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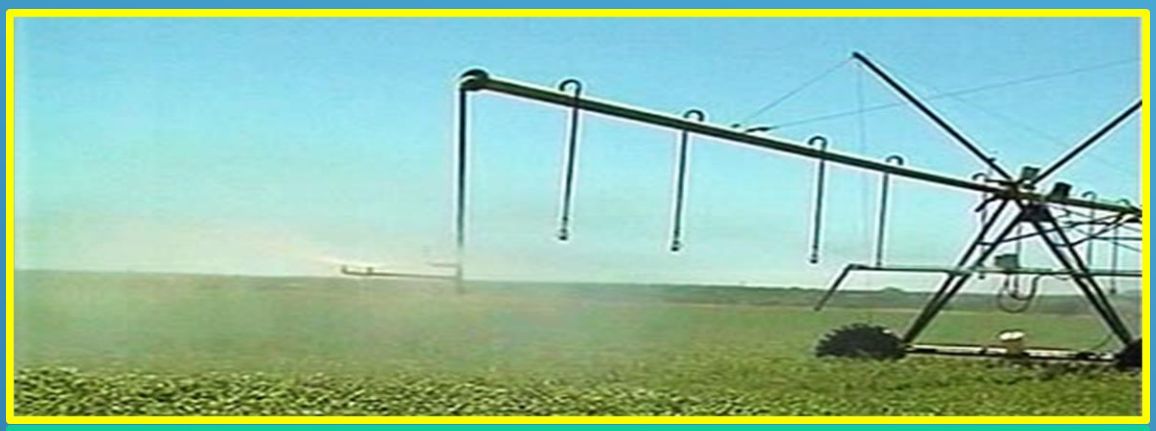

FINAL MASTER AGRI-PARK BUSINESS PLAN FOR THE UMKHANYAKUDE DISTRICT

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

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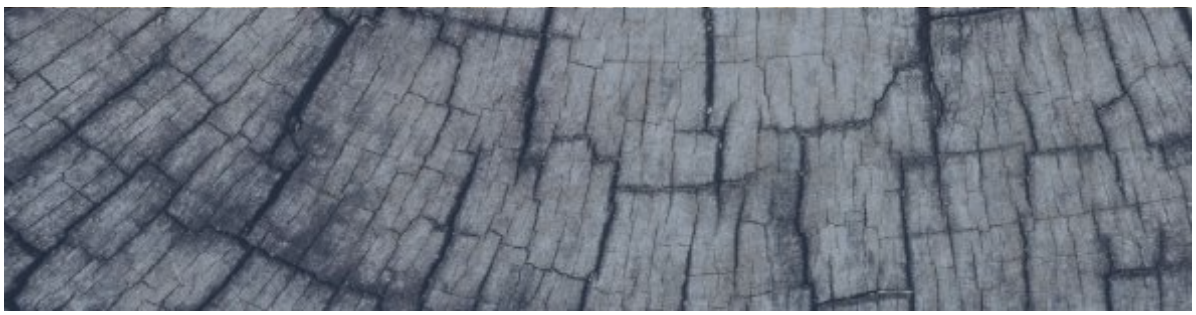

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AGRI-PARKS MASTER PLAN ROADMAP

Section 1: Introduction

Summary: 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

Section 2: Agri-Park Model

Summary: 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

Section 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

Section 4: Location Context

Summary: Provides an overview of the uMkhanyakude District Municipality (UKDM), 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 UKDM is located.
- The reader does not know the major economic activities in the UKDM
- The reader does know where the Agri-hub will be located in the UKDM.

Section 5: Main District Role-Players

Summary: Provides a list of the main role players that could potentially be involved in the UKDM 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.

Section 6: Economic and Socio-Economic Analysis

Summary:

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

Section 7: Local Agricultural Industry Analysis

Summary:

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

Section 8: Commodity Analysis: Vegetable, Livestock (Beef), Cotton

Summary:

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

Section 9: Concept Development

Summary:

- Development concept.
- High–level capital expenditure.

Section 10: Organisational Structure

Summary:

- Advisory Structures
- Approval Structures
- Implementation and Monitoring Structures

Section 11: Implementation Guidelines

Summary: Implementation guidelines of the UKDM 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 **uMkhanyakude District Municipality (UKDM) 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

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 UKDM 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 UKDM. 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 UKDM.

Section 5: Main Role-Players

Section 5 outlines the main role-players that could potentially be involved in the UKDM 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 UKDM 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 UKDM 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 UKDM'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 UKDM, 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, livestock (beef) and cotton production.

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 UKDM. 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 UKDM 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. Hluhluwe;
2. Ndumo B;
3. Manguzi;
4. Mbazwana;
5. Ingwavuma;
6. Phelendaba; and
7. Mjindi/ Makhathini Flats

Note:
Locations recommended as per workshopping process. Further study is required.

Training

Provides training and extension support to farmers, including:

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

Human Resources

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

Infrastructure & Equipment

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

Recommended Number of FPSUs: 7

Estimated CAPEX: R146 837 115

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 Locations

- Jozini (JVAC)
- Bhambanana (abattoir)
- Makhathini (cotton gin)

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

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

Recommended Number of Agri-Hubs: 3

Estimated CAPEX: R23 123 400

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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Acronyms and Abbreviations

AAC	Agricultural Produce Agents Council
ADA	Agri-business Development Agency
AgriBBBEE	Agricultural Broad-Based Black Economic Empowerment
AH	Agri-hub
AP	Agri-Park
APAP	Agricultural Policy Action Plan
ARC	Agricultural Research Council
ca.	circa
CASP	Comprehensive Agriculture Support Programme
CRDP	Comprehensive Rural Development Programme
DAFF	South African Department of Agriculture, Forestry and Fisheries
DAMC	District Agri-Parks Management Council
DAPOTT	District Agri-Parks Operational Task Team
DGDP	District Growth and Development Plan
DLRC	District Land Reform Committee
DM	District Municipality
dti	South African Department of Trade and Investment
DWS	Department of Water and Sanitation
EDD	Economic Development District
EMF	Environmental Management Framework
FMD	Foot-and-Mouth Disease
FNB	First National Bank
FPSU	Farmer Production Support Unit
GCM	General Circulation Model (of the atmosphere)
GFSI	Global Food Safety Initiative
GM	Genetically Modified
ha	hectare
HACCP	Hazard Analysis and Critical Control Points
IDGP	Integrated Growth and Development Plan
IDP	Integrated Development Plan
IPAP	Industrial Policy Action Plan
KZN	KwaZulu-Natal province
LDV	Light delivery vehicle
LED	Local Economic Development
LM	Local Municipality
M&E	Monitoring and evaluation
MAFISA	Micro Agricultural Financial Institutions of South Africa
MAP	Mean Annual Precipitation
MTEF	Medium Term Expenditure Framework
MTSF	Medium-Term Strategic Framework
NAAC	National Agri-Parks Advisory Council
NAPOTT	National Agri-Parks Operational Task Team
MCM	Ministerial Coordinating Management committee
NDAC	National Development Approvals Committee
NDP	National development Plan
NERPO	National Emergent Red Meat Producers' Organisation
NFPM	National Fresh Produce Market
NGP	National Growth Path

NIPF	National Industrial Policy Framework
NLARCC	National Land Allocation and Recapitalisation Control Committee
NTC	National Technical Committee
OECD	Organisation for Economic Cooperation and Development
OIE	World Organisation of Animal Health
PAPOTT	Provincial Agri-Parks Operational Task Team
PAW	Plant available water (content of soil)
PEA	Potentially Economically Active population
PES	Present Ecological State
PGDP	KwaZulu-Natal Provincial Growth and Development Plan
PGDS	KwaZulu-Natal Provincial Growth and Development Strategy
PICC	Presidential Infrastructure Coordinating Commission
PLAS	Pro-Active Land Acquisition Strategy
PSEDS	KwaZulu-Natal Provincial Spatial Economic Development Strategy
PSSCs	Provincial Shared Services Centres
RBIDZ	Richards Bay Industrial Development Zone
RMAA	Red Meat Abattoir Association
RPO	Red Meat Producers' Organisation
RUMC	Rural Urban Marketing Centre
SA	South Africa
SAFA	South African Feedlot Association
SAFVCA	South African Fruit and Vegetable Canners' Association
SAFEX	South African Futures Exchange
SAMIC	South African Meat Industry Company
SAMPA	South African Meat Processors Organisation
SDF	Spatial Development Framework
SEDA	Small Enterprise Development Agency
SEFA	Small Enterprise Finance Agency
SEMP	Strategic Environmental Management Plan
SME	Small and Medium Enterprise
t	Tonne (measurement of weight)
UKDM	uMkhanyakude District Municipality
UMDA	Umhlosinga Development Agency
UNISA	University of South Africa
WMA	Water Management Area
WULA	Water Use License Agreement

1 Introduction

1.1 Project description

The project is primarily concerned with the development of an Agri-Park within UKDM that lies to the north-east of KwaZulu-Natal province. The Agri-Park, which forms part of Government's undertaking to review all land reform policies as enunciated in the 2011 Green Paper on Land Reform, will provide a network of contacts between producers, markets and processors, and also the physical infrastructure required for the Agri-Park. The focus of the Agri-Park is primarily the processing of *agricultural products* (and the mix of *non-agricultural* industries may be low or non-existent).

Of prime importance is access to a viable agricultural land, where a range of productive agri-horticultural enterprises may exist. State land will be made available to be utilised for both production and processing. The Agri-Park approach, with a strong social mobilisation component, will include the selection and training of smallholder farmers, as well as selecting farms in the district for the placement, incubation and training of unemployed agricultural graduates and other agro-entrepreneurs, who will be actively mobilised and organised to support this initiative and targeted to control the Agri-Park.

The goal of uMkhanyakude's Agri-Park is to be viable for agriculture and the community, through a functional agricultural model that meets a specific set of conditions promoting viable operations for small-scale, emerging and black famers, while providing benefits to its stakeholders and the community. The model includes the functional integration of general conditions, inputs and infrastructure, and other components, which make it desirable for private enterprises, non-profit organisations and the community.

Objectives of this project include:

- Promote growth of the smallholder sector by creating new small-scale producers in the district, as well as new jobs in agro-processing by the year 2020 (as set out in the NGP);
- 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, information communication technology (ICT) and transportation/ logistics corridors that support the Agri-Park value chain

- Enable producer ownership of the majority of Agri-Park equity (70%), with the state and commercial interests holding minority shares (30%);
- Allow smallholder producers to take full control of the Agri-Park by steadily decreasing state support over a period of ten years;
- Bring underutilised land (especially Communal Areas Land and land reform farms) into full production over the next three years, and expand irrigated agriculture; and
- Contribute to achievement of the NDP'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 goals and objectives of the Agri-Park will be achieved through South African Department of Rural Development and Land Reform's (DRDLR) strategic partnerships and collaboration with key government departments such as the Department of Agriculture, Forestry and Fisheries (DAFF) and the Department of Cooperative Governance and Traditional Affairs (CoGTA) and other spheres of government.

1.2 Purpose of the Master Business Plan

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

1. To understand the Agri-Park Model developed by the DRLDR.
2. To develop a document that serves as a guideline towards the implementation of the Agri-Park within the district.
3. Review all existing documentation, maps, and agricultural potential.
4. To engage with district representatives, government officials, and other related role-players.
5. To align the business plan with existing policies, strategies, and relevant development plans.
6. To determine the socio-economic benefits and potential impact that the Agri-Park will have within the district.
7. To identify the existing agro-processing facilities and farmers within each district municipality and to establish possible linkages.
8. To identify current, or potential agricultural activities within the district.
9. To identify three dominant, or most feasible commodities within the district.
10. To identify agro-processing business opportunities for the Agri-Park based on the three commodities.

11. To perform a SWOT analysis that includes a legal, environmental, and technical analysis.
12. To conduct a feasibility and viability assessment of the proposed agro-processing facilities.
13. To identify current agro-processing initiatives and possible synergies, linkages and opportunities to buy into existing businesses.
14. To identify potential public-private partnerships.
15. To develop a district specific operational plan for the Agri-Park.

1.3 Methodology

Figure 1 presents an illustration of the methodological steps undertaken in this project which are described in detail thereafter.

FIGURE 1. METHODOLOGY

- **Step 1**: The purpose of the first step is to engage with the client to achieve consensus on the goals and objectives of the project.
- **Step 2**: The purpose of this step is to conduct a programme and policy alignment review and to advise on the possible opportunities in terms of the proposed Agri-Park developments.
- **Step 3**: The third step of the methodology is to conduct a status quo analysis of the agricultural and agro-processing industry for UKDM. The status quo analysis will provide the background to the agricultural environment in the district that will be used as a departure point for the project team. The existing information will be analysed and all the relevant

data, analysis, linkages and connections will inform the team on the available local opportunities.

- **Step 4**: The purpose of this step is to identify existing successful agricultural and agro-processing initiatives in UKDM. Many of the existing farmers have experience in the field and will be able to share their knowledge and work with the government to establish a competitive Agri-Park in UKDM. The farmer support initiatives will provide valuable insight on the support programme and specialisation of the existing emergent farmers in the region.
- **Step 5**: The purpose this step is to conduct an opportunity analysis of UKDM's Agri-Park in order to determine agro-processing business opportunities. The opportunity analysis will be used to develop a business case for UKDM's Agri-Park.
- **Step 6**: The purpose of this step is to determine the viability of a proposed Agri-Park and agro-processing business opportunities. Both secondary and primary research will be used as basis to determine if the proposed business ventures are feasible or not.
- **Step 7**: The purpose of this step is to conduct a financial analysis for the proposed agro-processing business concepts. The feasibility analysis will be prepared over a five-year period taking into consideration both the capital (CAPEX) and operational expenditure (OPEX) of the business.
- **Step 8**: This step of the project is focused on the operational plan. The operational plan will provide guidance in terms of the organisational structure of the Agri-Park.
- **Step 9**: The purpose of the final step is to compile a business plan for UKDM Agri-Park. The business plan will focus on the operational aspects of the business and the inputs from the client and the DM will be required to compile the plan. The business plan together with other requirements from financial institutions will be compiled in a document that can be submitted to potential investors, financiers and government entities.

1.4 Report outline

The Master Agri-Park Business Plan for uMkhanyakude District Municipality (UKDM) is split into the following sections

- **Section 1**: Introduction to the Master Agri-Park Business Plan for UKDM, including purpose, objectives and methodology;
- **Section 2**: Overview of the Agri-Parks Model;
- **Section 3**: Review of the relevant national, provincial and local policies and government programmes in relation to the Agri-Park;
- **Section 4**: The locational context of the UDKM Agri-Park;
- **Section 5**: Description of the main agricultural role-players within the district;
- **Section 6**: An economic and socio-economic analysis of UKDM;
- **Section 7**: An agricultural industry analysis with particular focus on UKDM;

- **Section 8**: An analysis of the three main commodities identified for UKDM;
- **Section 9**: Developing the concept of the Agri-Park for each commodity;
- **Section 10**: Proposed organisational structure for the UKDM Agri-Park; and
- **Section 11**: Presentation of the implementation guidelines for the proposed Agri-Park in UKDM.

All the information and analysis for this report is based on expert opinions, in-depth market analysis and projections in the case of commodities that have been identified for the UKDM Agri-Park Programme.

2 Agri-Park Model

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

2.1 Understanding the Agri-Park concept

For many years, a key area of government action has been focused on poverty alleviation, especially in rural areas where there is a lack of economic activity. Government has intervened with various anti-poverty programmes, but the impact has been lower than 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 coordination 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-Park 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-Park model is required to have a strong social mobilisation component for the organisation and mobilisation of black farmers and agri-business entrepreneurs to actively support the initiative. Furthermore, the model should strengthen partnerships between government, the private sector and civil society – partnering with the Department of Agriculture and Fisheries (DAFF) and the Department of Cooperative Governance and Traditional Affairs (CoGTA) is essential.

For the successful mobilisation of the programme the Agri-Park 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 industrialisation.

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

2.2 Definition and background to Agri-Park model

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 mobilisation component so that black farmers and agri-business entrepreneurs are actively mobilised and organised to support this initiative

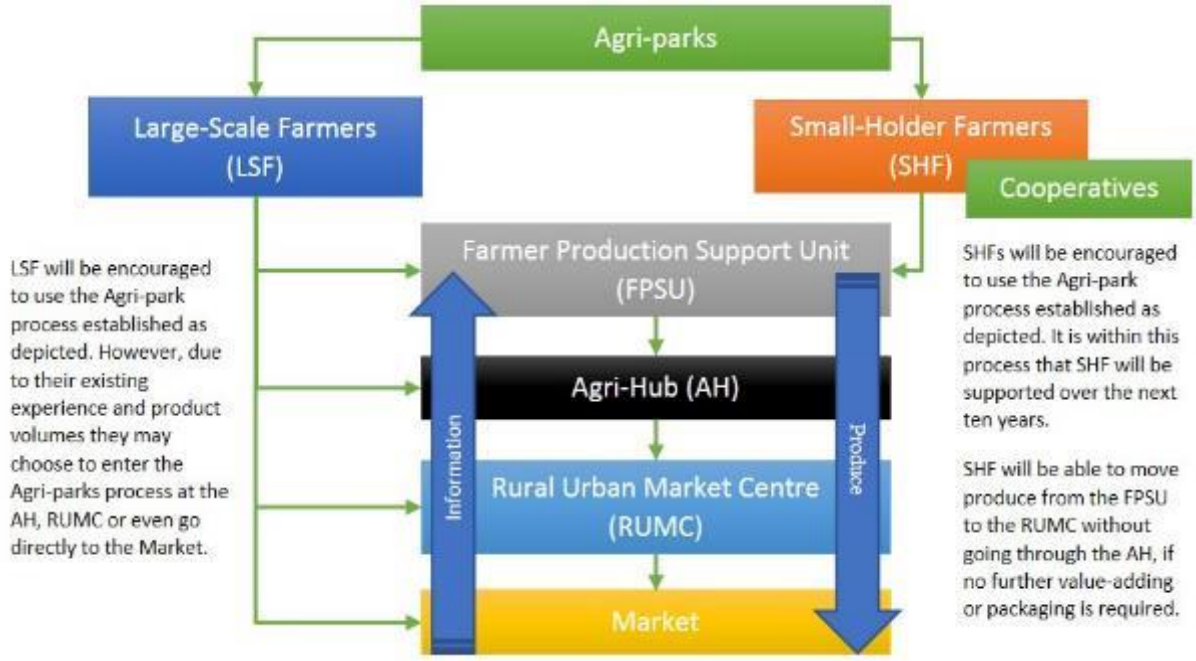
For the success of the initiative the DRDLR's will be required to develop strategic partnerships with key government departments such as DAFF, CoGTA and other governmental bodies. In addition, state land will be brought into use for both production and processing.

The Agri-Parks contain three basic units:

1. 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.
2. Agri-hub Unit (AH). The AH is a production, equipment hire, processing, packaging, logistics and training (demonstration) unit.
3. The Rural Urban Market Centre Unit (RUMC). The RUMC 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 (ICT).

Figure 2 presents a visual representation of the envisaged flows of information and produce with the Agri-Park model.

