • • Administrative facilities • 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 • Administrative offices	The RUMC would require to put in place the following equipment/infrastructure: • Office facilities/ information centre • ICT
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			

Production Flow	Small-Scale/Emerging Farmers & Commercial farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre

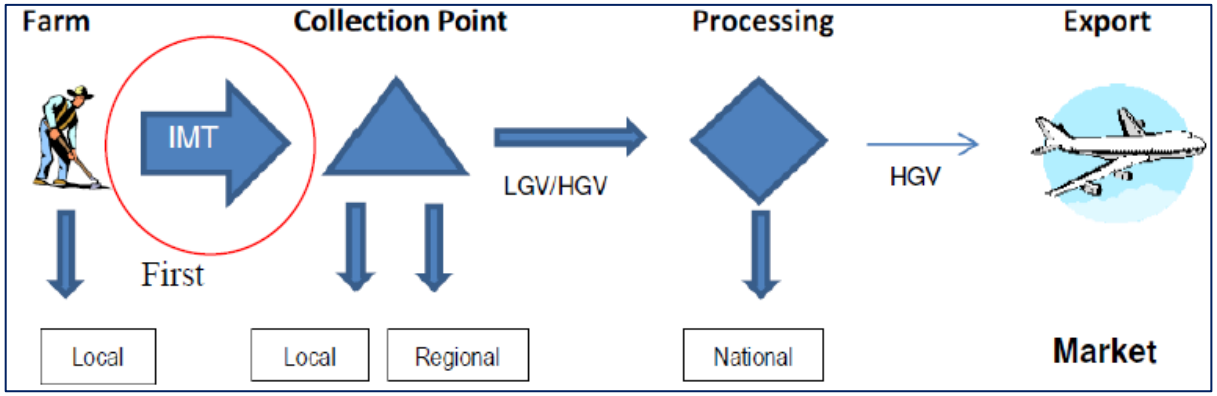
faces by the farmers that are likely to participate within the APs programme, while the focus remains on recognising the importance that transport plays in the emerging farmer value chains.

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

Production Flow	Small-Scale/Emerging Farmers & Commercial farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre

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 Agri-park:

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.

Production Flow	Small-Scale/Emerging Farmers & Commercial farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	The following steps provide a broad outline toward the logistics plan, in which all elements of the Agri-park 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: o The farmers may either opt to transport their produce to the collection point themselves, or make use of FPSU transport. o The FPSU will be responsible for the movement/transportation of the product from farms to the collection point to the Agri-Hub o 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 o 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.			
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.			

Production Flow	Small-Scale/Emerging Farmers & Commercial farmers	Farmer Production Support Unit	Agri-Hub	Rural-Urban Marketing Centre
	○ ***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. ○ ***Weather apps***: Can assist farmers' and the FPSU in production. ○ ***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.			

9.6 High-level costing (CAPEX)

The following section provides a summary, on the projected CAPEX costs for the Harry Gwala District Agri-Park. The figures were based on estimated bulk connections, building and machinery requirements. The total estimate is for that of a period of ten (10) years, and 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.

District Agri-Park Total	Quantity	Cost/unit	Total Cost
FPSU	4	R91 404 507	R365 618 028
Agri-Hub	1	R49 971 000	R49 971 000
Grand Total			**R415 589 028**

The above estimate is based on a projected 4 FPSUs and1 Agri-Hub within the Harry Gwala District and is arrived at using all information available at the time of writing.

The total estimate for the FPSUs is approximately R365 618 028, or an average cost of R91 404 507 each. 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 Agri-Hub would cost in the region of R49 971 000 to construct, including three different processing lines for vegetables, soybean and maize. The budget includes the estimated turnkey solutions (all-inclusive costs) for each of the processing lines within the Agri-Hub. This construction and expansion of the Agri-Hub 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 R415 589 028 for a 10 year period.

9.7 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.

A total of R415 589 028 will be required for investment into the Harry Gwala Agri-park, of this:

- R 91 million will be allocated towards each FPSU, R 365 million in total (4), and
- R 49 million will be allocated towards the Agri-Hub.

The Harry Gwala Agri-park has the potential to create approximately 1 400 to 5 500 employment opportunities through the development:

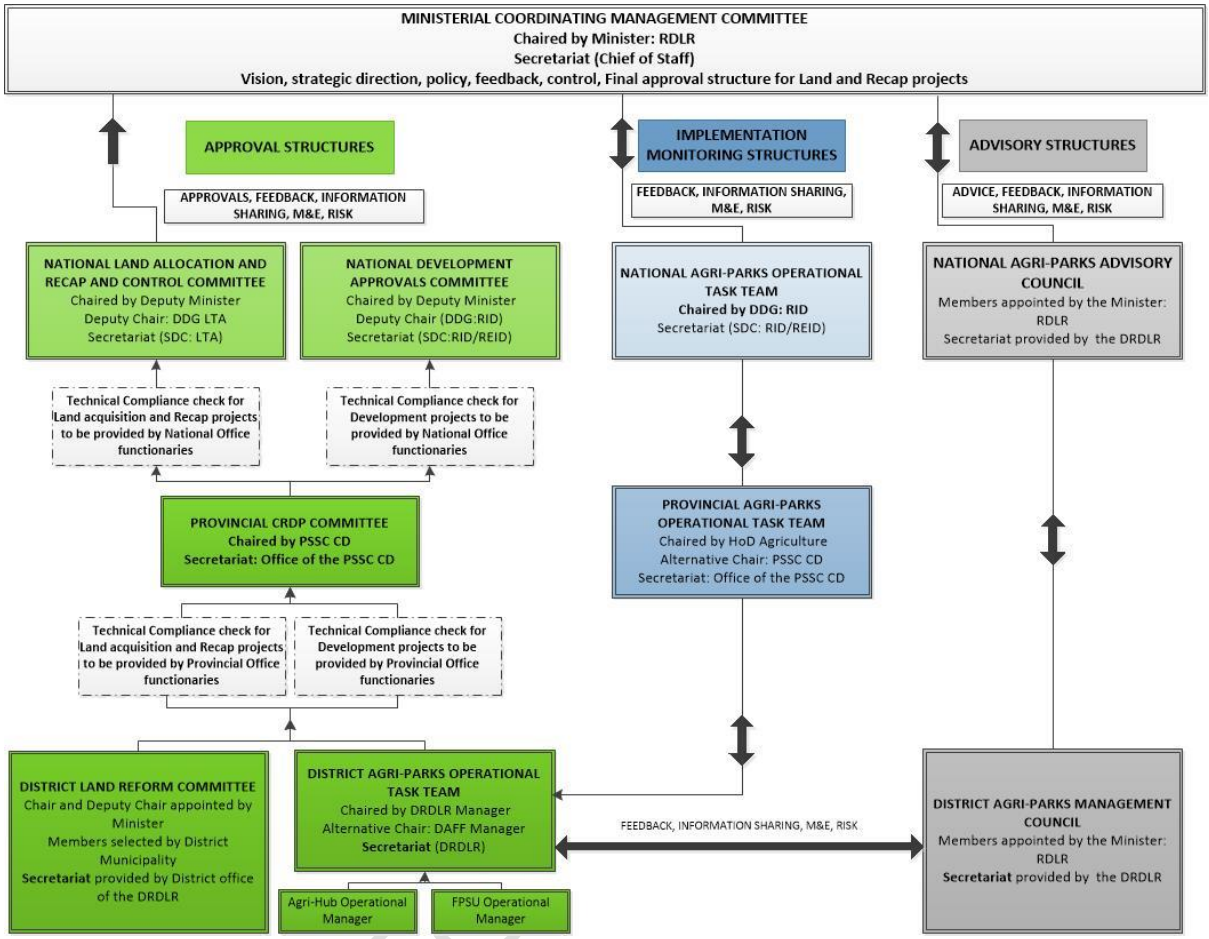
- Smallholder farmers will gain access to the value chain and will be the direct beneficiaries of primary production support activities. Of the employment opportunities, approximately 850 – 4250 will be on-farm opportunities for smallholder farmers.
- Approximately 600 – 1300 employment opportunities are estimated to be created upstream (FPSU) and downstream (AH) of primary production activities.
- Currently over 4 100h[16] of production is supported by various government departments with potential for approximately 6 800ha to be put under additional production between the 3 priority commodities (approximately 4 000ha for maize, 1 600ha for soybean and 1 000 ha for vegetables).

[16] Refer to Annexure 2

10 Agri-Parks Organisational Structure

To explain the organisational structure of the Agri-parks the following schematic is used:

FIGURE 54: ORGANISATIONAL STRUCTURE OF THE AGRI-PARKS



In explaining the organisational structure, there are three sub structures that form part of the Agri-Parks: 1. Advisory Structures, 2. Approval Structures and 3. Implementation Monitoring structures.

10.1 1. Advisory Structures:

The main functions of the advisory structures within the Agri-Parks organisational structure are to give advice to the approval structures. The advisory structures that are currently identified are the National Agri-Parks Advisory Council (NAAC) and District Agri-Parks Management Council (DAMC). It is important to note that the advisory structures' member primarily comprise of stakeholders and interested party.