FIGURE 2. AGRI-PARK PRODUCE AND INFORMATION FLOWS



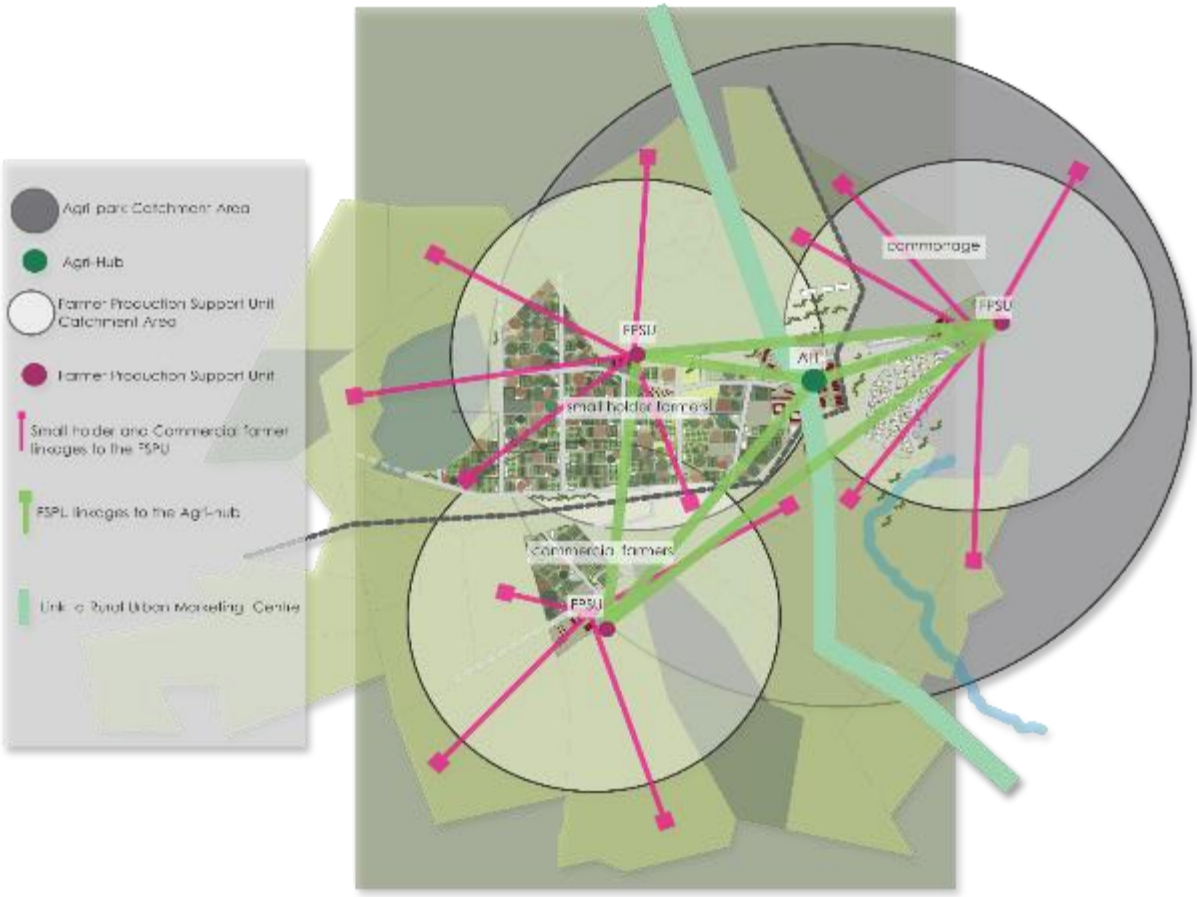
Farmer Production Support Units (FPSU): Are centres (more than one per district) of agricultural input supplies, extension support, mechanisation support, local logistics support, primary produce collection, and through-put to Agri-hubs. The FPSUs have limited sorting, packaging, storage, and processing 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 FPSUs 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 FPSUs and AHs provide inputs to the RUMC. Agri-parks share RUMCs.

Figure 3 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 strengths, in order to develop each district level economy.

FIGURE 3. STRATEGIC REPRESENTATION OF THE AGRI-PARK MODEL



The figure above depicts the catchment area of the Agri-Park in the grey circle, essentially illustrating the size and contents of the Park that includes farmers, FPSUs, AHs and RUMCs. The AH forms the central point of the Agri-Park and is linked to the FPSUs. There will be more than one FPSU per district, which is intended to provide a supporting role between the AH and the farmers. All these units of the Agri-Park 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
AH	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 AHs than FPSUs. The RUMC is designed to have the largest catchment areas of 250km in low density areas and 150km in high density areas.

The Agri-Parks Programme seeks to achieve a rural economic development through an inclusive approach to development focused on 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 expected. The Agri-Parks model, however, is expected to coordinate anti-poverty activities, providing an integrated package.

3 Policy Framework and Government Programmes (implications)

This section of the business plan provides an overview of the national, provincial, and local policies that are considered to have a direct influence on the development of the Agri-Park concept in UKDM.

3.1 National policies

The following national policies and programmes are considered relevant to the establishment of UKDM's Agri-Park.

3.1.1 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.

3.1.2 National Development Plan – 2030 (2010)

South Africa's first National Planning Commission was set by President Jacob Zuma and inaugurated in May 2010. The objective posed to the National Planning Commission was to take an independent view of South Africa, and from that, derive a Vision and a Plan that is focused on enabling a much better quality of life for all South Africans by 2030. The primary channels through which improvement in quality of life are likely to come about, are through eliminating poverty and reducing inequality - the two single biggest problems in South Africa. These aspects affect every other 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 NDP views agriculture as critical to employment and food security. It is estimated that agriculture would potentially create a million jobs by 2030. Agri-Parks will serve as important mechanisms to execute the NDP's proposed rural development strategy due to their potential for supporting small-scale agricultural production and stimulating agro-processing in rural areas.

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

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

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

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

dietary guidelines, to accompany strategies to increase vegetable and fruit production.

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

The *Industrial Policy Action Plan (IPAP) (2013/14-2015/16)* is in 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

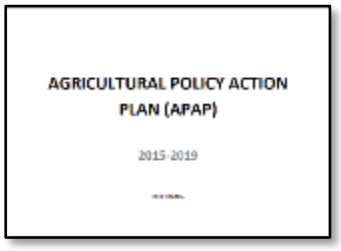
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

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.



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

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

STRATEGIC PRIORITIES / FOCUS AREAS

The APAP seeks to provide both a long-term vision, and focused interventions in a 5-year rolling schedule, to be updated annually. APAP is based on Sectoral Key Action Programmes (commodities) and Transversal Key Action Programmes (e.g. research and innovation). It furthermore, presents institutional arrangements and processes for achieving this objective – 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 development of Agri-Parks is aligned with the APAP policy levers and would help in achieving its stated goals.

3.1.5 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.

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

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

formulated to improve and develop production by means of entrepreneurship promotion in the AFF sectors.

STRATEGIC PRIORITIES / FOCUS AREAS
The Strategic Plan of the DAFF aims to address the social and economic challenges that the AFF sectors are faced with. It further sets new opportunities for service delivery with relation to job creation, food security, rural development, and skills development. The opportunities or action areas highlighted for key policy development include the following: • Food security production programmes • Strategic plans for supporting small producers • Aquaculture programmes • Agro-processing strategic frameworks The strategic goals set out in the document are the following: • Increased profitable production of food, fibre, and timber products by all categories of producers. • Sustained management of natural resources. • Effective national regulatory services and risk management systems. • A transformed and united sector. • Increased contribution of the sector to economic growth and development. • Effective and efficient governance.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
The Strategic Plan of the DAFF supports the development of the Agri-Parks development. Agro-processing is highlighted to play a key role in ensuring an equitable food-secure economy. Interventions should focus on developing processed agricultural products, while at the same time targeting increased export-trade. Investment in agro-processing should be increased as a means of reinvigorating specific strategic value chains such as soya beans, rooibos, beverages, fruit and vegetables, as well as forestry. An equitable food-security economy will improve access to markets, especially for smallholder farmers.

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

The *National Policy Framework on the Development of Small and Medium Agro-Processing 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.

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

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

3.1.9 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

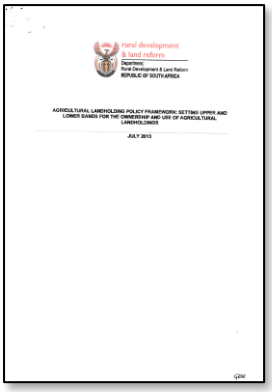
The strategic priorities of the IGDP for the agricultural, forestry, and fisheries sector are the following:

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.

3.1.10 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.

3.1.11 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 single framework document. As such it restates the strategic priorities 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.

3.2 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.

3.2.1 Department of Rural Development and Land Reform

3.2.1.1 Comprehensive Rural Development Programme

The *Comprehensive Rural Development Programme (CRDP)* is aimed at being an effective response against poverty and food insecurity through maximising the use and management of natural resources to create vibrant, equitable, and sustainable **rural communities**. A CRDP must improve the standards of living and welfare, but also rectify past injustices through rights-based interventions and address skewed patterns of distribution and ownership of wealth and assets. The strategic objective of the CRDP is therefore, to facilitate integrated development and social cohesion through participatory approaches in partnership with all sectors of society. This document therefore, serves as the policy framework document for the Comprehensive Rural Development Programme. 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.

3.2.1.2 Other Programmes

Other programmes implemented by the DRDLR are the following:

1. LAND REFORM PROGRAMME

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

- 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

3.2.2 Department of Agriculture, Forestry and Fisheries

The following rural development programmes are driven by DAFF:

1. COMPREHENSIVE AGRICULTURE SUPPORT PROGRAMME (CASP)

To ensure the commercial viability of emerging farmers from a household food security level to a commercial level, a farmer-to- farmer mentorship policy has been developed. The department regards skills development as one of its critical focus areas and this obviously includes providing hands-on training to emergent farmers in various fields of farm management.

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

The *Micro-Agricultural Financial Institutions of South Africa* (MAFISA) encourage partnerships between established agricultural enterprises and emerging farmers and entrepreneurs by providing access to finance for farmers, especially beneficiaries of the land restitution, redistribution, and land tenure reform programmes. The Land Bank administers the credit scheme on behalf of the department and provincial departments provide assistance to access the scheme. Four development finance institutions are currently participating in the disbursement of MAFISA funds in the provinces.

3. ILIMA-LETSEMA

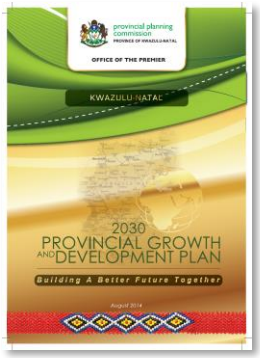
The grant provides for farmers who lack access to credit to be assisted to access agricultural production inputs. The inputs are necessary to increase agricultural production and hence, to improve household and national food security. Jobs are sustained and new ones created when farm enterprises are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

4. AGRICULTURAL BROAD-BASED BLACK ECONOMIC EMPOWERMENT (AgriB-BBEE)

The *AgriB-BBEE* Charter seeks to provide direction on the integration of emerging participants into mainstream agriculture by creating linkages, partnerships, and networks for balanced, mutually benefiting results for all concerned. It specifically encourages partnerships between established agricultural enterprises and emerging farmers and entrepreneurs. It seeks to ensure enhanced competitiveness and sustainable development with improvement/expansion of the existing businesses, rehabilitation of ailing agricultural business concerns, and expanded entry for new businesses in the sector.

3.3 Provincial policies

The following provincial policies and programmes are considered relevant to the establishment of UKDM's Agri-Park.



3.3.1 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.

3.3.2 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 local level implementation.

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.

3.3.3 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:

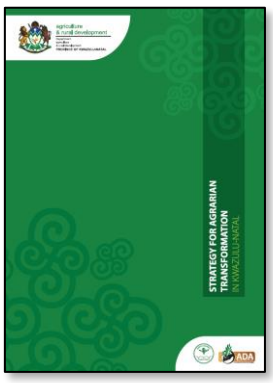
1. Provision of sound and transparent corporate and financial management systems.
2. Maximising agricultural development and output in the province.
3. Promotion of environmentally sustainable agricultural development.
4. Improve access to services in rural areas through coordination.

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 realilse 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.



3.3.4 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:

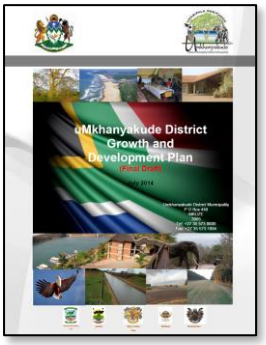
- Agro-Processing Model;
- Business Model;
- Commodity Approach; and
- Scientific Research, Technology Development and Extension

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.

3.4 Local policies

The following local (District) policies and programmes are considered relevant to the establishment of UKDM's Agri-Park.



3.4.1 District Growth and Development Plan (DGDP)

The *uMkhanyakude 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 long-term vision of the DGDP is far-reaching and is an idealised view of UKDM in 2030. It is articulated as five separate visions each targeted at a specific focal area:

1. Infrastructure and quality of life
2. Economic development
3. Demographic profile
4. Education
5. Natural resources, spatial development and governance

Six strategic goals are set to realise this vision:

1. Expanded district economic output and increased quantity and quality of employment opportunities
2. Enhanced quality of district human resources
3. Improved quality of life and life expectancy
4. High quality infrastructure network to support improved quality of life and economic growth
5. District characterised by integrity and quality of its physical environment and underpinned by a coherent spatial development pattern
6. Excellence in Governance and Leadership

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 DM and its family of LMs. This will facilitate an integrated response within the DM regarding interventions to enhance agricultural production and agro-processing and therefore is aligned with the strategic objectives of the Agri-Park Programme.

3.4.2 uMkhanyakude Cluster Corridor Development Master Plan

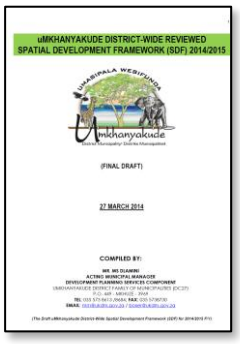
The *uMkhanyakude Cluster Corridor Development Master Plan (UMDA 2013)* was initiated by UMDA, the DM's development agency partner, with the intention of steering development in the DM and highlighting investment opportunities. It is aligned with the PGDS and PSEDS and aims to consolidate the results, findings and recommendation of the various separate, and mostly sector-specific, interventions that have been implemented in the DM. As with the DGDP, the intention is that the strategic objectives of the Cluster Corridor Development Master Plan should be incorporated into the IDP processes of the DM and its family of LMs.

STRATEGIC PRIORITIES / FOCUS AREAS

The primary priority of the Corridor Development Master Plan is to create a consolidated settlement structure which promote the efficient, equitable and sustainable utilisation of resources in a way that stimulates urban and rural economic development. It further seeks to assess and confirm the viability of already identified projects and to establish a corridor development plan for the DM. The nodal development concept is central to the plan, with a focus on linking the nodes within the DM to one another more effectively on the basis of their role and potential contribution to economic development.

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The Master Plan identifies the potential for the agricultural sector to make a larger contribution to the DM's economy and identifies the Jozini Dam and Makhathini irrigation Scheme as key economic infrastructure that can be utilised to realise this.



3.4.3 Spatial Development Framework (SDF), 2014/ 2015

The *uMkhanyakude District-wide Reviewed Spatial Development Framework (SDF), 2014/ 2015* is a high level spatial overview of UKDM that is intended to guide and inform strategic land use management and spatial planning. LMs are expected to align their individual SDFs with the UKDM SDF and to incorporate its strategic aims to ensure effective spatial planning. It employs a corridor and nodes approach and articulates a 2050 vision for the DM that focuses on addressing the current constraints facing

the DM through harnessing the potential of the agricultural and tourism sectors as vehicles through which to achieve economic growth and a reduction in inequality and poverty. Additionally, it envisages upgrading economic infrastructure such as transport, sewerage, electricity, and water with a view to improving the standards of living for its residents.

STRATEGIC PRIORITIES / FOCUS AREAS

The SDF employs a nodes and corridors approach and sets objectives based on the following focus areas to facilitate planned infrastructural and economic development and investment that will enable the DM to realise its 2050 vision:

1. Objective 1: Conceptual Framework
2. Objective 2: Align National and Provincial Policies
3. Objective 3: Long-term Planning Framework
4. Objective 4: Social and Infrastructural Services
5. Objective 5: Demographics
6. Objective 6: Economy
7. Objective 7: Agriculture
8. Objective 8: Biodiversity

IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMEN

The SDF identifies priority corridors to guide investment and defines the type of activities that should occur within these corridors. Of particular relevance to the Agri-Parks Programme is the identification of agricultural investment corridors and zones as part of Objective 7, which aims to realise the agricultural potential of the DM through creating a framework which attracts private sector investment. Utilising land reform processes to open up high potential agricultural and for commercial agriculture, is seen as a key activity to realise this goal. Agro-processing activities and facilities located in close proximity to primary production points are also identified as a strategy to achieve this. Objective 7 of the SDF is therefore aligned with the Agri-Parks Programme. Furthermore, as a national and provincial priority policy,

3.4.4 Integrated Development Plan Review (IDP), 2014/ 2015

The Integrated Development Plan Review (IDP), 2014/ 2015 for UKDM is strategic planning tool that guides development within the DM. 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 nine key priority areas for UKDM for the period 2014/15-2015/16:

1. Water.
2. Sanitation/ Sewerage.

3. Environmental Health.
4. Economics, Social or Community and Skills Development.
5. Poverty Eradication and Food Security.
6. Revenue Enhancement.
7. Spatial Planning and Development.
8. Information and Communication Technology.
9. Good Governance and Clean Administration.

In terms of agriculture, UKDM's vision includes becoming a food production centre and export earner, as well as being a major value-add centre.

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 DM 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. Furthermore, the IDP's identification of the need to develop ICT infrastructure within the DM is a promising sign for the Agri-Park which will be very dependent on a good ICT network to relay information and market intelligence.

3.4.5 District Rural Development Plan (Draft)

The *uMkhanyakude District Rural Development Plan (DRDP)* is a planning tool that aims to "promote rural economic transformation through fostering agricultural development as well as other existing economic sectors" with the intention of improving the quality of life for communities in the DM. it is informed by a number of national and provincial planning policies and documents, such as the NDP, CRDP, PGDS and PDGP, and APAP, as well district and local LEDs, IDPs and SDFs.

STRATEGIC PRIORITIES / FOCUS AREAS

The DRDP sets the following strategic objectives:

1. To serve as an instrument for coordinating rural strategic spatial planning.
2. To serve as rural economic transformation instrument.
3. To promote land use management and productivity.
4. To promote rural-urban linkages and functionality.

Central to the DRDP is the rationale that a more efficient agricultural sector is an effective vehicle for delivering rural economic transformation.

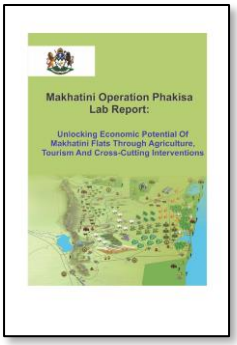
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

The Agri-Park model is ingrained in the DRDP which views it as the cornerstone of agrarian rural economic transformation. The DRDP and Agri-Parks Programme are closely aligned and establishment of an Agri-Park in UKDM will promote rural economic transformation, the core aim of the DRDP.

3.4.6 Makhathini Integrated Master Development Plan, 2008

The *Makhathini Integrated Master Development Plan* is a strategic document that aims to provide a blueprint for development in the Makhathini Flats. The intention of the document is to facilitate a coordinated response to the specific challenges facing the area.

STRATEGIC PRIORITIES / FOCUS AREAS
The strategic objective of the Makhathini Integrated Master Development Plan is to enhance the economic development of the area in a coordinated manner through a holistic focus that takes into account all the relevant economic sectors and their relative importance for the success and long-term sustainability of the area and its resident population. Notably, a critical focus on the document is placed on the importance of the agricultural sector in the area.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
The Integrated Master Development Plan provides a comprehensive analysis of the agricultural sector in Makhathini Flats as of 2008 and therefore provides a good foundation for considering any interventions to support agriculture, although it requires updating in order to take into account any changes in the area's development. The primary thrust of the plan is to provide a framework for the realisation of job creation and economic development through agriculture.



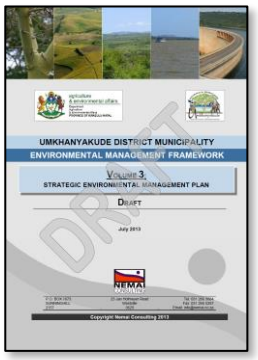
3.4.7 Makhathini Operation Phakisa Lab Report (Draft)

The *Makhathini Operation Phakisa Lab Report* (MOP) is a review of the economic potential of the Makhathini Flats. The report builds on and updates the Makhathini Integrated Master Development Plan (2008), and aligns itself with the NDP, PGDP and relevant UKDM and LM IDP's which all view the Makhathini Flats as a key agricultural investment zone with the potential to contribute to job creation through agriculture and agro-processing activities. It presents interventions aimed at unlocking the potential for economic growth and job creation in the Makhathini Flats.

STRATEGIC PRIORITIES / FOCUS AREAS
The strategic priority of the MOP is to build on the work of the Makhathini Integrated Master Development Plan (2008) and to consolidate all other development plans and research for the area in order to identify any new intervention that could unlock the area's economic potential. There are three core pillars that are considered essential to achieving this aim: 1. Agriculture; 2. Tourism; and 3. Infrastructure development.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT

Through the agricultural pillar, the MOP has a 2030 target of ensuring 20 000ha of land are brought under irrigation and a further 5 000ha under dryland agricultural production, agro-processing and agro-logistics. The purpose of this is to create 3 000 direct jobs. This is closely aligned to the job creation and poverty alleviation objectives of the Agri-Park. Furthermore, the focus on both primary production (under irrigation and dryland) and agro-processing as means of creating these employment opportunities is exactly what the Agri-Park model aims to achieve.

3.4.8 Strategic Environmental Management Plan



The *uMkhanyakude Strategic Environmental Management Plan (SEMP)* forms part of the *Environmental Management Framework* for the district and aims to direct interventions and activities focused on achieving the desired state of the district's environment. It is aligned with the district's SFD and IDP. Essentially, the SEMP bridges the divide between the current state of the environment in UKDM and the desired state by identifying the triggers for sustainable development in the UKDM required to facilitate decision-making that promotes sustainable economic development.

STRATEGIC PRIORITIES / FOCUS AREAS
The strategic focus of the SEMP is to manage the sustainable utilisation of land through management guidelines and by controlling activities that may impact on environmental attributes. Agriculture is identified as one of eth land uses within the district and management guidelines have been developed which aim to promote primary production activities and associated infrastructure.
IMPLICATIONS FOR THE AGRI-PARKS DEVELOPMENT
By delineating agricultural zones within the district and defining management guidelines for these zones, the SEMP provides an assertion regarding the importance of land identified as having a high agricultural potential. As a planning tool, this promotes long-term efforts to ensure sustainable and effective use of agricultural land and therefore achieves alignment with the Agri-Parks programme through a focus on creating employment opportunities and economic development through utilisation of land for agricultural activities.

3.4.9 Other District policy frameworks to review

The District-wide Water Services Development Plan and Infrastructure Development Master Plans are currently being drafted and, at the time of writing, were not available for review. Given their importance in framing the manner in which Infrastructure Development and Bulk Service Provision of Water will be rolled-out in UKDM, it is vital that that are reviewed and considered in light on their direct and indirect implications on the establishment and roll-out of UKDM's Agri-Park.

3.5 Synopsis

The overall objectives of the above national, provincial and local policies and programmes speak to the need to reduce poverty, achieve equity, and increase economic growth through leveraging agricultural development. These policies and programmes consider the agricultural sector as a vehicle that can generate economic growth which simultaneously reduces unemployment and poverty and contributes towards food security. The development of the Agri-Park is aligned with the policy framework and will contribute to the various objectives of these policies.

4 Location Context

This section of the business plan provides the locational and spatial context of the Agri-Park in UKDM. It is important to understand the spatial and geographic characteristics of the district and any strategic economic infrastructure that the Agri-Park development can leverage to achieve its desired aims and objectives. Additionally, it is also essential to consider potential constraints to the development that might be posed by underdeveloped or absent economic infrastructure.

4.1 Description of the District

The uMkhanyakude District Municipality (DC27) is located in the far north-eastern region of KwaZulu-Natal. It comprises the following five local municipalities:

1. uMhlabuyalingana Municipality (KZN271);
2. Jozini Municipality (KZN272);
3. The Big Five False Bay Municipality (KZN273);
4. Hlabisa Municipality (KZN274); and
5. Mtubatuba Municipality (KZN275).

The Hlabisa and The Big Five False Bay Local Municipalities will be amalgamated into one local municipality in 2016/ 2017.

It is a Category C municipality[1] with a geographical extent of approximately 12 821 km², making it the second largest DM in the province. It is bordered by Mozambique at its far northern boundary and Swaziland at its north-western boundary. The seat of UKDM government is Mkhuze, strategically located on the N2 development corridor.

A significant portion of the land, estimated at 50%, is under Ingonyama Trust jurisdiction. Settlement patterns in the district are influenced by the large portion of land under tribal or traditional ownership with in excess of 90% of the population considered to be residing in rural settings and only 5.6% of the population residing in urban centres (UKDM IDP, 2014/2015).

[1] Municipalities within category A are metropolitan municipalities, Category B are local municipalities, and category C are district municipalities.

The main urban centres and primary nodes found within UKDM are:

- Hlabisa
- Hluhluwe
- Ingwavuma
- Jozini
- Manguzi
- Mbazwana
- Mtubtuba
- Mkhuze
- Ndumo
- Skhemelele
- St Lucia

From 2001 to 2011 the population of UKDM increased by 0.9% to 625 846. The unemployment rate of 31% in in the district is slightly higher than the overall provincial rate of 28.5%. The most prominent characteristic is the very high proportion of the economically active population classified as discouraged work seekers (27.7%), a figure more than double the provincial average of 13.8%. This implies a general perception of the unavailability of formal sector employment in the district as manifested by the high proportion of discouraged work seekers

4.2 Proposed location of the Agri-Hub

It is proposed that UKDM should consider potentially having more than one AH based on the prioritised commodities for the District. It is suggested that alternative locations for the AHs be selected on the basis of the following criteria

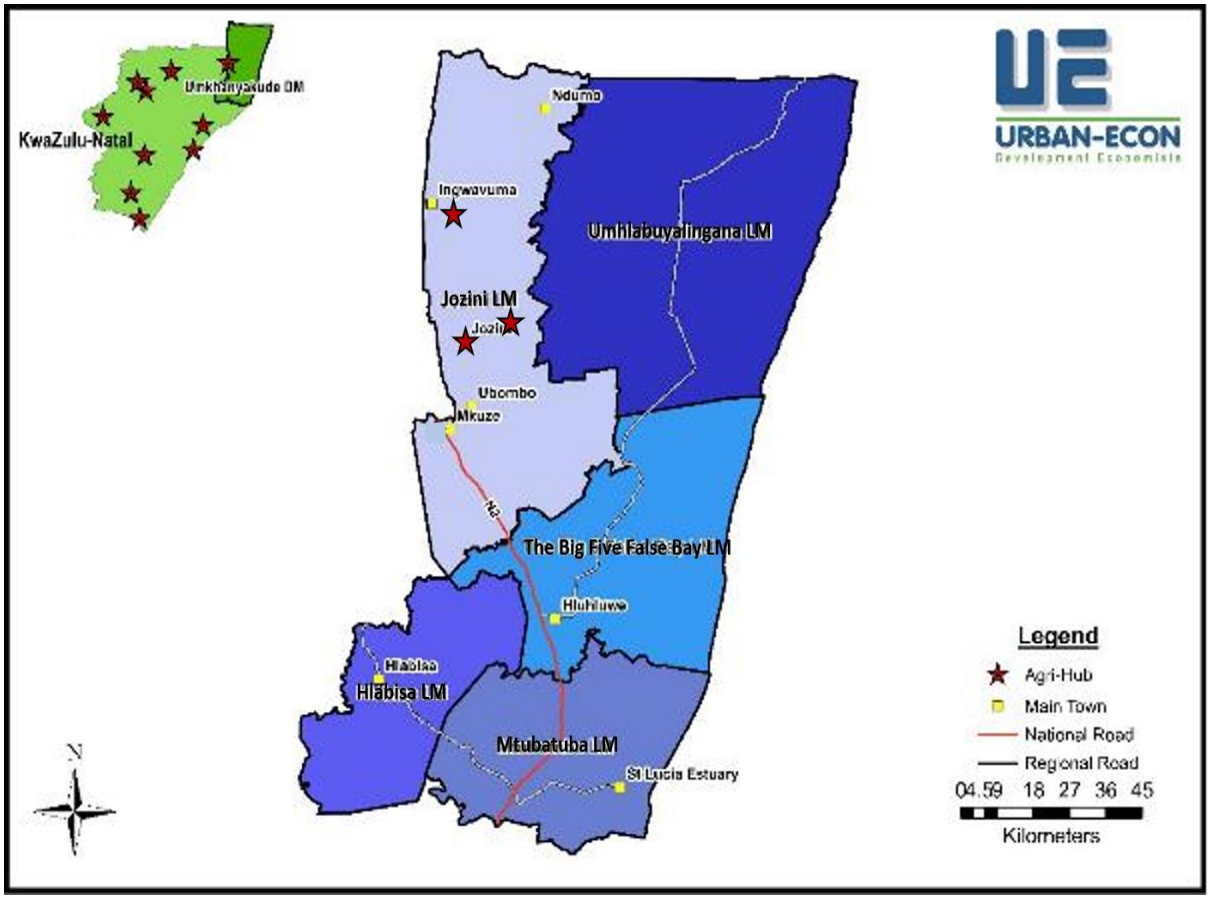
1. AH should be located closest to the densest point of primary production by rural, emerging and small-holder farmers in order to limit the damage to crops during transportation and also reduce costs (time and transport) of servicing the farmers.
2. Ideally, AHs should be located on state-owned land, as this will provide for both the most cost-effective and the shortest time delay for establishment.
3. Consideration should be given existing municipal-owned agro-processing facilities that are currently underutilised, as this will again, shorten the time of establishment and provide a more cost-effective option.
4. The existing work of the Makhathini Operation Phakisa should be built upon, given the region's importance in terms of primary production.

On the basis of the above selection criteria, it is proposed that the Jozini Value Adding Centre (JVAC) should be considered for vegetable agro-processing, while the recently established abattoir at Bhambanana could serve as the AH for beef production as this would optimise the utilisation of existing facilities which have already received government support. The Makhathini Cotton Gin is proposed a suitable facility for cotton agro-processing.

4.3 Maps

Map 1 presents a spatial illustration of the District and the potential location of the AHs at the Bhambanana abattoir, the Jozini Value Adding Centre (JVAC) and the Makhathini Cotton Gin. Included on the map are the main transportation linkages (national and regional roads) and the main towns in the district. The map (inset) also illustrates UKDM's AHs in relation to the other AHs in the rest of the province.

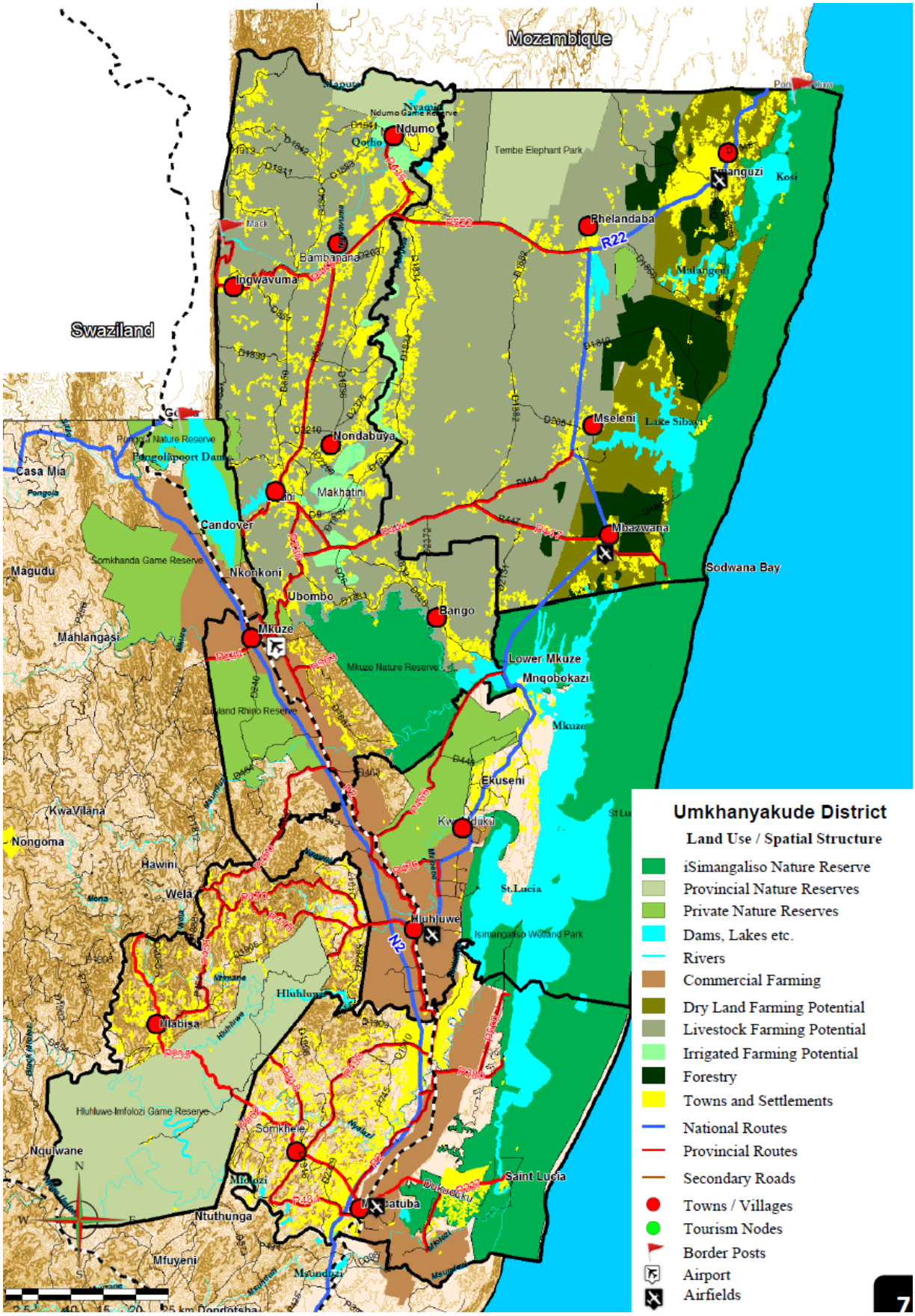
MAP 1. PROPOSED SITE FOR AGRI-HUB IN UKDM



Source: Urban-Econ, 2015

Map 2 illustrates the land uses within UKDM. In particular, it highlights the dispersed rural settlement patterns of the district and extent of the agricultural potential for dryland, livestock and irrigated framing in the Makhathini Flats, in the north of the district, and the largely commercial nature of agricultural activities which follow toe N2 corridor from Mtubatuba to Jozini, passing through Hluhluwe and Mkhuze

MAP 2. . UMKHANYAKUDE DISTRICT MUNICIPALITY LAND USES



Source: UMDA, 2013

4.4 Economic infrastructure

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

Due to its predominantly rural settlement patterns, large portions of land under Ingonyama Trust, and a history of underdevelopment, the district is characterised as having relatively little economic infrastructure, especially industrial and commercial (KZN PSEDS, 2012). The district is also characterised by a relative lack of bulk service infrastructure.

4.4.1 Transportation

Transportation plays a vital role in the functionality of the Agri-Park and its units and it is important to understand the state of the transportation network in UKDM in order to determine whether there will be challenges faced should the proposed Agri-Park be developed. Infrastructure for three modes of transport exists within UKDM, namely, road, rail and air. These modes of transport directly and indirectly link three of the largest harbours in Southern Africa, namely, Maputo, Richards Bay and Durban).

4.4.1.1 Road

Movement linkages are essential as they increase a region's connectivity and access to economic and learning opportunities. The road infrastructure provides a vital link between the various economic activities within the area. In UKDM, the road transport network has the most developed infrastructure, although it is still generally considered to be underdeveloped and in poor condition (UKDM IDP, 2014/2015), resulting in increased travel times. Additionally, places that are geographically close together are often not connected efficiently via the transport network which has implications for governance and service delivery within the DM as whole, but also within the UKDM Agri-Park.

The following road transport corridors are found within UKDM:

- **N2:** The primary road transport corridor transverses the district in a south-north direction from Mtubatuba, through Mkhuze and finally on to Pongolo and Swaziland in the north. It further connects the District to other parts of KZN and also to Gauteng province. Commercial agricultural activities are predominantly clustered on either side of this corridor in the south of the district.
- **R22**: Runs through the district in a north-easterly direction from Hluhuluwe through to Mbazwana and connects with the P522 at Phelindaba. It then heads east through

Manguzi and continues on to the Mozambican border at Farazel. According to the Kwa-Zulu Natal Department of Economic Development, Tourism and Environmental Affairs (EDTEA) spatial economic profiling of the district, this corridor has opened up an area which was previously only accessible on untarred gravel roads.

- **P435, P443 and P522**: In the north-western part of the district, Ingwavuma and Bambanana are connected to each other via the P443 which is tarred and runs in in an easterly direction before connecting with the P552. The P435, an untarred, gravel road connects Ndumo to the P522 and by extension the rest of the district. Jozini is also connected to the rest of the district via the N2 and P522.

The three proposed AHs are all strategically located within close proximity to the existing transportation infrastructure. The condition of provincial roads in UKDM is generally poor and the routes require upgrading. Freight transport and a lack of maintenance are contributing to the deterioration of provincial road infrastructure.

4.4.1.2 Rail

The rail transport network consists of a single passenger railway line, the Lubombo railway line, which connects Swaziland, South Africa and Southern Mozambique, and a single freight line designed specifically for transporting timber produced in Mtubtuba LM to the Richards Bay harbour.

Development and enhancement of the freight rail corridor to extend to the Mozambican border (UKDM EMF, 2013) could potentially create export market opportunities for transporting commodities produced in the UKDM Agri-Park to the RBIDZ and Richards Bay harbour.

4.4.1.3 Air

Air transportation is the fastest way of connecting people and businesses, and it assists in enhancing economic development. For air transport to be successful there must be sufficient infrastructure capacity (roads) which will assist in providing necessary connections.

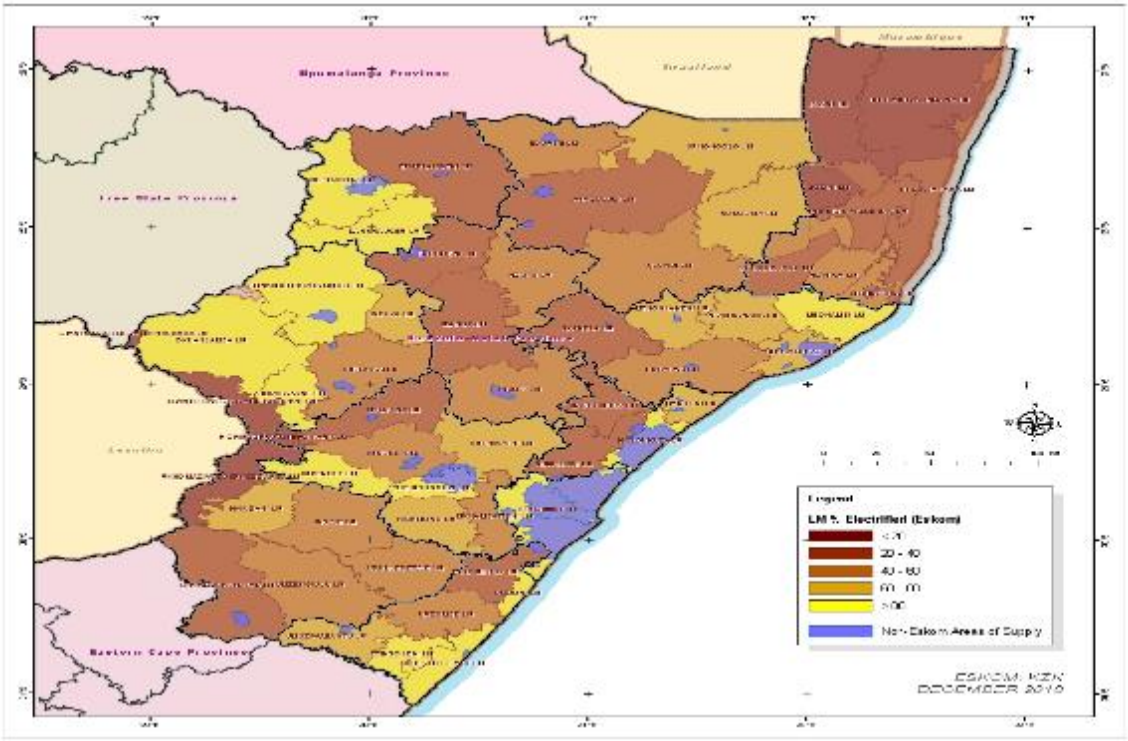
UKDM's air transport network infrastructure consists of the Mkhuze Regional Airport and airfields at Mtubatuba, Hluhluwe, Mbazwana and Manguzi. The District Growth and Development Plan (UKDM DGDP, 2014) proposes the formalisation of the Manguzi airstrip and the development of Mkhuze Regional Airport as catalytic projects that will spur economic development in the district. With the AHs located at the JVAC and Bhambanana, this presents an opportunity to utilise the air transportation network to transport commodities and input supplies between the AHs and those parts of the district which are further away, such as Manguzi, Phelendaba and

Nudmo to name a few. Value-add products processed at the AHs can also be transported via air to other parts of the province, such as the Dube Tradeport or RBIDZ.

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 UKDM's current status of access to energy is important for the success of the Agri-Park.

FIGURE 4. KZN ELECTRICITY BACKLOGS AT A GLANCE (2010)



Source: UMDA, 2013

Figure 4 illustrates the backlog of electrification in KZN as at 2010. According to this figure, Jozini LM and uMhlabuyalingana LM were experiencing the most severe backlogs in the District followed by the other three local municipalities. Given the current electricity supply issues facing the country, it is unlikely that this situation has changed much although this cannot be said with certainty as more up to date data is not available.

According to the Master Corridor Development Plan for UKDM, limited electricity provision remains one of the biggest challenges to development and investment in the district (UMDA, 2013). According to data obtained from Census 2011, the majority of households in UKDM do

not have access to electricity for cooking, heating or lighting. Instead they utilise alternative fuel sources such as fossil fuels.

Limited District-wide electricity provision capacity has implications for UKDM's Agri-Park and potential agro-processing opportunities, many of which require energy as a process input. Additionally, electricity is required to not only provide power to processing equipment but also to the telecommunications network that the Agri-Park is expected to be reliant on to transmit market intelligence and information. Should the Agri-Park be developed in UKDM, it is essential to ensure that the various units of the Agri-Park are well connected to the national electricity grid.

4.4.3 Telecommunications

Telecommunication plays a crucial role in providing linkages and information transfer across various aspects of an economy. It helps business to function efficiently and breaks distance barriers. Hence, its importance in establishing necessary linkages cross the various units of the Agri-Park cannot be over-emphasised. The Internet and the information and communication technology (ICT) industry is driving changes in the global economy and is expected to continue to drive economic growth well into the future, provided that it is made readily available.