10.1.1 The NAAC

This council 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.*

10.1.2 The DAMC

The District Agri-Parks Management Council, also referred to as the "voice" of the stakeholders/interested parties in Agri-Parks. The DAMCs like the NAAC consist of representatives from various organisations. The DAMCs main function is to communicate advice from the council members to the NAAC as well as DAPOTT (District Agri-Parks Operational Task Team). Further functions of the DAMC include, but are not limited to the following:

- *Assist in identifying new business opportunities within an Agri-park;*
- *Provide advice on the implementation of the business plans;*
- *To advise on regulatory compliance with applicable policies and legislation;*
- *To advise on the alignment with the National Development Plan, Agricultural Policy Action Plan, Provincial Growth and Development Strategies and other development frameworks; and*
- *To assist in the identification, evaluation and monitoring of risks related to projects.*

10.2 Approval structures:

These structures are responsible for approvals, feedback, information sharing, monitoring and evaluation regarding land reform activities and Agri-Park project approval. To explain the

functioning of the approval structure it essential to understand that in terms of the Agri-Parks organisation the project approval process is started on the district level.

The approval structures that form part of the Agri-Parks include the DAPOTT, District Land Reform Committee, Provincial CRDP (Comprehensive Rural Development Programme) Committee, National Development Approvals Committee (NDAC) and the National Land Allocation and Recapitalisation Control Committee (NLARCC).

Note: It is understood that both the DLRCs and DAMCs can recommend projects/producers to be considered to be part of Agri-Parks.

10.2.1 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.*

10.2.2 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

10.2.3 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

10.2.4 The 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.

10.2.5 The 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.

10.2.6 Agri-Hub Operational Manager

The Main function of the Agri-hub operational manager is to oversee the processing and distribution of agricultural produce. Auxiliary duties include:

- *Coordination of necessary training for all staff*
- *Organising and overseeing the logistics for collection of produce from FPSUs*
- *Overseeing distribution and marketing of agricultural produce from the Agri-hub*
- *Managing storage, processing, packaging and quality control procedures for all agricultural produce.*

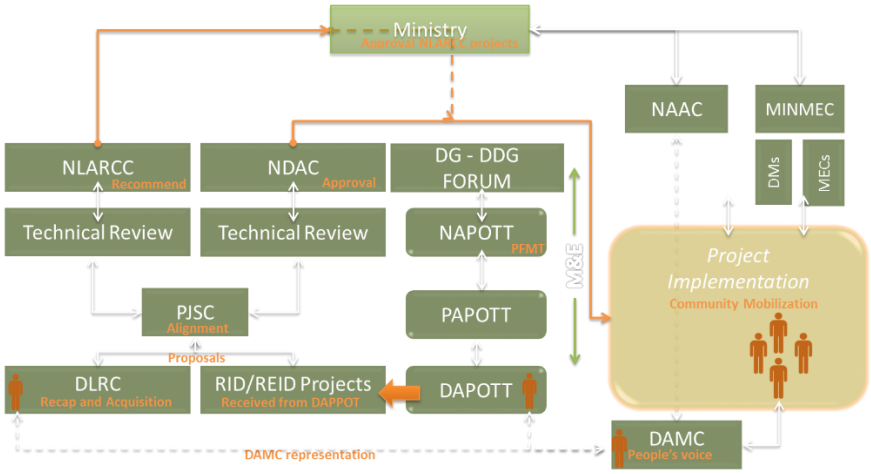
10.2.7 FPSU Operational Manager

Organisation of agricultural input supplies and management of extension support services, mechanisation and local logistics support. Other duties will include production planning and scheduling based on market knowledge and local agronomic research.

10.3 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.



10.3.1 NAPOTT

The NAPOTT has various functions that are focussed towards 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 project roll out of Agri-Parks in line with approved project plans nationwide.*

10.3.2 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.

11 Implementation Guidelines

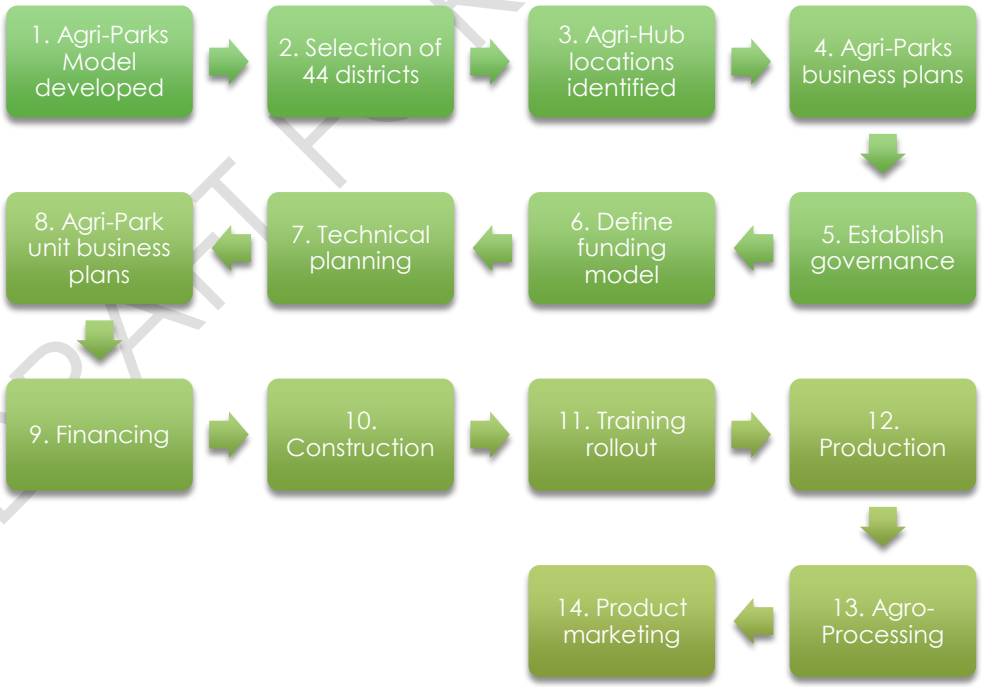
The following **implementation guidelines** provide an overview of what should be achieved in order to successfully implement the Agri-parks programme within the Harry Gwala District Municipality. The implementation guidelines provide valuable information about:

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

This final chapter lays out the implementation guidelines and planning required to implement the Harry Gwala District Municipality's Agri-parks programme, starting with the implementation process.

11.1 Implementation process

The above guidelines are used to develop the following implementation process for the rollout of the Harry Gwala Agri-park. The process follows the following 14 steps:



1. **Agri-park model:** The Agri-parks 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 Agri-parks 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 Agri-Hubs in each of the given districts. The Agri-Hub forms the heart of the Agri-parks programmes, where significant agro-processing takes place.
4. **Master Agri-park Business Plan:** The Master Agri-parks Business plans were developed for the Agri-parks. 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 Agri-park 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 Agri-park will entail, mainly, the planning of the physical construction of the Agri-park along with related infrastructure and technologies.
8. **Detailed business plans:** The different units of the Agri-park (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 Agri-park's 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 Agri-park.
13. **Agro-Processing**: Once primary production has taken place, and products are ready, agro-processing activities will commence through the Agri-park's Agri-Hub.
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.

Importantly the 14 step implementation process should align to 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.

11.2 Alignment with government programmes, projects and campaigns

The implementation of the Agri-parks programme is required to align with various agricultural programmes, projects, or strategies that have been adopted and implemented by government and its various departments. The table below summarizes various programmes/projects/campaigns that are currently under progress, their description and how Agri-parks can potentially align.

TABLE 42: 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 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.	✓ The Agri-park 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 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 Agri-park. ✓ 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: • Agricultural finance lending • Co-operatives establishment • Access to markets • Value chain development • Improvement policies • Production guidelines	✓ The Agri-park 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 Agri-park should focus on job creation through various initiatives, especially primary agriculture where there is potential for many job opportunities. ✓ The Agri-park should investigate initiatives to extend credit to farmers. ✓ The Agri-park needs to encourage and manage the establishment of co-operatives.

Programme/ Project/ Campaign	Description	Agri-parks Alignment
	• Agro-logistics planning • Early warning climate systems	✓ Management practices need to be implemented at various stages of the value chain in order to ensure consistent production and product quality. ✓ 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 Agri-park is to improve food security. ✓ Primary production should be a key focus of the Agri-park. ✓ The Agri-park 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 Agri-parks many roles. ✓ Training requires research and development initiatives that should align with R&D programmes set out by government. ✓ 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 Agri-park 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	✓ The Agri-park forms part of the market for farmers and will therefore encourage production. ✓ Models are to be developed to distribute state own land

Programme/ Project/ Campaign	Description	Agri-parks Alignment
	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.	and ensure land tenure is in place for producers. ✓ Access to the market through the Agri-park 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 Agri-park will further encourage land that was previously not in production to produce. ✓ The Agri-park 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 Agri-park will manage and encourage smallholder production, a primary objective of the Agri-park. ✓ 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. ✓ 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	✓ The Agri-parks programme will encourage youth to participate in agriculture by creating viable and attractive agricultural enterprises.

Programme/ Project/ Campaign	Description	Agri-parks Alignment
	rural development projects. The programme further transforms the youth of rural areas, from being job seekers to being job creators.	
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 Agri-park encourage primary production. ✓ Will have support mechanisms in place to ensure best production methods. ✓ Create jobs in primary agriculture. ✓ 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.

11.3 Recommendations

The business plan has highlighted what needs to be done in the way of developing the agricultural sector within the district. Challenges have been highlighted and recommendations have been made in order to streamline the implementation process. The following list of recommendations has been developed and should be considered for the development of the Agri-park in the Harry Gwala District Municipality:

TABLE 43: SPECIFIC RECOMMENDATIONS FOR THE HARRY GWALA AGRI-PARK

Key Areas	Recommendations
Infrastructure	• Where necessary, roads should be developed and upgraded to accommodate transport vehicles that collect and distribute good within a district. This will likely result in faster transport times, less bruising to produce, and have a lesser impact on vehicles.in addition, 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 Agri-park. There should be upgrading and revitalisation of any existing infrastructure that can be used to support the development of the Agri-park. • Consolidation points should be investigated as an option to collect produce in large quantities. Although FPSU will be established in an organised pattern, even these may not be accessible to remote producers. As such, the option of having consolidation points within remote areas with simple technologies should be investigated. The FPSU