Census 2011 data indicates that the majority of households in UKDM do not have access to the internet (73.5%), do not own a computer (98%), and do not have a telephone landline (99.6%).

UKDM's IDP (2014/2015) identifies ICT as a strategic priority objective required to achieve alignment with the DGDP. The IDP and DGDP both note that there is a need to improve access to and availability of ICT infrastructure and services across the District. This is essential for the effective and efficient functioning of the Agri-Park as the three basic units (FPSU, AH and RUMC) are expected to rely heavily on the provision of market intelligence and information feedback. Given the geographical extent of UKDM, efficient ICT infrastructure is a necessity for a sustainable and effective Agri-Park.

4.4.4 Water

Bulk water provision is a critical requirement for agricultural production and processing and therefore is expected to play a pivotal role in the UKDM Agri-Park. The importance pf access to water is heightened in light of the current drought which is placing significant pressure of

agricultural activities. The issuing of Water Use License Agreements (WULA) is currently the mandate of the Department of Water and Sanitation (DWS) and it is imperative that every effort is made to issue licenses to those involved in agricultural practice sin order to ensure their success in the long-term. This Master Business Plan assumes that issues surrounding the issuing of licenses in UKDM, particularly around the Jozini Dam and the associated Irrigation Schemes will be resolved and that water will be available for those involved in agricultural practices at all levels of the value chain. Failure to resolve issues surrounding the issuing of licenses is likely to pose a serious threat to the implementation and long-term success of the Agri-Park in UKDM.

4.5 Synopsis

The siting of the various components of the Agri-Park within UKDM should take cognisance of the availability of strategic economic infrastructure such as, transportation linkages (both within the District and linking the District to the rest of KZN and the country), bulk electricity provision, ICT infrastructure and bulk water provision. This infrastructure is considered vital to the successful operation of the Agri-Park and careful planning attention should be given to developing it for use within the Agri-Park.

The various components of the Agri-Park, namely the FPSUs and AHs should also take cognisance of the availability of strategic infrastructure and existing support infrastructure for primary production, such as the Ndumo and Makhathini Irrigation schemes, JVAC and the abattoir at Bhamabanana and the associated livestock centre at Manyesen/ Ingwavumai.

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 UKDM. There are three categories of role-players, namely government, private companies, and associations and organisations.

TABLE 2. ROLE-PLAYERS WITHIN UKDM

Role-player	Potential role
Government & public sector	
SA Department of Agriculture, Forestry and Fisheries (DAFF)	◦ The purpose of the Directorate National Extension Support is to provide strategic leadership in the coordination and implementation of Norms and Standards for extension and advisory services. It also provides support in the implementation of extension programmes executed by provinces. It comprises of two sub-directorates namely Extension Programmes, and Extension Partnerships. Service delivery is undertaken and managed by the Provincial Departments of Agriculture (PDAs). Within South Africa there are currently approximately 4 000 extension officers and agricultural advisors rendering such services to farmers.
SA Department of Rural Development and Land Reform (DRDLR)	◦ Within DRDLR the relevant extension support services will be provided by the Directorate Rural Enterprise and Industrial Development (REID). Its mission and objectives are to facilitate poverty reduction, social organisation, youth development and the development of cooperatives, rural enterprises and industries. To this end the following are components and functions: 1. Reduce household poverty in accordance with CRDP 2. Promote rural businesses development and facilitate rural development financing 3. Facilitate establishment and support of primary cooperatives 4. Facilitate organisation of primary cooperatives into secondary and tertiary coops and provide support 5. Facilitate the development of rural enterprise and industries 6. Provide strategic management in the coordination of financial and non-financial service delivery 7. Provide social organisation and youth development towards economic upliftment
SA Department of Labour (DL)	◦ Employment equity and support ◦ Creating linkages between employers and employment opportunities
SA Department of Trade and Industry (dtI)	◦ Development facilitation ◦ Institutional support
SA Department of Agriculture, Forestry and Fisheries (DAFF)	◦ Agricultural sector support ◦ Promote rural development

Role-player	Potential role
SA Department of Water and Sanitation (DWS)	◦ Formulation and implementation of policy ◦ Responsible for water services provided by the Government
National Development Agency (NDA)	◦ Grant funding ◦ Partnering for development ◦ Research and development ◦ Capacity building
KZN Department of Agriculture and Rural Development (KZN DARD)	◦ Agricultural sector support & extension services ◦ Monitoring and Evaluation ◦ Grant funding ◦ Provision of institutional support ◦ Project facilitation ◦ Promote rural development
KZN Department of Cooperative Development and Traditional Affairs (CoGTA)	◦ Agricultural research support ◦ Grant funding ◦ Project facilitation ◦ Provision of institutional support ◦ Partnering for development
KZN Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA)	◦ Project facilitation ◦ Research and development ◦ Partnering for development ◦ Grant funding
uMkhanyakude District Municipality (UKDM)	◦ District-wide project facilitation & coordination ◦ Liaison with LMs ◦ Partnering for development ◦ Institutional support
uMhlosinga Development Agency (UMDA)	◦ Partnering for development ◦ Agricultural research support ◦ Institutional support ◦ Liaison with LMs and DM
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.
Local Municipalities (LM)	◦ Facilitation of local initiatives ◦ Liaison with local stakeholders ◦ Institutional support and facilitation
Traditional Land Authorities	◦ 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
Mjindi Farming	◦ Management of Makhathini irrigation scheme ◦ Liaison with local stakeholders ◦ Institutional support and facilitation ◦ Facilitation of local initiatives ◦ Provision of advisory and extension services
Ndumo B Irrigation Scheme Block	◦ Management of the Ndumo B Irrigation and farmer support scheme

Role-player	Potential role
Management Committees	◦ Liaison with local stakeholders ◦ Institutional support and facilitation ◦ Facilitation of local initiatives ◦ Provision of advisory and extension services
Financial and extension services	
Ithala Development Corporation	◦ 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
Development Bank of Southern Africa (DBSA)	◦ Financial solutions and support for emerging farmers and agri-businesses ◦ Business skills training
Small Enterprise Finance Agency (SEFA)	◦ Financial solutions and support for emerging farmers and agri-businesses ◦ Business skills training
The National Empowerment Fund (NEF)	◦ Financial solutions and support for emerging farmers and agri-businesses ◦ Business skills training
Private sector/ civil society	
District Agri-Parks Management Council (DAMC)	◦ Liaison with DAPOTT, PAPOTT and NAPOTT regarding implementation of Agri-Park and inclusion of agricultural projects
District Land Reform Committee (DLRC)	◦ Identify land with high agricultural potential for inclusion government acquisition
Tiger Brands	◦ Product off-taker ◦ Potential partnership in supply agreements
Meadow Feeds	◦ Product off-taker ◦ Potential partnership in supply agreements
Commercial Farmers	◦ Potential supply partner ◦ Technical assistance and skills transfer for smallholder farmer
NWK	◦ Agricultural services
Obaro	◦ Agricultural services
AFGRI	◦ Agricultural services
Pick'n Pay	◦ Market, product off-taker
Checkers	◦ Market, product off-taker
Spar	◦ Market, product off-taker
Other retailer	◦ Market, product off-taker
Financial companies	
First National Bank (FNB)	◦ Financial solutions and support for emerging farmers and agri-businesses ◦ Business skills training
Standard Bank Agriculture	◦ Financial solutions and support for emerging farmers and agri-businesses ◦ Business skills training

Role-player	Potential role
ABSA Agribusiness	◦ Financial solutions and support for emerging farmers and agri-businesses ◦ Business skills training
Extension services and research	
Agriculture Research Council (ARC)	◦ Agricultural research support ◦ Institutional support ◦ Provision of advisory and extension services
Organisations and Associations	
Red Meat Industry Forum	◦ Red Meat Industry Forum
SA Meat Industry Company (SAMIC)	◦ Quality assurance
Livestock Registering Federation (LRF)	◦ Independent registering authorities
Red Meat Producers Organisation (RMPO)	◦ Facilitation of market penetration ◦ Red meat development support
South African National Halaal Authority (SANHA)	◦ Support base for both the producers and consumers of halaal products
South African Feedlot Association (SAFA)	◦ Industry representation ◦ Provides support and solutions ◦ Collective branding of grain fed beef ◦ Educational workshops and tours ◦ Animal health issues
National Emergent Red Meat Producers Organisation (NERMPO)	◦ Lobbying and advocacy ◦ Access to information ◦ Access to finance ◦ Access to technical support
Perishable Export Control Board	◦ Product quality inspections and food certification of perishable products intended for export
Fresh Produce Exporters Forum	◦ Voluntary forum assisting with fresh produce exports
Agricultural Producers Agents Council (APAC)	◦ Regulating council – agents in the industry
Emerging Farmers	◦ Provision of agricultural produce ◦ Identification of agricultural and training needs and requirements
Ubongwa Cotton Farmers Cooperative	◦ Cotton production and management of ginnery
Ngongo Farmers Cooperative	◦ Field crop production
Afrivet	◦ Agricultural Training Services
Hortgro	◦ Production and technical information ◦ Market intelligence and statistics ◦ Administration and legislation ◦ Transformation support
National African Farmers Union (NAFU)	◦ Emerging farmer support ◦ Facilitation of access to land for small farmers
KwaZulu-Natal Agricultural Union (Kwanulu)	◦ Coordination of commercial stakeholders as potential supply partners and technical skills providers for smallholder farmers

Role-player	Potential role
	◦ Identification of agricultural and training needs and requirements ◦ Policy framework negotiation for organised agriculture
Training Institutions	
Cedara College of Agriculture (KZN DARD)	◦ Provision of training programmes (Dip.Agric/ B.Agric) to emerging farmers, farm workers, etc.
Owen Sithole College of Agriculture (KZN DARD)	◦ Provision of training programmes (Dip.Agric/ Dip. Agric & Home Economics) to emerging farmers, farm workers, etc.
Technikon SA	◦ Provision of training programmes to emerging farmers, farm workers, etc.
University of South Africa (UNISA)	◦ Provision of training programmes to emerging farmers, farm workers, etc.
Weston Agricultural College	◦ Agricultural education (secondary) ◦ Skills development

These role-players could all potentially play roles in public-private partnerships (PPPs). PPPs should be developed to enhance the strength and competitiveness of the AH – 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.

6 Economic and socio-economic analysis

This section of the business plan presents and analysis of the economic and socio-economic profile of UKDM. Understanding this regional content is essential for designing programmes that support region specific development and also for measuring the impact and performance of these programmes. The analysis is based on current (2013) economic and socio-economic data and where possible is projected for 2015.

6.1 Demographic analysis

The population trends in a geographical area influence economic growth through the provision of labour and entrepreneurism, and also the demand for goods, services and accommodation. Furthermore, these trends also provide an indication as to how many individuals are likely to be impacted by the proposed Agri-Park, thus enabling a determination of the potential economic impact of the development.

Table 3 below presents a population and household trend comparison between South Africa, KwaZulu-Natal and UKDM.

TABLE 3. POPULATION TREND COMPARISON (2015)

Parameter	SA	KZN	UKDM
Population Total	54 956 508	10 819 015	657 678
Household Total	15 500 856	2 689 431	136 240
Household Growth (2005 - 2015)	1.89%	1,79%	2,27%
Average Household Size	3.5	4.0	4.8
Household Density (hh/ km²)	13	29	10

Source: Quantec: Regional, Standardised, 2015

There are an estimated 136 240 households in UKDM which house 657 678 people. This accounts for approximately 5.1% of the households in KZN and 6.1% of the total provincial population. While having a lower household density than both the South Africa and KwaZulu-Natal averages, UKDM has experienced a household growth rate of 2.27% over the past 10 years which is in excess of the national (1.89%) and provincial (1.79%) average. Additionally, the average household has more members when compared to the national and provincial contexts. The trends illustrate a positive population and household growth in UKDM which translates into increasing demand for employment opportunities. There is therefore a potential labour pool for the Agri-Park. In order to determine the potential labour pool, it is necessary to analyse the age profile of the population.

The age profile of a population provides valuable insight into the composition of the market population and will help establish the Potentially Economically Active population (PEA): the portion of the population that falls within the working age group (aged between 15 and 64). It is important to consider age in agricultural planning as this has a direct impact on the labour requirements of an area. In terms of agriculture, the sector generally requires labourers who are physically fit and many areas are experiencing migration of the working age group to major centres leaving the elderly and young in the rural areas.

TABLE 4. UKDM AGE PROFILE

Age group	Number of people	Percentage of population
0-14 years (Youth)	258 158	40%
15-64 years (PEA)	369 990	56%
65 years + (Elderly)	29 530	4%

Source: Quantec: Regional, Standardised, 2015

Within UKDM, only 56% of the population falls within the PEA, with 40% within the youth category and 4% considered elderly. This indicates that there is a high dependency ration in UKDM (77.8)[2]. This means that there are 78 dependents for every 100 persons that fall within the PEA. This is typical of rural areas in which the PEA usually migrates to more developed economic nodes in search of employment opportunities, while the youth and elderly remain in the underdeveloped rural node.

In order to assess the employment opportunities available for the PEA in UKDM, a sector analysis is necessary.

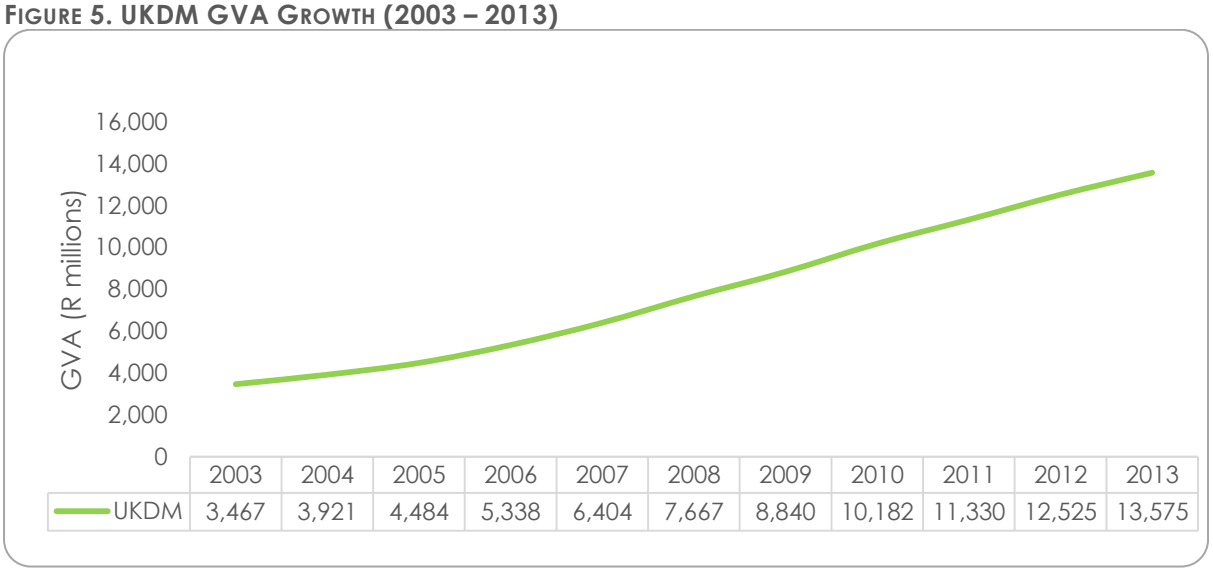
6.2 Economic profile

An understanding of the economic profile of a geographic location is important because it provides an overview of the structure of the economy. This structure is indicative of an economy's reliance on particular sectors and also its sensitivity to exogenous shocks or fluctuations originating in global and regional markets.

Gross Value Added (GVA) is a measure of Gross Regional Domestic Product and provides an indication of the size of a regional economy[3]. Figure 5 illustrates the GVA growth in UKDM over the period 2003 to 2013.

[2] The dependency ratio is calculated as follows: (% youth + % elderly) / % PEA x 100.
[3] GVA is a measurement of GDP. The relationship is defined as: GDP = GVA + Taxes – Subsidies. As the total aggregates of taxes on products and subsidies on products are only available at whole economy level, GVA is used for measuring Gross Regional Domestic Product and other measures of the output of entities smaller than a whole economy. GVA is the difference between output and intermediate consumption for any given sector/ industry, i.e. the difference between the value of goods and services produced and the cost of raw materials and other inputs which are used in production

FIGURE 5. UKDM GVA GROWTH (2003 – 2013)

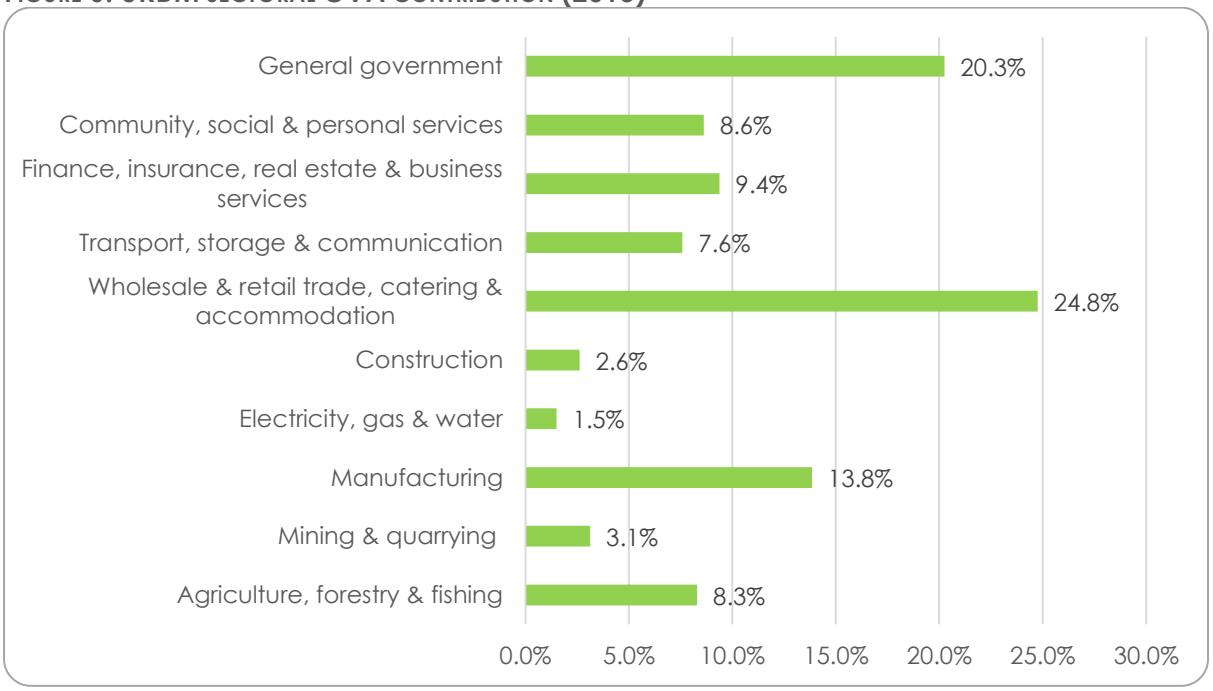


	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
UKDM	3,467	3,921	4,484	5,338	6,404	7,667	8,840	10,182	11,330	12,525	13,575

Source: Quantec: Regional, Standardised, 2015

The economy of UKDM grew at an average growth rate of 14.68% between 2003 and 2013, a significant growth rate. To understand the structure of UKDM's economy and isolate the sectors which are responsible for GVA growth, it is necessary to undertake a sectoral analysis of the economy. Figure 6 below illustrates the relative sectoral contribution to UKDM's economy.