Key Areas	Recommendations
	should coordinate the management of the consolidation point, while producers will find it easier to access these points, • Establish infrastructure that will aid the recycling of waste water for use in agricultural activities. Significant amounts of waste water is discharged into natural river systems that should rather be used for agricultural production, especially since water is a scarce commodity.
Natural Resources	• Availability of water for agriculture should be assessed for the programme. This will determine the amount of water that can be used within the Agri-park and sustainability measures can be implemented. Distribution and water allocation plans should be developed and irrigation schemes implemented in the major production areas, while maximising the use of existing infrastructures. • Smallholder farmers should implement rain harvesting (e.g. JoJo Tanks) techniques on their farms. The practice of rainwater harvesting can either supplement rainfall, municipal water use or act as a reserve tank, especially when rain is scarce.
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. • 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 Agri-park 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 Agri-Hub. 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. • 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 Agri-Hub should establish partnerships with certain research institutions for research and development, and also to facilitate training programmes. Established training and research institutions have the

Key Areas	Recommendations
	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. • 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	• There will be one RUMC per province nationwide. It is proposed that the RUMC be located within the eThekwini Municipality. • 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 Agri-park. 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 Agri-park. Farmers are to be engaged and informed of the process and development of the Agri-park – they will also be required to have a representative body for engagement with various stakeholders. • Business Plans should be developed for each of the entities within the Agri-park, including the farmers, FPSUs, the Agri-Hub 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 Agri-park. • PPP's should be developed to enhance the strength and competitiveness of the Agri-Hub: An agglomeration of expertise is required to ensure the success of the Agri-parks 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.
Logistics	• A comprehensive logistics plan should be developed to guide the implementation of the Agri-park. The plan should investigate various methods of moving produce from farm to fork. This should be done to

Key Areas	Recommendations
	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 Agri-park. 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. • The District Agri-parks Councils should engage with other departments and be responsible for the implementation of the Agri-parks. A representative body must take ownership of the Agri-park and implement the project. This body should represent all stakeholders, public and private, within the Agri-park. • 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 Agri-parks 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 Agri-park to be upheld, and also to allow for the evaluation of the Agri-park 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 Agri-park. • 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. • 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.
Policy Environment	• 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 Agri-park. Incentives, or mechanisms that encourage investment in the Agri-park will have positive spin-offs for the project in faster development and

Key Areas	Recommendations
	potentially in technologies that have a positive impact on production activities.
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 Agri-park. Incentives, or mechanisms that encourage investment in the Agri-park 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 Agri-park. 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 Agri-park through on-farm activities and tours of agro-processing activities.
Market	• Engage farmers and the market. The Agri-park 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 Agri-parks 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 Agri-park, to help the underprivileged youth in a way such that they render services to the Agri-park, while they get taken care of in return. • Farmers 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 the Harry Gwala District Municipality. Agri-parks requires that producers for are able to produce and meet market

Key Areas	Recommendations
	expectations, while farmers need to operate viable enterprises – making the due diligence process important. • 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.

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 Harry Gwala District. The recommendations inform what needs to be done in order to achieve the goals that have been set out within the business plan.

11.4 Roll-out plan (GANTT Chart)

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 Agri-park.

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.

11.4.1 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 Agri-park will develop. This is the first phase in the Harry Gwala Agri-Hub formation process. These actions are indicated as the steps that should be achieved within the first year.

11.4.2 Short- to Medium-Term: Emergence of the Agri-park

The next phase in the Agri-park 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 Agri-Hub 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 Harry Gwala District. This phase is centralised around the establishment of the agri-businesses within the hub to form the anchor around which the Agri-park can be developed. These steps are to be achieved from years two to four.

11.4.3 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 Harry Gwala Agri-park 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 Agri-park.

11.4.4 Long-Term: Agri-Hub Evolution

This is a long-term phase when the Harry Gwala Agri-Hub reaches maturity. The focus of this phase should be on improving and furthering efficiency within the Agri-park and larger Harry Gwala District 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 is illustrated below – indicates a step-by-step plan that should be followed.

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										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	5. Identification of major role-players										
	6. Development of an industry report										
	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										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	3. Identification of potential Public Private Partnership's										
	2. Secure private investors / technical partners										
	3. FPSU - Role should be expanded and spin-off opportunities should be expanded towards these areas in order to widen the scope and influence the agro-processing activities;										
	4. Agri-Hub - core activities, production cycles and distribution functions of the Agri-Hub should be evaluated.										
	5. RUMC - Investigate market intelligence										
	6. Identification of land parcels related to farming areas (mapping)										
	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										
	1. Finalise the project designs and drawings										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
STEP 9: Construction	2. Conduct a bill of quantities										
	3. Prepare tender documentation										
	5. Tender evaluation and selection process										
	7. Site preparation										
	8. Construction Facilities & 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.										
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,										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	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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Annexure 1: Detailed Commodity Criteria

Possible crop/livestock for District	A. Biophysical criteria	Temperature	Water/moisture	Land type, capability and soil	Weed, pest and disease resilience	Adaptability to adverse conditions	B. Enterprise viability criteria	B.1 Transport, market access and demand	Distance to markets and transport cost	Current demand	Future market growth potential	Market openness	B.2 Strategy, payback and profitability	Business strategy and positioning	Payback period	Profitability	B.3 Human, physical and financial capital	Familiarity and local knowledge/skills	Labour cost and productivity	Implements and infrastructure	Ease to finance	C. Economic development criteria	C.1 Linkages and processing opportunities	Forward and backward economic linkages	Processing opportunities at district level	C.2 Job creation	Direct on-farm job creation	Indirect and induced job creation	Job quality/decency	C.3 Local development	Local opportunities and agglomeration	Agro-intensification and local GDP growth	C.4 Global competitiveness and trade	Global competitiveness	Export potential	Import substitution potential	D. Political and social criteria	D.1 Political and institutional issues	Government priority including APAP	Shortlisted by the district	Existing successful or planned projects	State/communal land suitability	D.2 Social issues	Acceptability (Local "buy-in")	Income equality	Black smallholder suitability	Crime and vandalism resilience	D.3 Food security and sustainability	Contribution to food security	Sustainability	Sub-totals	Biophysical total	Enterprise viability total	Economic development total	Political and social total	Overall total
Weight→		3	3	2	1	1			3	3	2	1		2	1	3		2	2	1	2			1	3		1	1	1		3	1		3	2	3			2	2	1	1			2	3	3	1		3	1							
Vegetables		2	2	3	3	3			3	3	3	3		3	3	2		3	3	3	3			3	3		2	3	2		2	2		3	3	3			3	3	3	3			3	3	2	2		3	3		24	63	51	53	191
Soybeans		2	3	3	2	2			2	1	2	3		2	2	2		3	3	3	2			2	2		2	2	2		3	2		2	2	2			3	3	3	3			3	3	2	2		3	3		25	47	41	53	166
Maize		2	3	3	2	2			2	3	3	3		3	2	2		3	2	2	2			3	2		2	2	2		2	3		1	2	2			3	3	3	3			3	2	2	2		3	2		25	54	37	49	165
Dairy		3	3	3	3	2			3	3	3	2		2	2	2		2	2	1	2			3	3		1	1	1		3	3		2	3	2			3	3	3	3			1	2	1	1		2	3		29	51	45	39	164
Timber and timber processing		3	3	3	3	2			2	3	3	2		3	2	2		1	1	2	3			2	3		1	1	1		3	3		1	3	1			3	2	2	3			3	3	3	2		1	3		29	49	38	47	163
Beef		3	3	3	3	3			2	3	3	2		3	2	3		1	2	2	1			3	2		1	2	1		2	3		2	2	1			3	3	3	3			3	3	1	1		3	2		30	50	35	48	163
Tomatoes		2	2	3	2	1			3	2	2	2		2	3	1		2	2	3	3			2	3		2	2	2		2	1		2	2	1			3	2	3	2			3	3	3	2		3	1		21	48	37	51	157
Sorghum		2	3	3	3	2			2	2	2	3		1	2	2		3	3	3	2			2	2		1	2	1		2	1		2	2	2			3	1	1	3			2	3	2	2		3	3		26	48	35	45	154
Oats		2	2	2	2	2			2	1	2	3		2	2	2		3	3	2	2			2	2		1	2	1		2	1		2	2	2			3	1	2	3			2	3	3	2		3	3		20	46	35	49	150
Wheat		2	2	3	3	2			2	2	2	3		2	2	2		3	3	2	2			2	2		1	2	1		2	1		1	2	2			3	1	2	3			2	3	2	2		3	3		23	49	32	46	150

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

Totals: the sub-total scores are weighed averages of the listed criteria. The overall total score is the average of the main heading scores.

**Key to weight:
3 = High importance
2 = Medium importance
1 = Low importance

Note on weight allocation: The above table provide suggested weights for all districts, however, individual districts may amend weights to reflect their unique circumstances and needs. Weight allocation are strongly informed by the fact that assessment is on a district rather than farm level. Therefore some factors may seem to be severely underrated, and it's weight should be considerably stronger at farm level. Also, some factors could only be regarded as positive externalities rather than first order or primary selection criteria. Most biophysical and enterprise viability factors are key to viability therefore carries much more weight than some economic development and social factors. This does not mean that social and economic development factors are deemed less important, rather it is just for balancing purposes to select amongst enterprises that can realistically be established in the first place, and in turn generate the maximum realistically possible positive social and economic development impacts, so that the local community and society at large could benefit to the maximum extent realistically possible. Also keep in mind that the purpose of weighting criteria is to find the best alternative based on different levels of performance against the different criteria, therefore if a weight is raised for one criterion it necessary means that the weight of other criteria are lowered in relative terms, therefore some criteria must be scored lower compared to other.