FIGURE 6. UKDM SECTORAL GVA CONTRIBUTION (2013)



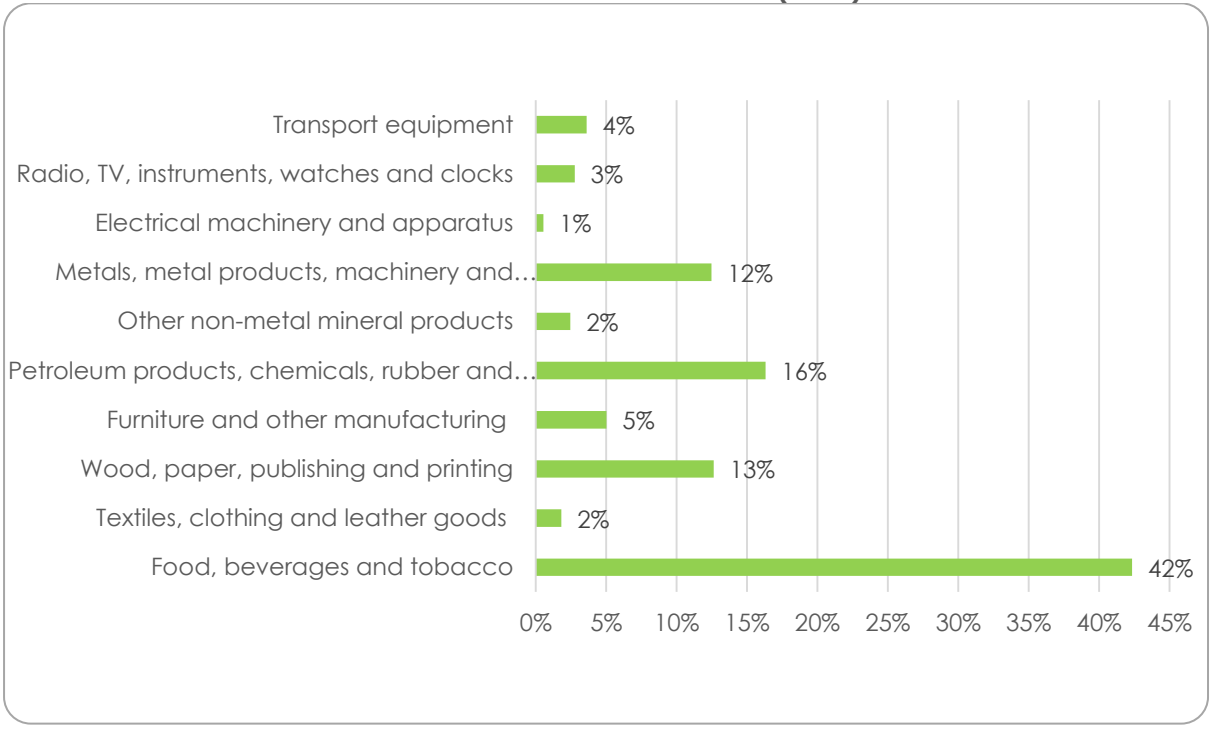
Source: Quantec: Regional, Standardised, 2015

The sectors which contributed the most to UKDM's economy in 2013 are: *wholesale & retail trade, catering & accommodation* (25%); *general government* (20%); and *manufacturing*

(14%). The *agriculture, forestry and fishing* sector is the sixth largest contributor to the district's economy, accounting for approximately 8% of total GVA.

Economic activity generated by agro-processing initiatives is accounted for within the manufacturing sector and it is therefore possible to tease out the relative GVA contribution of agro-processing for UKDM by isolating the industries which use agricultural goods as a primary input. Figure 7 provides the relative GVA contribution of the various industries which comprise the manufacturing sector.

FIGURE 7. UKDM MANUFACTURING SECTOR GVA DISAGGREGATION (2013)



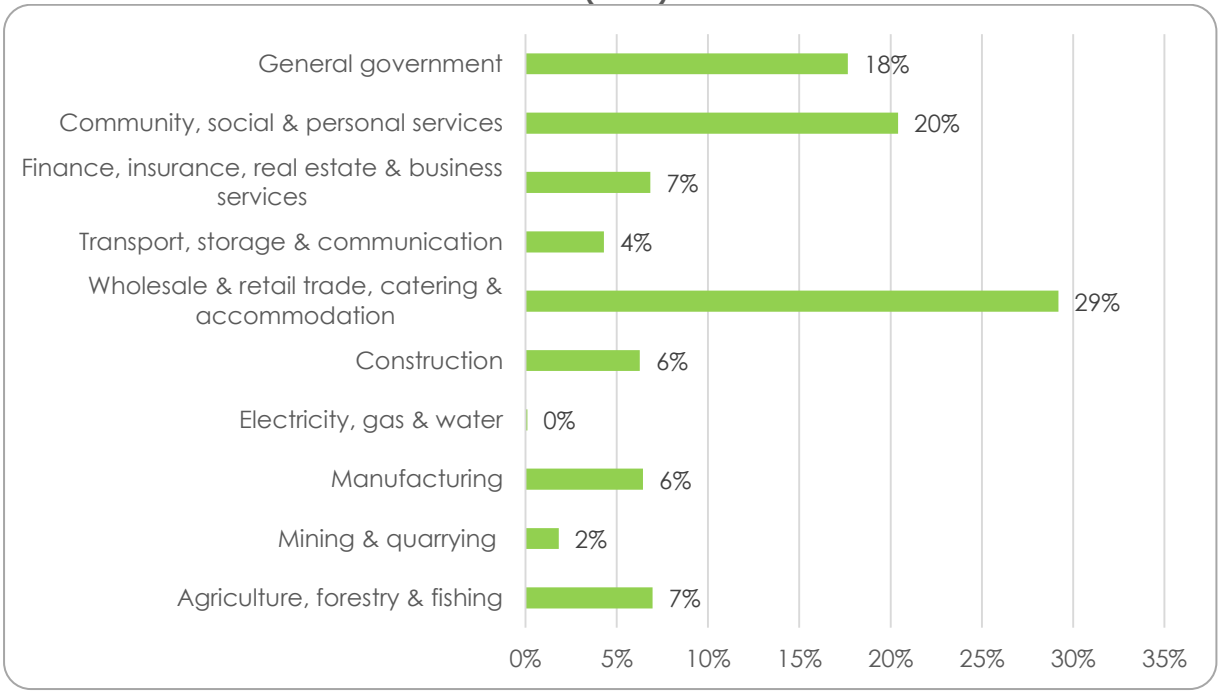
Source: Quantec: Regional, Standardised, 2015

The manufacturing industries that use agricultural products as inputs are: *furniture and other manufacturing; wood, paper, publishing and printing; textiles, clothing and leather goods; and food, beverages and tobacco*. The combined GVA contribution of these four industries in UKDM is approximately 62% which provides an indication of the relative importance of agricultural products on the upstream side of the manufacturing sector in UKDM.

6.3 Employment per sector

While total sectoral GVA contribution is important, it does not provide a definitive understanding of which sectors are providing the most employment opportunities to residents. Figure 8 illustrates the labour distribution per sector in UKDM.

FIGURE 8. UKDM LABOUR DISTRIBUTION PER SECTOR (2013)



Source: Quantec: Regional, Standardised, 2015

From the above, it is evident that the *agriculture, forestry and fishing* sector only provides employment opportunities for 7% off the district's residents, in contrast to the *wholesale & retail trade, catering & accommodation* sector which provides opportunities for almost one third (29%) of the population. 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 gaols of the myriad national, provincial and local policies reviewed in Section 3.

6.4 Unemployment rates

The employment profile of UKDM is an important indicator of human development, but also of the level of disposable income and subsequently the expenditure capacity of the population. Table 5 presents the employment profile of UKDM as of 2013.

TABLE 5. UKDM EMPLOYMENT PROFILE (2013)

Year	2001	2008	2013
Population	567 256	622 601	656 233
Working Age Population (PEA)	275 865	304 697	344 813
Labour Force	84 677	123 197	124 583
Employed	52 974	85 601	93 965
Unemployed	31 703	37 596	30 618
Not Economically Active	191 188	181 500	220 230
Unemployment Rate	37%	31%	25%
Labour Force Participation Rate	31%	40%	36%

Source: Quantec: Regional, Standardised, 2015

UKDM is characterised by an unemployment rate of 25%[4] and a labour force participation rate of only 36%, indicating that a low proportion of the PEA is has access to formal employment opportunities. This is indicative of the limited employment opportunities available in the district and also the potential mismatch in the skills demanded by the market and those available in the labour force. 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.

6.5 Skills and education levels

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 UKDM.

TABLE 6. UKDM EDUCATION LEVELS (2005 - 2015)

Level of schooling	2005	2010	2015
No schooling	23.2%	17.5%	17.5%
Some primary	28.1%	25.8%	25.5%
Complete primary	5.1%	4.9%	4.9%
Some secondary	18.3%	21.6%	21.7%
Grade 12	8.2%	12.6%	13.4%
Higher	1.8%	2.4%	2.5%
Other/ Unspecified/ NA	15.3%	15.1%	14.6%

Source: Quantec: Regional, Standardised, 2015

While the education levels in UKDM have improved over the period 2005 to 2015, there are still a large percentage of the population with no formal schooling (17.5%). Additionally, while improvements have been realises in the proportion attaining some form of higher education, at only 2.5% of the population, this remain very low as it indicates that the majority of the population (83%) have only a grade 12 qualification of lower. Having a tertiary qualification greatly enhances one's ability to take advantage of employment opportunities and also to increase their income level.

[4]This is the official unemployment rate and is the percentage of the labour force that is currently unemployed. This rate does not take into account the number of discouraged jobseekers.

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. UKDM HOUSEHOLD INCOME

Income level	Income bracket	Number of households	Percentage	
No income	R 0	17 284	13,5%	13,5%
Low income	R1 - R4 800	8 905	6,9%	65,4%
	R4 801 - R 9 600	18 120	14,1%	
	R9 601 - R 19 200	29 670	23,1%	
	R19 201 - R 38 400	27 200	21,2%	
Low/ middle income	R38 401 - R 76 800	12 103	9,4%	15,6%
	R76 801 - R153 600	7 937	6,2%	
Middle/ high income	R153 601 - R307 200	4 373	3,4%	4,9%
	R307 201 - R614 400	1 850	1,4%	
High income	R614 401 - R1 228 800	353	0,3%	0,6%
	R1 228 801 - R2 457 600	214	0,2%	
	> R2 457 601	186	0,1%	

Source: Quantec: Regional, Standardised, 2015

The annual household income trends in UKDM are as follows:

- No income – 13.5%
- Low income – 65.4%
- Low/ middle income – 15.6%
- Middle/ high income – 4.9%
- High income – 0.6%

The low levels of household income in UKDM 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.

6.7 Synopsis

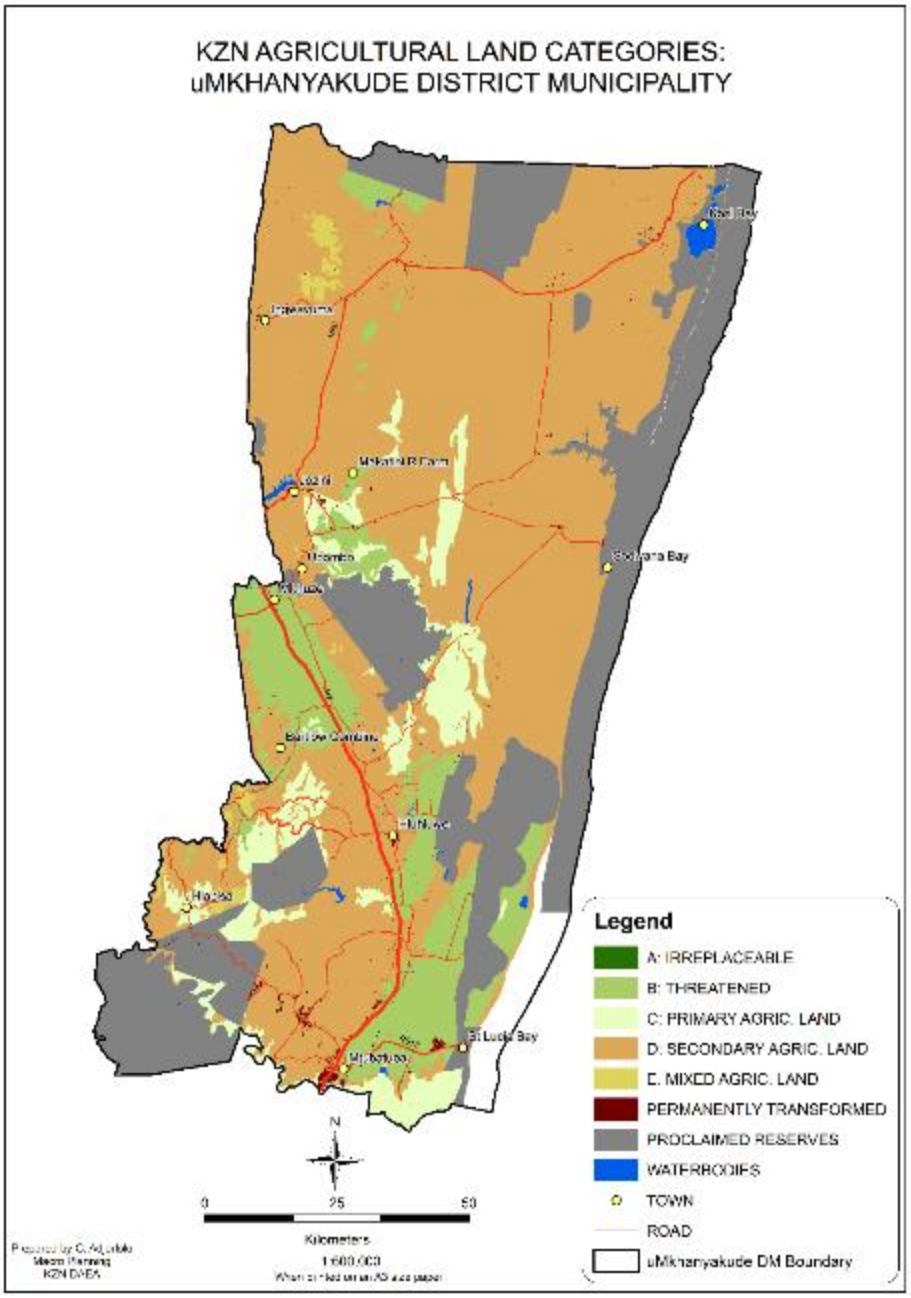
The low levels of education (83% with less than Grade 12), high dependency ratio (77.8) and high unemployment rate (25%), together with the low annual household income for UKDM (78.9% with no household income or low household income) points towards the need for economic growth that can create employment opportunities and contribute to higher labour absorption rates. In terms of GVA contribution, the important sectors for UKDM's economy are: *wholesale & retail trade, catering & accommodation* (25%); *general government* (20%); and *manufacturing* (14%). From the perspective of employment created, the important sectors are: the *wholesale & retail trade, catering & accommodation (29%); community, social and personal services (20%), general government (18%).* Agriculture plays only a small role in terms of both GVA contribution and employment creation. Within the manufacturing sector, agro-processing industries contribute almost two-thirds of the GVA generated for the district, illustrating the importance of agricultural goods required by the manufacturing industries.

The rural nodes within the family of LMs in UKDM are likely to be the beneficiaries of any employment opportunities created by the development of the Agri-Park. Additionally, the opportunity for skills development would enable them to acquire transferable skills that could be utilised to take advantage of other employment opportunities in the future.

7 Agricultural Industry Analysis

This section presents the status quo of the environmental industry in UKDM. It provides the main agricultural activities currently undertaken and provides the current and proposed projects in the region before describing the environmental and climatic conditions. It further explains the APAP commodity selection criteria and then identifies the agricultural commodities produced in the region. Finally, it presents the three prioritised commodities for the district and the potential agro-processing and value-add options available for these commodities.

MAP 3. UKDM AGRICULTURAL LAND CATEGORIES



Source: KZN DAEA Macro Planning

7.1 Main agricultural activities

Agriculture is viewed as one of the main catalytic sectors which can contribute to rural economic transformation and is the cornerstone of economic growth and development in UKDM. The predominantly rural settlement patterns of the district are conducive to agriculture and result in it being one of the dominant economic activities in the region. However, the sector only accounts for 8.79% (Census, 2011) of the district's GVA, a measure of economic growth. This places it sixth in terms of sectoral contribution.

A large part of the district is suitable for agriculture with 407 000 hectares (ha) suitable for grazing and approximately 33 000 ha for dryland agriculture.

In the northern part of the district, traditional agriculture, mostly based on livestock, sugarcane, cotton, and vegetable farming, is dominant. This part of the district has the highest agricultural potential and therefore a wide variety of commodities are produced here, however the majority of primary production in this part of the district is uncoordinated and small-scale subsistence agriculture. The Makhathini Flats, located in uMhlabuyalingana and Jozini LMs is considered to have potential to be the breadbasket of South Africa, capable of contributing significantly to national food security. Irrigated crops such as cotton and sugarcane are produced on a commercial scale within this region although not at optimal productivity levels, with the Makhathini Cotton Gin only processing approximately 2% of its capacity in the 2013/2014 season. Cattle and goat grazing also occurs throughout the uMhlabuyalingana Municipality, as well as cultivation of groundnuts, cashew nuts and Marula fruit. There are some community and market gardens in the denser settlements adjacent to the Pongola River.

In the southern part of the district, agricultural activities occur at more commercial scales and include sugarcane, pineapple, forestry, livestock, game, and to a lesser extent, citrus and vegetable farming. Pineapples are one of the dominant commodities and are grown in the Hluhluwe region in The Big Five False Bay Municipality. This region produces approximately 90% of South Africa's fresh Queen Pineapples. Forestry is also intensively farmed in this part of the district, mostly along the N2 corridor. This part of the district is also home to a number of game reserves and is considered the hub of KwaZulu-Natal tourism.

In addition to the commodities listed above, a variety of vegetables and field crops such as potato, sweet potato, chillies, tomato, cabbage, dry beans, and maize are farmed throughout the district. The extent of the land under this form of cultivation ranges from small-scale, subsistence plots of 0.5 ha, to larger scale, more commercial operations encompassing up to 950 ha.

7.2 Current and proposed projects in the region

Due to the perceived moderate to high agricultural potential of much of the district, a number of agricultural interventions have been made over the years by various government bodies. Therefore, there are a number of projects which are currently supported by various provincial and local government departments. These projects are focused predominantly on primary production but also value-adding through agro-processing to a lesser extent.

7.2.1 Comprehensive Agriculture Support Programme (CASP)

The objective of the CASP is to provide post-settlement support to the beneficiaries of land reform and to other agricultural producers who have acquired land through private means with the intention of growing these enterprises in a sustainable way that enables them to contribute to job creation and national and domestic food security (NDA website, n.d). It is intended to support the provision of farmer support budgets and ensure accelerated delivery of support services to farming communities. It is a conditional grant that is ring-fenced for on and off farm agriculture infrastructure, farmer training and capacity building, marketing and business development, extension recovery programme, revitalisation of colleges of agriculture, technical and advisory assistance and regulatory services.

There are a number of CASP projects supported by KZN DARD situated in the south of the district, as well as a few located close to Mkhuze. These are listed in Table 8 and Table 9 below:

TABLE 8. KZN DARD CASP PROJECTS IN UKDM

Commodity	Size (ha/ km/ units)	CASP
Dry beans	600 ha	R 7 200 000
Vegetables	226 ha	R 1 770 000
Groundnuts	450 ha	
Beef	15 projects	R 4 200 000
Land care	9	R 6 807 500
Sugar	120 ha	
Makhathini		R 59 000 000
Total		**R 78 977 500**

TABLE 9. KZN DARD SUPPORTED AGRICULTURAL PROJECTS IN UKDM (BY COMMODITY TYPE)

District summary	No. of projects	Size (ha/ km/ units)
Beans	3	600 ha
Beef	1	1 300 ha
Feedlot	1	230 ha
Groundnuts	3	450 ha
Vegetable	5	226 ha
Livestock dam	13	-
Land care	9	-

District summary	No. of projects	Size (ha/ km/ units)
Sugar	-	120 ha
Tractors	-	19

In addition to these projects, there are numerous other agricultural projects in the district, some of which are supported by government bodies aside from KZN DARD. The JVAC, initially supported by CoGTA is one such project, although it should be noted that this facility has never been fully operational and requires additional investment in order to function optimally.

Through various projects, such as Fetsa Tlala and Ilima Letsema, national and provincial government are supporting food production schemes throughout the district. Additionally, support is also being provided to irrigation schemes in Makhathini (through Mjindi Farming) and Ndumo B.

7.2.2 Fetsa Tlala & Ilema Letsema

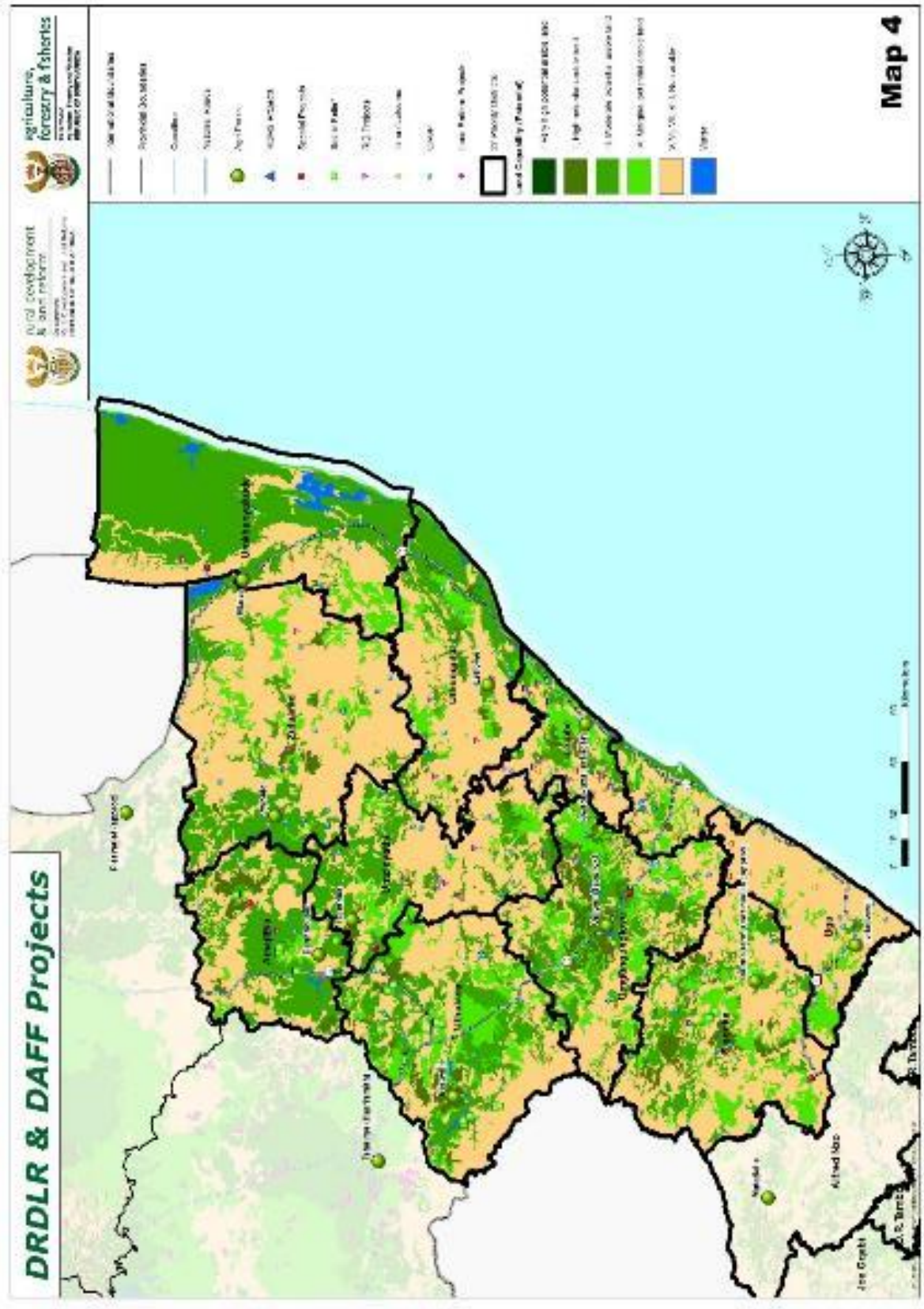
The Fetsa Tlala & Ilema Letsema projects are both focused on ensuring food and nutrition security and reducing poverty and unemployment through increased food production initiatives. Both programmes provide education and training required to encourage rural residents to engage with agricultural production in order to eliminate hunger and poverty. Additionally, they fund projects focused on unlocking agricultural potential, such as, mechanisation, fencing and irrigation necessary for effective production. Within the Fetsa Tlala programme, 740 ha of land in UKDM was put under maize and dry bean cultivation (DAFF, 2014b) in the 2013/ 2014 planting season.

In addition to CASP, Fetsa Tlala and Ilema Letsema, there are a number of existing agricultural initiatives in the District which are supported by various governmental departments, namely:

- Dukuduku Mushroom;
- Manguzi Mango cooperative;
- Coastal Cashews;
- Umyongoshane Groundnut;
- Marula Processing Plant;
- uMkhanyakude Red meat project.

A comprehensive list of supported projects is contained in Appendix A at the end of the Master Business Plan.

MAP 4. DRDLR AND DAFF SUPPORTED AGRICULTURAL PROJECTS IN KZN[5]



Source: DAFF & DRDLR, 2015

[5] There is a need for additional mapping of activities and projects which will present a clearer picture of the scale and extent of primary and secondary agricultural production within the district.

7.3 Environmental conditions and resource analysis

When assessing the agricultural industry, it is crucial to understand the environmental conditions since agricultural potential of the land is inextricably linked to the climatic conditions and environmental resources available. Furthermore, they should influence the selection of agricultural commodities to be produced in a region.

7.3.1 Temperature, frost and heat and chill units

Decadel (ten day period) 1km X 1km 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 utilised 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).

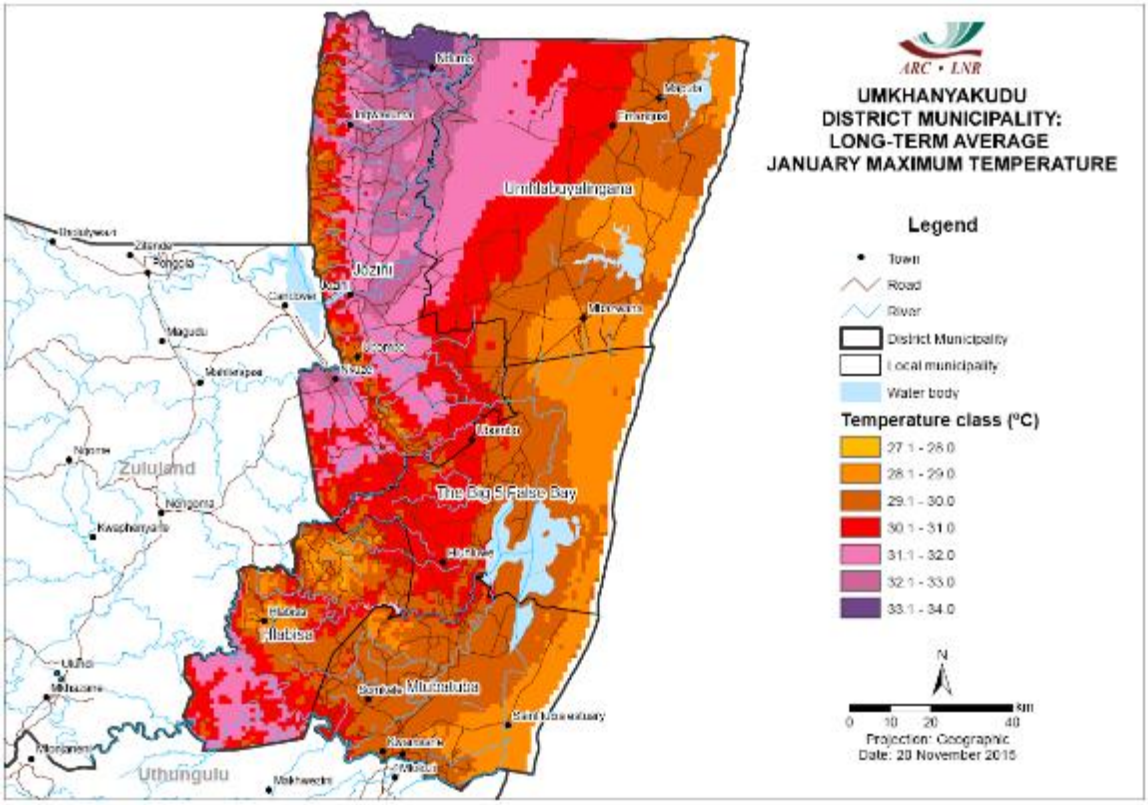
The long-term average maximum temperatures for UKDM are mostly between 30 °C and 33 °C for January (Map 5) and the long-term average minimum temperatures between 9 °C and 13 °C for July (Map 6).

The heat units (^{0} days) for January and July for the area are > 460. The positive chill units for July is mostly between 100 and 150 PCUs[6] for UKDM (Schulze, 2008).

Sugarcane growth is closely related to temperature. Optimum temperature for sprouting (germination) of stem cuttings is 32 °C to 38 °C. Germination and growth slows down below 25 °C. At the other end of the optimal temperature spectrum, growth reaches a plateau between 30 °C and 34 °C, is reduced above 35 °C and practically stops when the temperature is above 38 °C. Temperatures above 38 °C reduce the rate of photosynthesis and increase respiration. For ripening, however, relatively low temperatures in the range of 12 °C to 14 °C are desirable, since this has a noticeable influence on the reduction of vegetative growth rate and enrichment of sucrose in the cane.

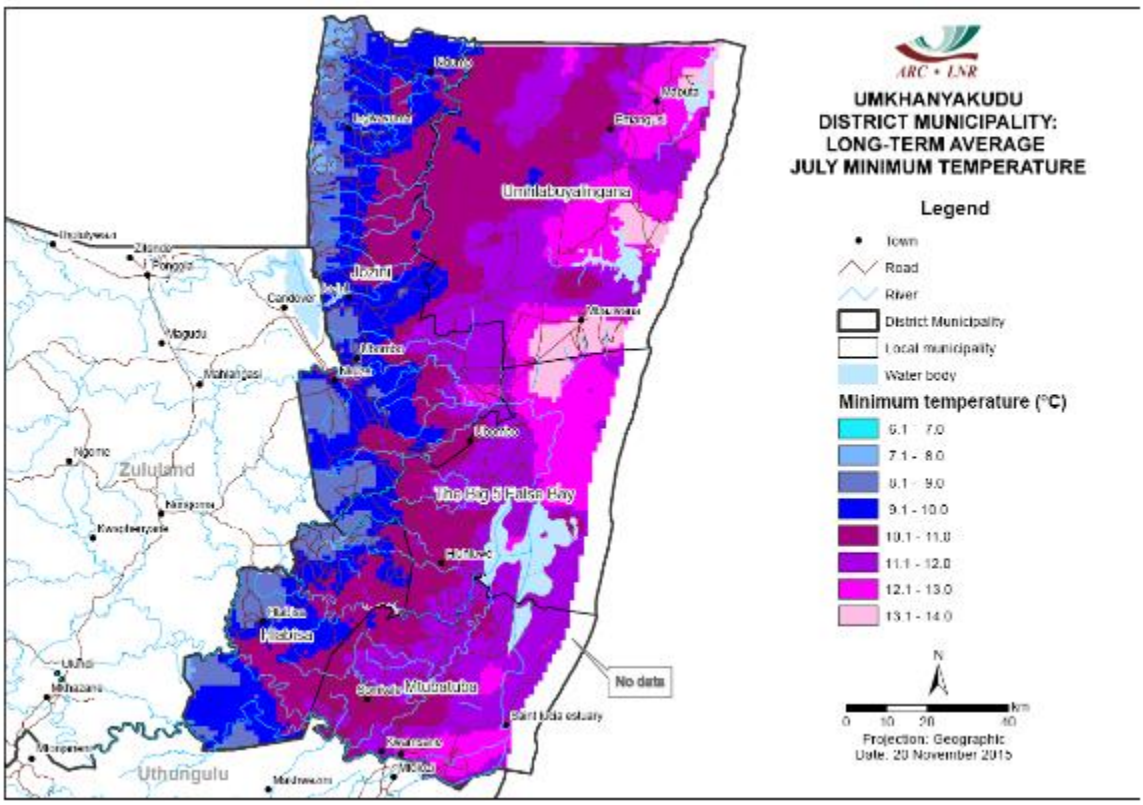
[6] The Positive Chill Unit is a model for quantifying winter chilling.

MAP 5. LONG-TERM AVERAGE JANUARY MAXIMUM TEMPERATURES



Source: ARC LNR, 2015

MAP 6. LONG-TERM AVERAGE JULY MINIMUM TEMPERATURES



Source: ARC LNR, 2015

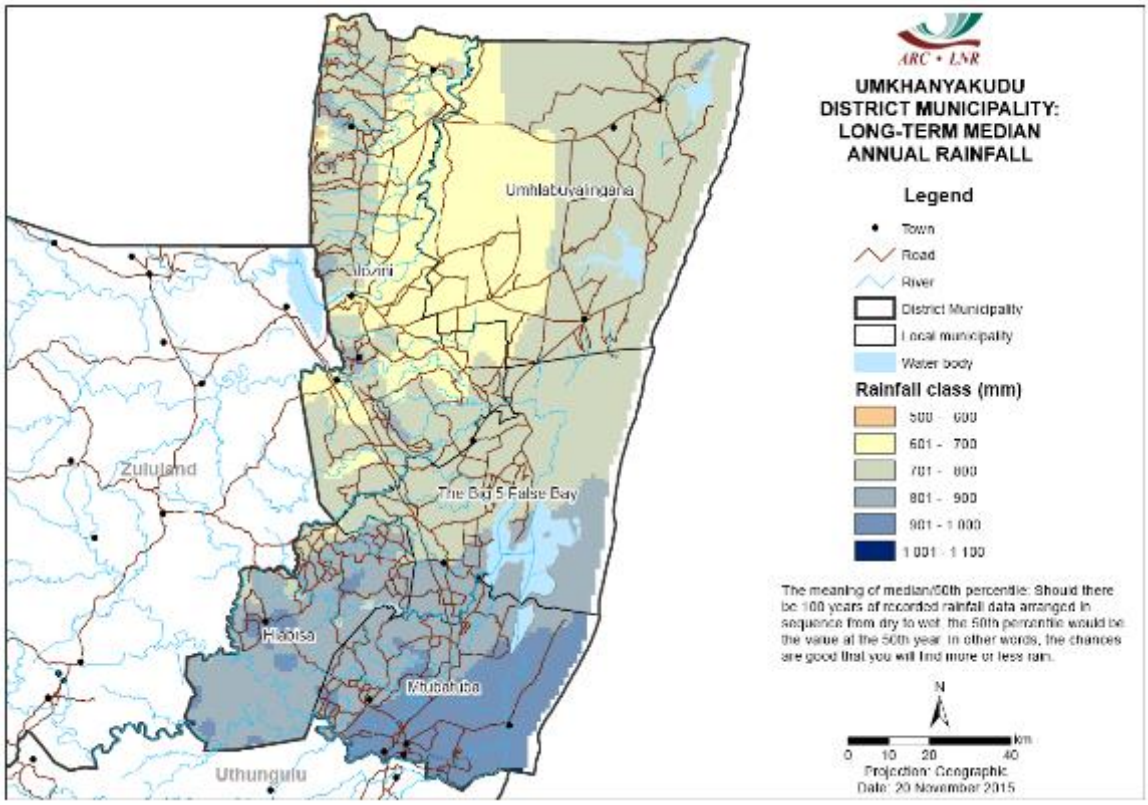
7.3.2 Rainfall, hail risk, humidity and water availability for irrigation or animal watering

Decadel (ten day period) 1km X 1km 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 utilised 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).

UKDM falls within the South African summer rainfall region with mean annual precipitation (MAP) ranging from 600 mm to 1 100 mm depending on the local area in question. MAP generally declines from the coast to inland areas. The majority of the District receives rainfall in excess of 700mm, with even the drier inland areas usually receiving in excess of 600 mm (Map 7).

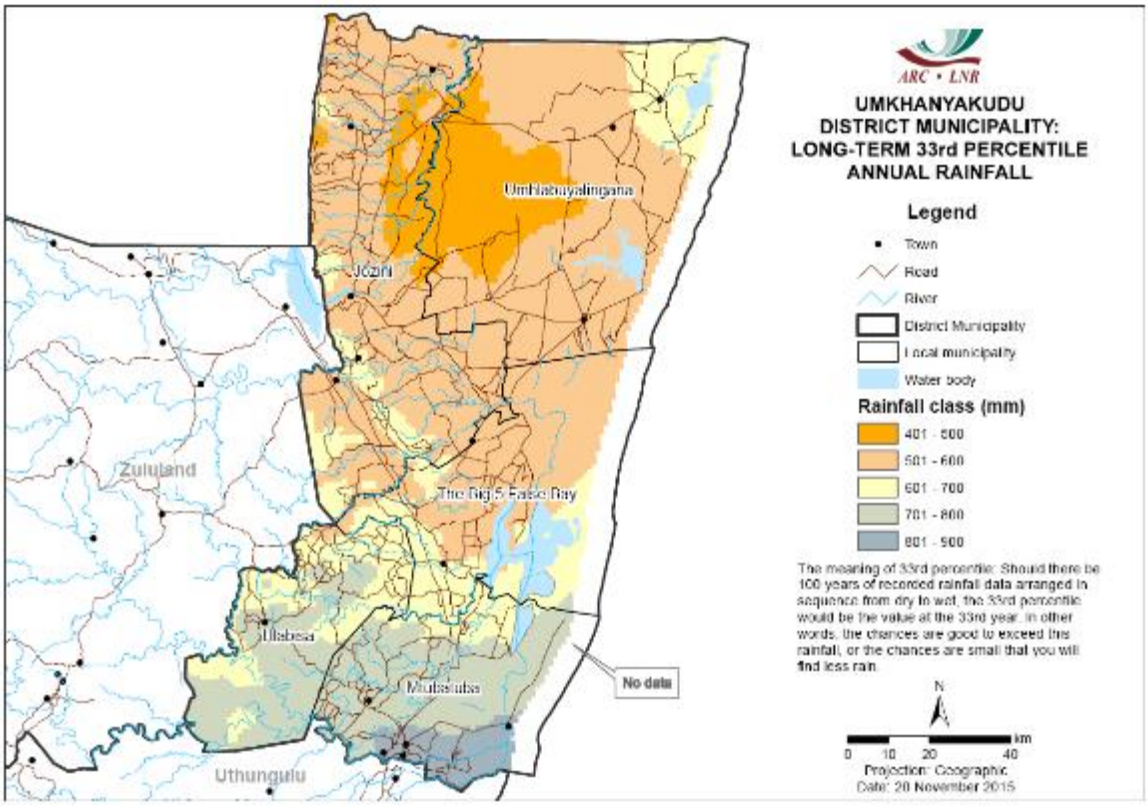
From the long-term 33rd and 67th percentile annual rainfall (Map 8 and Map 9) it can be seen that the southern part of UKDM (near Mtubatuba) have the highest probably of high rainfall.

MAP 7. LONG-TERM MEDIAN ANNUAL RAINFALL



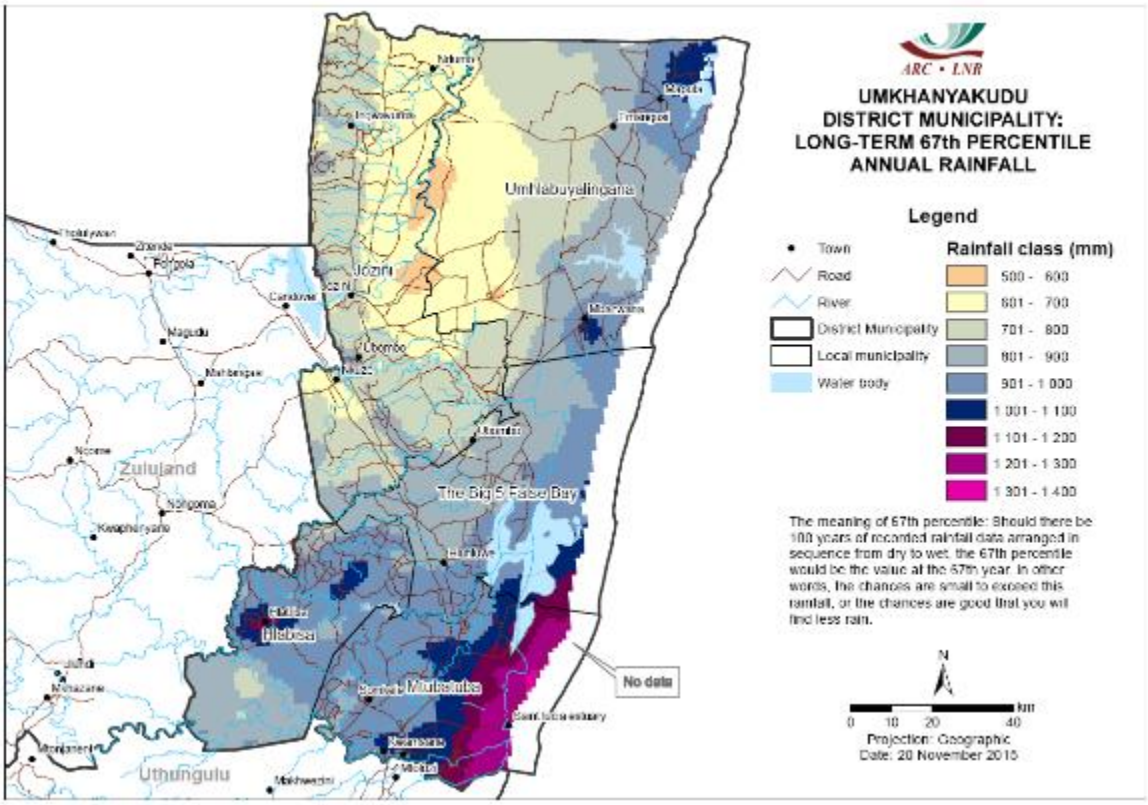
Source: ARC LNR, 2015

MAP 8. LONG-TERM 33RD PERCENTILE ANNUAL RAINFALL



Source: ARC LNR, 2015

MAP 9. LONG-TERM 67TH PERCENTILE ANNUAL RAINFALL



Source: ARC LNR, 2015

Rainfall is not sufficient for vegetable and sugarcane in most of UKDM and irrigation is necessary (Makhathini and Ndumo B Irrigation Schemes). A total rainfall between 1 100 mm and 1 500 mm is adequate for sugarcane provided the distribution is right. Abundance is required in the months of vegetative growth followed by a dry period for ripening (this is only possible near Mtubatuba). During the active growth period rainfall encourages rapid cane growth, cane elongation and internode formation. During the ripening period high rainfall is not desirable because it leads to poor juice quality, encourages vegetative growth, formation of water shoots and an increase in the tissue moisture.