Note on assumptions made in biophysical assessment include: 1) Temperature and carbon dioxide concentration cannot be modified e.g. in greenhouses because of costs and environmental sustainability criteria, therefore temperature and CO2 controlled greenhouses are not considered, except in case a particular region are likely to be particularly competitive in greenhouse or hydroponic production. 2) Solar irradiation is not a limiting factor in all districts at regional level, however, at farm level it may be a limiting factor on steep south-facing slopes and in valleys that are significantly shielded from the sun. 3) Artificial growth mediums are not viable at massive scale for most districts in South Africa, however, it is assumed that soil fertility can be improved by fertilizer application. After all, relying on natural soil fertility without adding some form of soil nutrients is not sustainable).

Annexure 2: Emerging farmers and potential entrants to the Agri-parks Programme

The following table represents a list of emerging farmers and potential entrants to the Agri-parks Programme within the Harry Gwala District.

Local Municipality	Inkosi	Project/Farm Name	Project Type (e.g. broiler, vegetable etc.)	Commodity (e.g. crop, layer/broiler, maize, beans, vegetable etc.)	Project Activities	Project Size e.g. km of fencingErected; Ha of Irrigation etc.)	Category of Farmer/s (smallholder, subsistence, commercial)	Land ownership (communal, freehold etc.)
Ingwe	M. Memela	Buhlebemvelo Cluster	Field Crops	Beans	Supply and deliver production inputs	40	Smallholder	Communal
				Maize	Supply and deliver production inputs	50	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ingwe	B. Gwala	Dlidli Cluster	Field Crops	Beans	Supply and deliver production inputs	40	Smallholder	Communal
				Maize	Supply and deliver production inputs	60	Smallholder	Communal
					Tractors and Implements		Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
Ingwe	D.T. Dlamini	Mkhohlwa Cluster	Field Crops	Beans	Supply and deliver production inputs	40	Smallholder	Communal
				Maize	Supply and deliver production inputs	60	Smallholder	Communal
					Installation of fencing		Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ingwe	S. Ngubane	Mnyamana Cluster	Field Crops	Beans	Supply and deliver production inputs	25	Smallholder	Communal
				Maize	Supply and deliver production inputs	50	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ingwe	D.T. Dlamini	Mqulela Cluster	Field Crops	Beans	Supply and deliver production inputs	50	Smallholder	Communal
				Maize	Supply and deliver production inputs	100	Smallholder	Communal
					Installation of fencing		Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ingwe	K.W. Mhkulisa	Sandanezwe Cluster	Field Crops	Beans	Supply and deliver production inputs	30	Smallholder	Communal
				Maize	Supply and deliver production inputs	60	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ingwe	T. Dlamini	Amakhuze Cluster	Field Crops	Beans	Supply and deliver	40	Smallholder	Communal

Local Municipality	Inkosi	Project/Farm Name	Project Type (e.g. broiler, vegetable etc.)	Commodity (e.g. crop, layer/broiler, maize, beans, vegetable etc.)	Project Activities	Project Size e.g. km of fencingeErected; Ha of Irrigation etc.)	Category of Farmer/s (smallholder, subsistence, commercial)	Land ownership (communal, freehold etc.)
					production inputs			
				Maize	Supply and deliver production inputs	60	Smallholder	Communal
					Installation of Irrigation and fencing		Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ingwe	D.S. Hlongwane	Zamelekhaya Cluster	Field Crops	Beans	Supply and deliver production inputs	25	Smallholder	Communal
				Maize	Supply and deliver production inputs	50	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
UMzimkhulu	Baleni	NMZ COOP	Crop production	Soya Beans	Supply and deliver production inputs	300	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
UMzimkhulu	Msingaphansti	Mtshibeni	Crop production	Dry beans	Supply and deliver production inputs	150	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
UMzimkhulu	Msingaphansti	Myembe	Crop production	Dry beans	Supply and deliver production inputs	150	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
UMzimkhulu	Zimema	Mahlomane	Crop production	Maize	Supply and deliver production inputs	200	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
UMzimkhulu	Fodo	Gingwini	Crop production	Maize	Supply and deliver production inputs	200	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
UMzimkhulu	Manci	Zintwala	Crop production	Soya Beans	Supply and deliver production inputs	300	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
UMzimkhulu	Zimema	Sihleza	Crop production	Soya Beans	Supply and deliver production inputs	300	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
UMzimkhulu	Mjoli	Highlands	Crop production	Soya Beans	Supply and deliver production inputs	300	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
UMzimkhulu	Mjoli	Washbank	Crop production	Soya Beans	Supply and deliver production inputs	300	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
Ubuhlebezwe	P.D.Chiliza	Madungeni Cluster	Crop production	Maize	Supply and deliver production inputs and supply and erect fencing	35	Smallholder	Communal
Ubuhlebezwe	P.D.Chiliza	Madungeni Cluster	Beans	Beans	Supply and deliver production inputs	37	Smallholder	Communal