UKDM falls within the Mfolozi/ Pongola Primary Catchment Area, which is a catchment shared with Swaziland and Mozambique. The area includes a wide diversity of aquatic and wetland habitat units, and includes various aquatic ecoregions. This area falls within the Usutu-Mhlatuze Water Management Area (WMA). The major watercourses include the Pongola River, which drains the north-western area northwards toward the Great Usutu River, to drain northwards into the Maputo River and ultimately, the Indian Ocean just south of Maputo.

The central areas are drained mostly by the Msunduzi River (from the central south) and Mkhuze River (from the central west), which then runs in a southerly direction toward Lake St Lucia. The southern areas are drained in a west-east direction, mostly by the Hluhluwe and Nyalazi Rivers, and, further south, by the Mfolozi River. Decommissioned mines within the WMA pose a perpetual risk to water quality within the region in terms of increased acidity and increased sulphates. This is a feature of the upper catchments of the major rivers feeding into UKDM, which is then aggravated by afforestation within the upper catchments of many of the major rivers. Afforestation utilises substantial volumes of water and therefore reduces stream flow. This reduces the dilution capacity of contaminants within the rivers (Nemai, 2012). The Pongola River has largely retained good water quality (upper catchment area is predominantly formal agriculture) (Mosai, 2004). It enters into the UKDM area at the Jozini (Pongolapoort) Dam as a Class D PES and exits the dam as a Class C PES. This is principally associated with the severe modification and degradation of the riparian zones in the lower section of the river with sugarcane largely replacing natural riparian vegetation, and the river canalised by associated agricultural activities.

The agricultural sector in UKDM has the potential to contribute significantly more, given the presence of the Jozini Dam and the Makhathini Irrigation Scheme. Possible crops include sugarcane, rice, cotton, fibre crops and various sub-tropical fruits. For various reasons, however, this irrigation scheme has been fraught with problems and has not lived up to expectations despite numerous plans and projects such as the very short lived operation of the cotton gin on the Flats. The irrigable area of the Makhathini scheme is around 10 000 – 13 000 ha. However,

the total area of what is generally known as the Makhathini (in both Jozini and uMhlabuyalingana local municipalities) totals over 450 000 ha, which a recent study has shown to include just over 407 000 ha of grazing area and a possible area of about 33 000 ha which could produce rain-fed crops. Crops produce in UKDM include timber, tomatoes, chillies and pineapples.

Subsistence/ food-security agriculture is practiced throughout the region, but is concentrated primarily along the Pongola floodplain and in-and-around the coastal lake wetland systems. While this used to be a sustainable agricultural regime, the population pressure is now causing serious environmental problems to the Pongola floodplains and to the wetlands which, around Manguzi for example, have resulted in the drying up of some of the riverine systems feeding the lake. The clearing of swamp forest vegetation to make way for agriculture sets up a chain reaction in terms of environment with biodiversity decreasing and degradation increasing.

Upstream water reduction activities, such as timber and sugar plantations, are placing constraints on downstream capacity for economic expansion. Stream reduction decreases the dilution capacity of river systems and therefore exacerbates downstream water quality issues which translates into increased health risks and treatment costs. Reduced water quantity limits downstream abstraction opportunities, while increased sediment loads from cleared compartments and road networks results in loss of natural capital integrity.

Movement of processed goods is dependent on the absence of flood damage to the many river crossings, either moving north to Richards Bay or south to eThekwini. The loss of catchment integrity in the inland sections of the District, as well as in uMgungundlovu and uMzinyathi, places this infrastructure at increased risk.

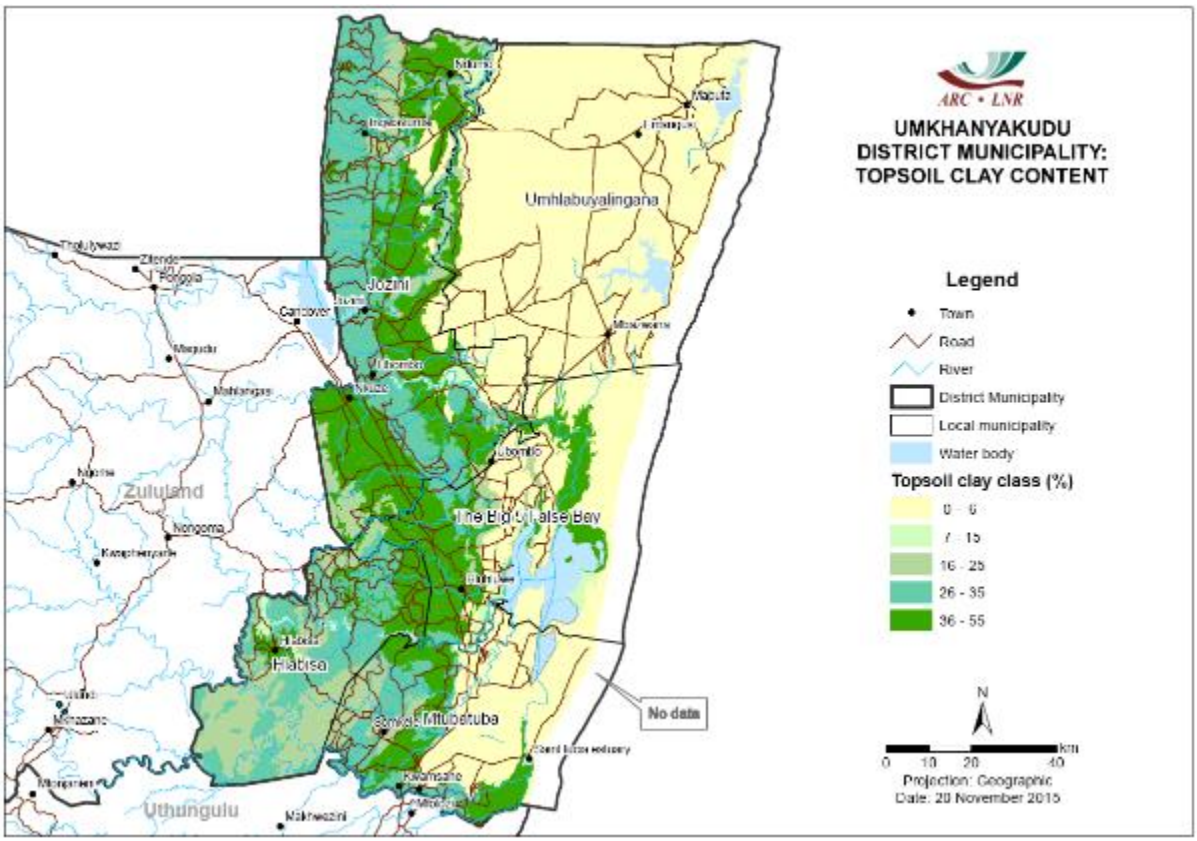
7.3.3 Land and Soil Resources

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 0% and 6% in the Makhathini Flats (Map 11Map 10), an indication of a very low infiltration rate and high water-holding capacity. Along the Lebombo Mountains the topsoil clay content is high (between 36% and 55 %) an indication of a very high infiltration rate and low water-holding capacity and a strong possibility of waterlogging conditions.

The bulk of the soils on the Makhathini irrigation scheme are characterized by a relatively high silt and clay content (silt plus clay content between 20% and 45%). The geology of the area is strongly influenced by recent marine deposition and the localised areas that are salt-affected can be directly associated with the geological material. The high silt and clay content of the soil has a negative influence on the internal drainage capacity and the infiltration rate of the soils. Temporary perched water tables can be directly associated with the low infiltration and hydraulic conductivity of the soil (as a result of the high silt and clay content of the soil). Poor project management (poor irrigation equipment and water works maintenance) and irrigation planning in the area are a major cause of localised water logging.

MAP 10. UMKHANYAKUDE TOPSOIL CLAY CONTENT



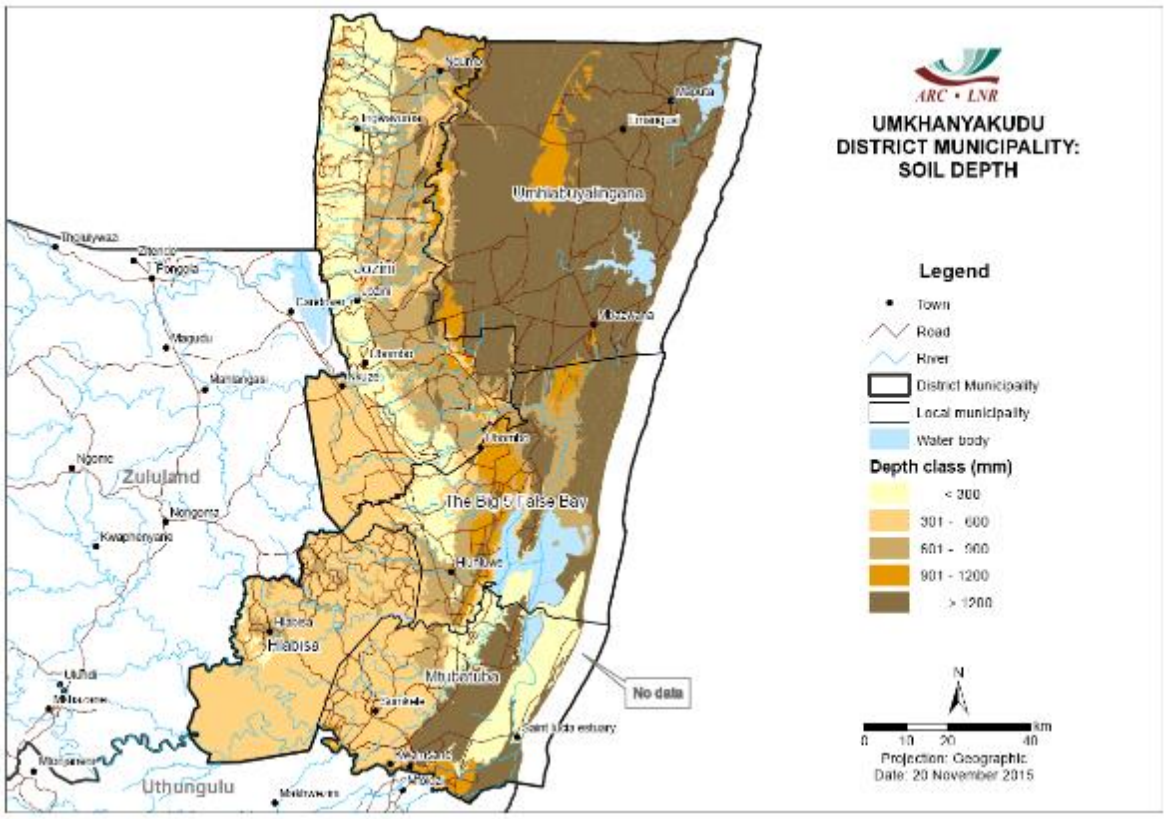
Source: ARC LNR, 2015

The majority of the soils on the Makhathini Flats are deep > 1200 mm and near the Lebombo Mountains very shallow between 300 mm and 600 mm as illustrated in Map 11.

The calculated total area of high potential land is 2 600 km² or 20.28% of the total area of the District. The area of low agricultural potential within UKDM has been calculated at 3 100 km² or 24.18% of the total area of the District. The result of the collective effects of topography, low rainfall and poor soils in places means that the areas of low agricultural potential are largely located in the western side of the District. In general, the areas of highest agricultural potential

are located within the Mtubatuba LM, on the coastal plain to the south and west of the iSimangaliso Wetland Park System. This zone extends as a coastal strip northwards all the way to the Mozambican border. The key commercial crops (which occupy some 275 km², or 2.15%, of the total area of the District) are sugarcane farming, timber, cotton and pineapples. Sugarcane growing areas are located within the extreme south of the District in the Mtubatuba LM, and in the vicinity of the town of Mkhuze, within the Jozini LM.

MAP 11. UMKHANYAKUDE SOIL DEPTH



Source: ARC LNR, 2015

There is a major drive aimed at increasing sugar production at Makhathini Flats. The low lying coastal areas of the District and an area near the Hluhluwe Park fall within the optimal growing areas for certain pine species. Cotton production has largely occurred in the Makhathini Flats of the District that fall within the Makahthini irrigation scheme. Successful and quite extensive pineapple growing areas occur to the north of the town of Hluhluwe on the coastal plain.

7.3.4 Weed, pest and disease control

Weed, pest and disease control will differs 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

The area is renowned for extreme heat waves and high humidity that could cause intense pest and disease infections.

7.3.6 Projected changes to temperature and rainfall

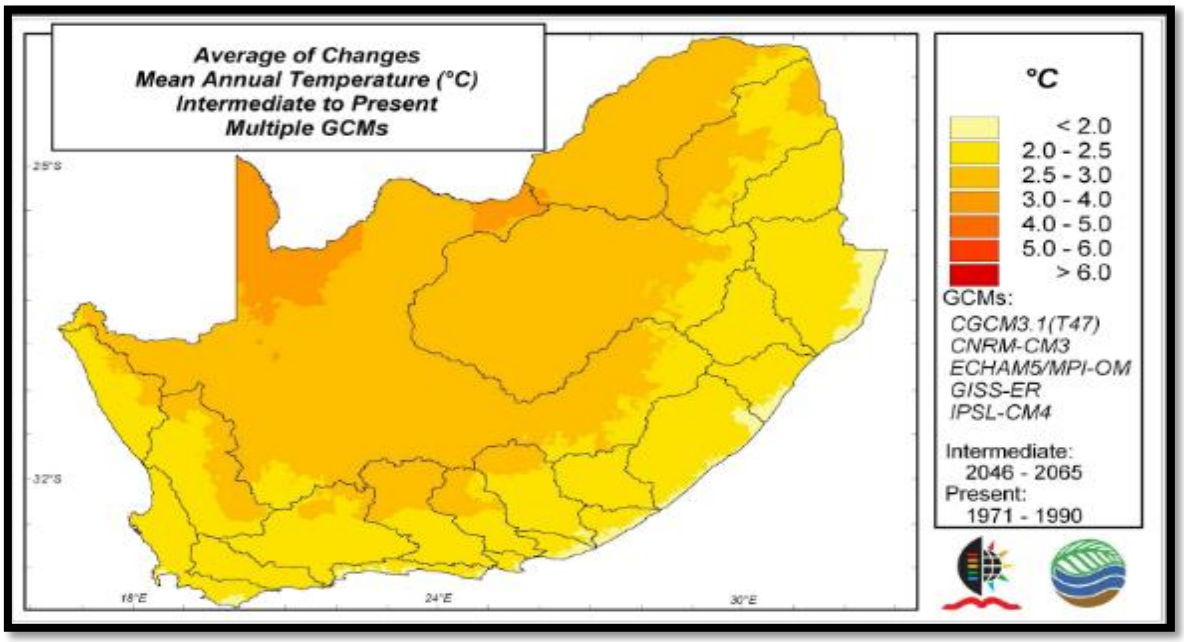
Temperature affects a wide range of processes in agriculture and is used as an index of the energy status of the environment. It is the one climatic variable for which there is a high degree of certainty that it will increase with global warming.

7.3.6.1 Annual temperatures

Map 12 displays the average temperature change expected in 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.

MAP 12. AVERAGES OF CHANGES (°C) BETWEEN THE INTERMEDIATE FUTURE AND PRESENT CLIMATES IN MEAN ANNUAL, DERIVED FROM MULTIPLE GCMS



Source: Schulze, 2011

7.3.6.2 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 in Oosthuizen, 2014).

7.3.6.3 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 minimum temperatures < 0 °C) are shown not to change along the coast of South Africa under future climatic conditions (Oosthuizen, 2014).

7.3.6.4 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).

7.3.6.4.1 *Annual rainfall*

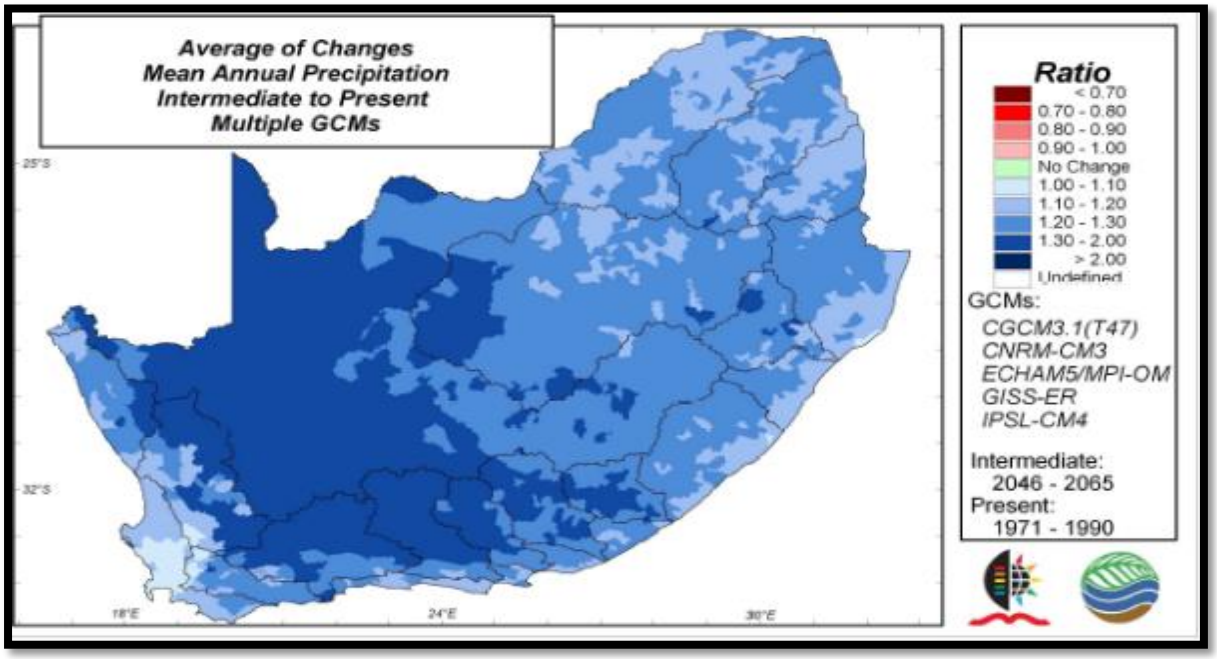
It has already been alluded to that overall changes in future scenarios of climate depend strongly on which general circulation models (GCMs)[7] were used, and how many GCMs were in the ensemble used. Output from GCMs applied in this study indicated that (Map 13):

- 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).

[7] A GCM is a climate model that mathematically models the general circulation of a planetary atmosphere or ocean.

- 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.

MAP 13. AVERAGES OF RATIO CHANGES IN MEAN ANNUAL PRECIPITATION BETWEEN THE INTERMEDIATE FUTURE AND PRESENT, DERIVED FROM MULTIPLE GCMS



Source: Schulze, 2011

7.3.6.4.2 *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 semi-arid central interior displaying averaged increases in variability.

7.3.6.4.3 *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.

7.3.6.4.4 *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 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 (Lobell et al., 2008). Table 10 summarises 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 temperature between 1°C 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 stresses.
	Indirect impacts	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 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 impacts	Increased frequency in disturbances, such as wildfires.
		Changes in biodiversity and vegetation structure.
Socio-economic/ livelihood impacts		Changes in income derived from crop and livestock production.
		Shifts in land use (including consequences of land reform).
		Overall changes in food production and security.

Source: Davis, 2011

If future climates are altered in accordance with the projections for temperature and rainfall (Schulze, 2010) then some major inland shifts in the climatically optimum growth areas of sugarcane may be expected. The harvest-to-harvest cycle, or ratoon, times could reduce by 3 - 5 months (i.e. by 20% - 30%) in the intermediate future and by > 5 months (i.e. > 30%) in the more distant future, while yields per ratoon are projected increase by 5 - 15 tonnes/ hectare (t/ ha) along the coast and by up to 20-30 t/ ha in the inland growing areas by mid-century, with major implications to the sugar industry (Schulze, 2010).

When a temperature increase of 2°C is associated with simultaneous changes in rainfall, yields were modelled to decrease by circa (ca.) 7% for a 10% reduction in rainfall, and to increase by a similar percentage for a 10 % increase in rainfall. Median changes in ratios of cane *yields per ratoon* are projected to increase by the intermediate future by < 10% in many parts of the present cane growing areas, but by up to 30% and more in potentially new growth areas further inland. All the above projected changes are significant enough for the sugar industry to consider more in-depth studies of its entire value chain from production to transport to milling and exporting (Schulze, 2010; DAFF, 2013).