Local Municipality	Inkosi	Project/Farm Name	Project Type (e.g. broiler, vegetable etc.)	Commodity (e.g. crop, layer/broiler, maize, beans, vegetable etc.)	Project Activities	Project Size e.g. km of fencingErected; Ha of Irrigation etc.)	Category of Farmer/s (smallholder, subsistence, commercial)	Land ownership (communal, freehold etc.)
				Vegetables	Installation of irrigation system and fencing	12	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ubuhlebezwe	T.P.Dlamini & B.C. Dlamini	Mazabeko Cluster	Maize	Maize	Supply and deliver production inputs	**25**	Smallholder	Communal
Ubuhlebezwe	T.P.Dlamini & B.C. Dlamini	Mazabeko Cluster	Beans	Beans	Supply and deliver production inputs	16	Smallholder	Communal
				Vegetables	Installation of irrigation system on 19ha, fencing and finalisation of tunnels	34	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ubuhlebezwe	M.S.I.ZULU and B.Mjoli	Nokweja Cluster	Maize	Maize	Supply and deliver production inputs	34	Smallholder	Communal
Ubuhlebezwe	M.S.I.ZULU and B.Mjoli	Nokweja Cluster	Beans	Beans	Supply and deliver production inputs	59	Smallholder	Communal
					Installation of irrigation system and fencing		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ubuhlebezwe	N.J. Mkhize	Hlokozi Cluster	Maize	Maize	Supply and deliver production inputs	26	Smallholder	Communal
			Beans	Beans	Supply and deliver production inputs	77	Smallholder	Communal
					Installation of fencing		Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ubuhlebezwe	D. Ngcobo & Z. Mkhize	Ndonyane Cluster	Maize	Maize	Supply and deliver production inputs	33	Smallholder	Communal
			Beans	Beans	Supply and deliver production inputs	60	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ubuhlebezwe	W.F. Mkhize & B.Dlamini	Springvale Cluster	Maize	Maize	Supply and deliver production inputs	25	Smallholder	Communal
		Springvale Cluster	Beans	Beans	Supply and deliver production inputs	80	Smallholder	Communal
					Installation of irrigation system and fencing	10	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ubuhlebezwe	F. Dlamini	Thathani Cluster	Maize		Supply and deliver production inputs	34	Smallholder	Communal

Local Municipality	Inkosi	Project/Farm Name	Project Type (e.g. broiler, vegetable etc.)	Commodity (e.g. crop, layer/broiler, maize, beans, vegetable etc.)	Project Activities	Project Size e.g. km of fencingeErected; Ha of Irrigation etc.)	Category of Farmer/s (smallholder, subsistence, commercial)	Land ownership (communal, freehold etc.)
		Thathani Cluster	Beans	beans	Supply and deliver production inputs	82	Smallholder	Communal
					Installation of fencing			
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ubuhlebezwe	T.Ndlovu	Ofafa cluster	Maize	Maize	Supply Production and deliver inputs	35	Smallholder	Communal
		Ofafa cluster	Beans	beans		49ha	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ubuhlebezwe	M. Dlamini	Mhlabashana Cluster	Maize	Maize	Supply Production inputs	21	Smallholder	Communal
		Mhlabashana Cluster	Beans	beans		42ha	Smallholder	Communal
					Fuel and Labour		Smallholder	Communal
					Tractor Implements		Smallholder	Communal
Ingwe	D.S Hlongwane	Ndonyela	Vegetables	Vegetables	Installation of irrigation system	49ha	Smallholder	Communal
					Supply of Inputs	60ha		
UMzimkhulu	L.T Baleni	Mabandla	Vegetables	Vegetables	Installation of irrigation system		Smallholder	Communal
					Tractor Implements			
					Supply of Inputs			
UMzimkhulu	T.D Nhlabathi	Malenge	Vegetables	Vegetables	Social facilitaion and training on irrigation scheme management	280ha	Smallholder	Communal
NEW PROJECTS								
Ubuhlebezwe	Z. Mkhize	Hluthankungu Trust	Crop Production	Maize & Beans	Supply and deliver inputs	54 Ha	Smallholder	Freehold
Umzimkhulu	V. Jozana	Ibhunga Farm	Crop Production	Dry Beans & Vegetables	Supply & Deliver inputs, Tractor and Implements	180 Ha	Smallholder	Communal
Ubuhlebezwe	N. J. Mkhize	Pass Four Phungula	Crop Production	Grain & Vegetable	Supply & Deliver inputs, Tractor and Implements	58 Ha	Smallholder	Communal