7.4 Commodity identification

Table 11 presents the commodities that can be produced in UKDM and which could potentially be considered for inclusion in the district's Agri-Park. These commodities were identified based on expert opinion of what is currently being successfully produced with the district

TABLE 11. COMMODITIES IDENTIFIED FOR PRODUCTION IN UKDM

Commodity	Competitive advantage
1. Cashew nuts	◦ Niche market ◦ Global demand
2. Cassava	◦ Conducive rainfall and soil conditions ◦ Smallholder inclusivity potential
3. Cotton	◦ Conducive rainfall and soil conditions ◦ Smallholder inclusivity potential ◦ Agro-processing options in UKDM
4. Dry beans	◦ Contribution to food security & long-term sustainability ◦ Open marketplace ◦ Short payback period
5. Essential oils	◦ Niche market ◦ Conducive rainfall
6. Forestry	◦ Established transport linkages
7. Groundnut	◦ Conducive soil conditions
8. Livestock - Beef	◦ Conducive rainfall, soil and climatic conditions ◦ Proximity to market ◦ Proximity to abattoirs ◦ Contribution to food security
9. Livestock - Game	◦ Conducive rainfall, soil and climatic conditions ◦ Proximity to market ◦ Proximity to abattoirs
10. Livestock - Goat	◦ Conducive rainfall, soil and climatic conditions ◦ Proximity to market ◦ Proximity to abattoirs
11. Maize	◦ Global demand and competitiveness ◦ Import substitution potential ◦ Contribution to food security ◦ Proximity to livestock areas
12. Mangos	◦ Conducive rainfall, soil and climatic conditions
13. Marula	◦ Niche market ◦ Conducive rainfall, soil and climatic conditions
14. Medicinal plants	◦ Niche market ◦ Indigenous vegetation
15. Pineapples	◦ Conducive rainfall, soil and climatic conditions ◦ Proximity to market ◦ Global demand and competitiveness
16. Poultry	◦ Conducive rainfall and soil conditions ◦ Contribution to food security
17. Sugarcane	◦ Conducive temperature and rainfall conditions ◦ Local demand ◦ Proximity to mills ◦ Possibility of developing a mill within the district

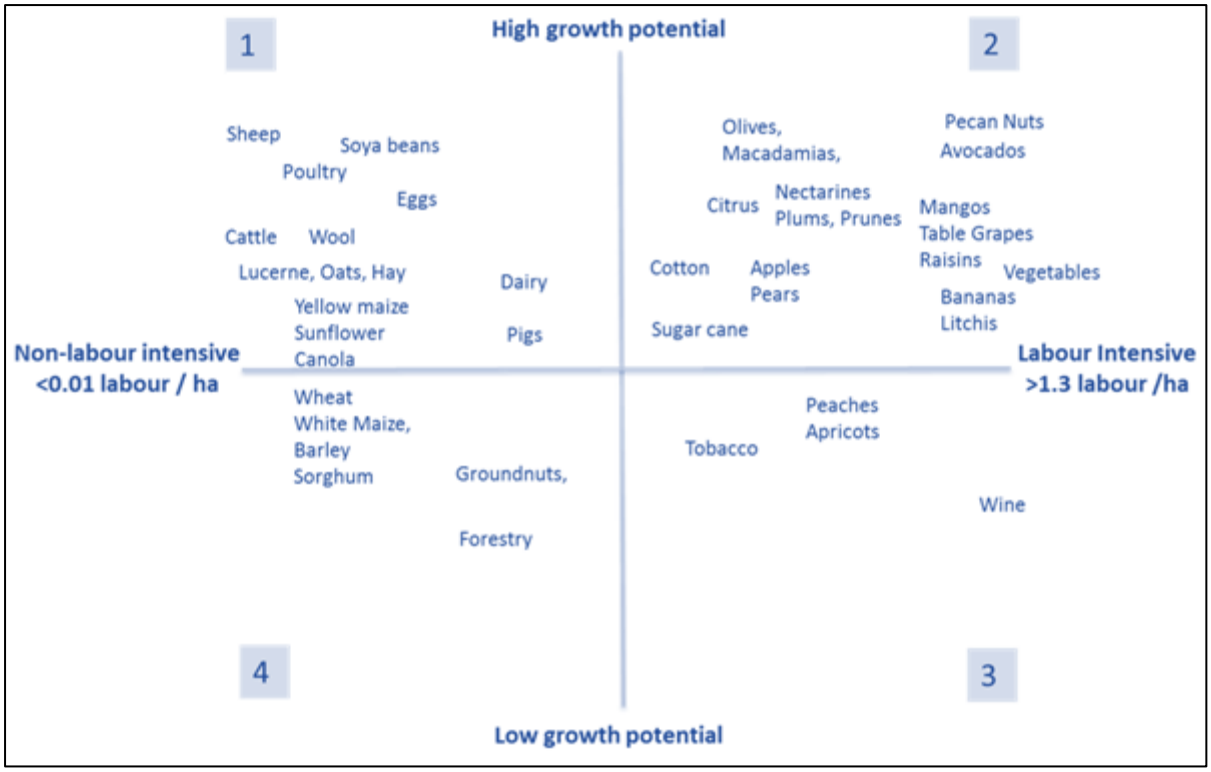
Commodity	Competitive advantage
	◦ Global demand and import substitution potential
18. Vegetables	◦ Contribution to food security ◦ Extensive irrigation scheme (Makhathini and Ndumo) ◦ Current local demand ◦ Proximity to market ◦ Short payback period ◦ Existence of established successful projects ◦ Smallholder inclusivity potential

7.5 Commodity selection criteria (APAP)

The Agricultural Policy Action Plan (APAP) is a strategy developed by the Department of Agriculture, Forestry and Fisheries to align the development of the agricultural sector with the goals set out in the National Development Plan (NDP). It was approved by the National Cabinet in July 2013. It is estimated that the agricultural sector has the potential to create 1 million jobs by 2030. APAP is the strategic policy that will help achieve this ambitious target.

In accordance with this, the selection criteria for the prioritisation model used for the commodities produced in the UKDM will take cognisance and include these APAP criteria. Figure 9 illustrates the priority commodities according to the APAP in terms of their growth potential and labour intensity.

FIGURE 9. APAP COMMODITY PRIORITIES



Source: APAP, 2014

In light of the above, a multi-criteria prioritisation model has been developed which seeks to enable comparative assessment of the potential of each commodity in terms of the following factors:

7.6 Commodity prioritisation

Each of the identified commodities is rated in terms of the above criteria and then these scores were weighted in order to derive at a priority framework for each of the commodities. The scoring system below was used:

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.

Weight was applied to each criterion according to the following system:

3 = High importance;

2 = Medium importance;

1 = Low importance;

Applying each criterion to each commodity ensures that potential selection bias can be avoided. Based on the ranking of each commodity against the criteria listed above, commodities can be prioritised in terms of the potential impact they will have, namely, low,

medium, or high. The commodities which score highest on the rating scale should be prioritised for UKDM as they are deemed the most optimal fit for the district. Table 12 presents the results of the prioritisation model. The full model is available as Annexure A.

TABLE 12. COMMODITY PRIORITISATION MODEL RESULTS

	Biophysical total	Enterprise viability total	Economic development total	Political and social total	Overall total
Vegetables	23	60	46	56	**185**
Livestock - Cattle/ Beef	28	52	35	51	**166**
Cotton	28	48	42	47	**165**
Mangoes	23	40	42	48	**153**
Dry beans	19	48	37	49	**153**
Cassava	28	48	34	41	**151**
Sugar cane	25	47	45	33	**150**
Livestock - Goat	30	50	30	38	**148**
Essential Oils	23	41	45	39	**148**
Marula	30	46	38	31	**145**
Groundnuts	22	44	36	43	**145**
Maize	20	39	43	42	**144**
Pineapples	29	40	40	33	**142**
Livestock - Game	30	44	39	29	**142**
Cashew nuts	20	44	37	35	**136**
Poultry	24	38	36	38	**136**
Medicinal Plants	24	45	32	29	**130**
Forestry	19	39	34	31	**123**

Source: Urban-Econ & OABS, 2015

7.7 Description of the three highest ranked commodities

According to the commodity prioritisation model, the results of which are presented in the above table, the following 3 commodities should be prioritised for cultivation and production in UKDM:

1. Vegetables

2. Livestock - Beef
3. Cotton

Commodity	Description
1. Vegetables	◦ Environmental resources are available in the form of sufficient rainfall (once drought passes). Water availability may be a limiting factor and the prevailing drought conditions are of concern. ◦ Temperature and spoil type are also favourable within the district. ◦ High yields are attainable under irrigation or hydroponics and the existence of the Ndumo and Makhathini irrigation schemes is a comparative advantage for this type of production. ◦ 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. ◦ Vegetables are a major production commodity for small-scale and commercial farmers in UKDM and significant public financial resources have already been utilised on putting land within the district under vegetable production. ◦ There are informal market places for fresh produce within the district and the good transport linkages to Durban's Fresh Produce Market enables relatively quick access for fresh produce. ◦ Green mealies have been grown successfully and have a close market in the form of animal feed. ◦ Market openness, existing demand, short payback period and familiarity with local smallholders are the main comparative advantages in the district. ◦ Potential for business strategy and positioning of produce could create market demand for district produce. ◦ Potential to dovetail with National School Nutrition Programme. ◦ Significant local buy-in, low theft and vandalism risk and contribution to food security are other motivating factors for its prioritisation.
2. Livestock - Beef	◦ Extensively farmed throughout the whole district, especially in the Makhathini Flats and in areas which have marginal potential for crops. ◦ Conducive environmental conditions and tolerance to high temperatures, however, drought is a concern as it limits water for drinking. ◦ High current local demand and future growth potential in order to reduce imports. ◦ High global demand creates export potential. ◦ High value commodity and high profitability. ◦ Close proximity to district-based abattoirs (agro-processing/ value-add opportunities) and to local markets is a comparative advantage. ◦ Excellent political and institutional buy-in, including the suitability of state-owned land, potential for smallholder inclusion, and contribution to food security are major motivations for prioritisation.
3. Cotton	◦ Conducive temperature and soil conditions for high productivity. ◦ Can be produced under both dryland and irrigated operations. ◦ Conducive rainfall patterns although drought is a concerning factor which could impact on yields.

Commodity	Description
	◦ Familiarity of local farmers and existence of necessary implements due to historical production in the area. ◦ High levels of local buy-in as smallholders are already engaged in its production. ◦ High levels of socio-political support and buy-in. ◦ Existing successful projects in the Makhathini flats. ◦ High suitability of state-owned land and high potential for smallholder inclusion. ◦ Recently refurbished Cotton Gin creates agro-processing opportunities in the district could be a catalytic project that creates employment opportunities through both primary production and agro-processing.

7.8 Products related to selected commodities

When prioritising agricultural commodities for production in the uMkhanyakude Agri-Park, it is important to consider the potential beneficiation options which are available as this will enable the Agri-Hub to add value to the primary commodities. A preliminary list of potential value-add products based on the prioritised commodities is presented in Table 13. The feasibility of these agro-processing options is yet to be determined and this list will be further refined in the next phase of the project.

TABLE 13. PRELIMINARY LIST OF POTENTIAL BENEFICIATION PRODUCTS FOR UKDM'S PRIORITISED COMMODITIES

Primary commodity	Potential value-add products
Vegetables	◦ Fresh peeled, cut or diced ◦ Frozen ◦ Pre-made meals ◦ Vegetable oils ◦ Sauces ◦ Soups ◦ Dried vegetable products such as crisps ◦ Canned
Beef	◦ Fresh cut & packed ◦ Minced (sausages, burger patties etc.) ◦ Canned ◦ Dried (biltong) ◦ Textiles (leather/ felt etc.) ◦ Bone products ◦ Fertiliser/ manure ◦ Gelatine
Cotton	◦ Weaving yarn ◦ Knitting yarn ◦ Textiles ◦ Animal feed ◦ Fertiliser ◦ Oil – soaps and explosives ◦ Synthetic rubber ◦ Medical appliances

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

8.1.1.1.1 *Production*

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

TABLE 14. PRODUCTION VOLUMES OF VEGETABLE TYPES

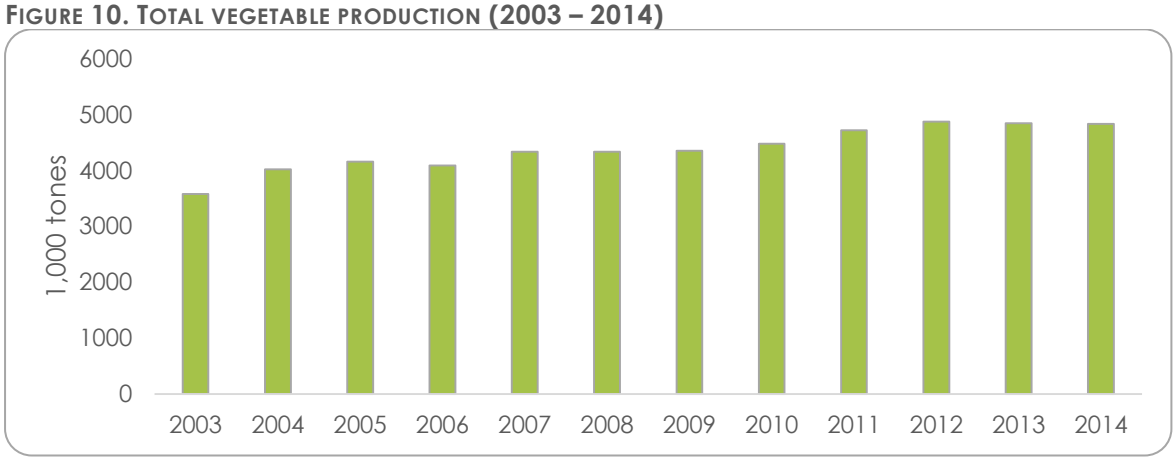
Year July to June	2009/10	2010/11	2011/12	2012/13	2013/14
	'000 tons				
Potatoes	1 955	2 165	2 205	2 202	2 193
Tomatoes	575	523	545	527	525
Pumpkins	234	237	244	247	245
Green mealies	339	340	347	361	362
Onions	489	563	625	596	592

Year July to June	2009/10	2010/11	2011/12	2012/13	2013/14
	'000 tons				
Sweet potatoes	60	63	55	57	69
Green peas	17	12	8	11	12
Beetroot	67	62	66	68	61
Cauliflower	25	16	16	14	12
Cabbage and red cabbage	141	153	141	136	145
Carrots	151	152	178	183	184
Green beans	23	25	25	24	19
Other	400	406	421	420	416
Total	4 476	4 717	4 876	4 846	4 835

Source: DAFF, 2015a

Since 2003, there has been a general increase in the volume of vegetable production in South Africa. Since 2012 there has been a slight decline in the volumes vegetables produced, with only green mealies seeing an increase of 1 000 tonnes and sweet potatoes increasing by 12 000 tonnes or 12.2% during this period. The remainder of the vegetables crops produced in South Africa have experienced a decline in volume production over this period. These trends are illustrated in Figure 10.

FIGURE 10. TOTAL VEGETABLE PRODUCTION (2003 – 2014)



Source: DAFF, 2015a

The relative importance of the major vegetable types, according to gross value of production, during the 2013/14 season, is illustrated in Table 15.

TABLE 15. RELATIVE IMPORTANCE OF VEGETABLE TYPES (2013/14)

Rank	Product	% Share
1	Potatoes	42%
2	Tomatoes	16%
3	Cabbages	13%
4	Onions	4%

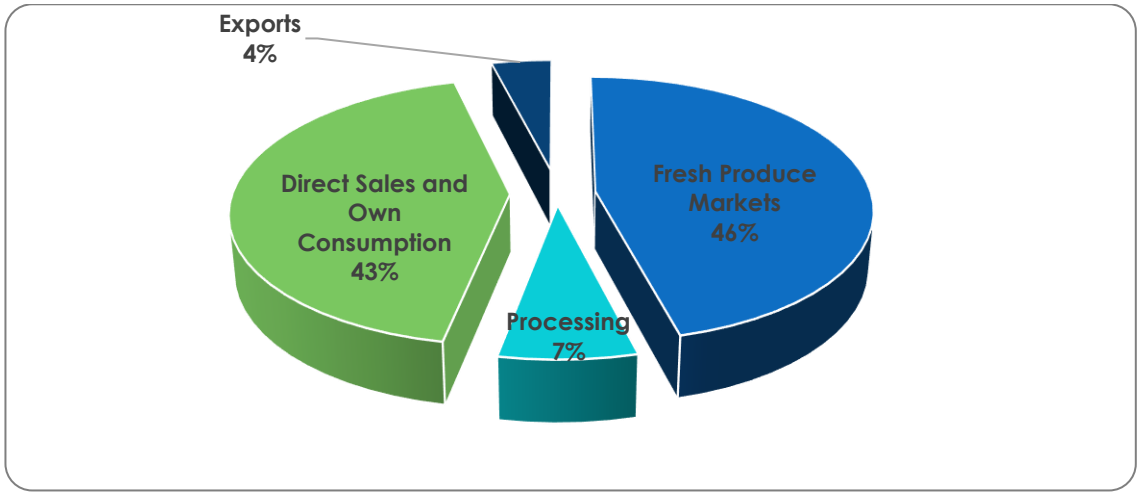
Rank	Product	% Share
5	Pumpkins	3%
6	Carrots	3%
7	Gem squashes	2%
8	Sweet potatoes	1%
9	Cauliflower	1%
10	Green beans	1%

Source: DAFF, 2015a

By volume, potatoes account for approximately 42% of the total volume of the main vegetables produced in South Africa, illustrating their relative importance as a crop. Tomatoes and onions are the also important vegetable crops with a combined gross value of 29%.

The majority of fresh vegetables produced in South Africa, are either sold directly by farmers (43%) or at fresh produce markets (46%). Only 7% of vegetables are used for further processing while only 4% is exported. This is illustrated in Figure 11.

FIGURE 11. DISTRIBUTION CHANNELS



As displayed in Table 16, in 2014, the total volume of vegetables sold at fresh produce markets in 2014 amounted to 2.2936 million tonnes compared to the 2.1078 million tonnes sold in 2010, an increase of approximately, 9%.

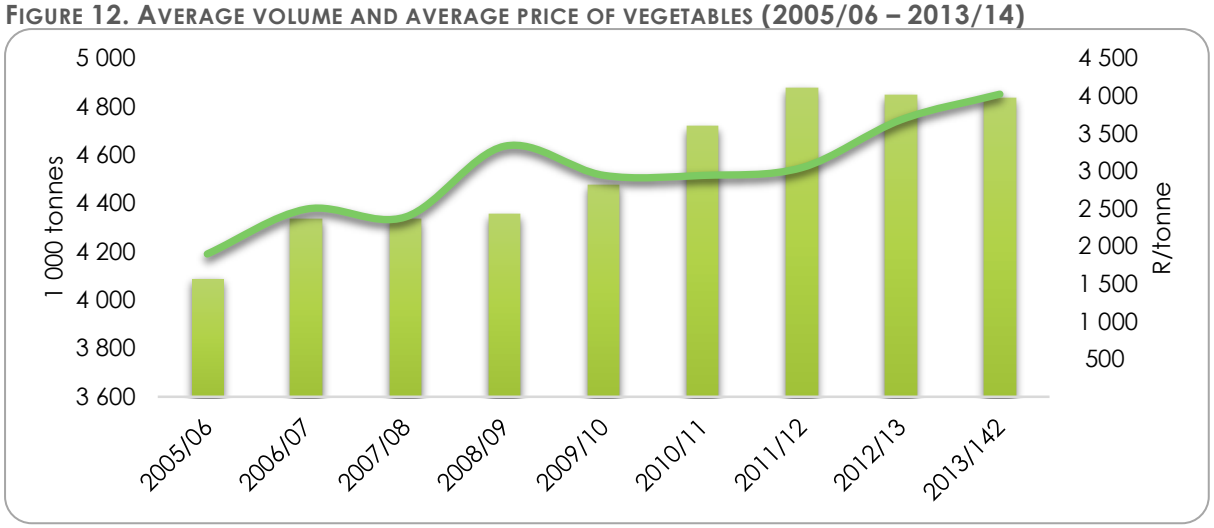
TABLE 16. QUANTITY OF IMPORTANT VEGETABLES SOLD ON THE MAJOR FRESH PRODUCE MARKETS (2010-2014)

Year	2010	2011	2012	2013	2014
Total ('000 tons)	2 107.8	2 222.1	2 334.4	2 290.2	2 293.6

8.1.1.1.2 *Price*

Figure 12 indicates the volume and sale price of vegetable produce sold at fresh produce markets over the period 2005/6 to 2013/14.

FIGURE 12. AVERAGE VOLUME AND AVERAGE PRICE OF VEGETABLES (2005/06 – 2013/14)



Source: DAFF, 2015a

This figure illustrates a trend of both increasing production and sales value of this production over this period. The average value of vegetables has increased from R1 899/ tonne to R4 024/ tonne, an increase of 112%.

It is important to take into account the average price of vegetable types. Indicated in Table 17 below are the average price of vegetable types from 2011 to 2014.

TABLE 17. AVERAGE PRICE OF VEGETABLE TYPES (2011 - 2014)

Product	2011	2012	2013	2014	Average Price Increase (%)
	R/ tonne				
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%

Product	2011	2012	2013	2014	Average Price Increase (%)
	R/ tonne				
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: DAFF, 2015a

The above table indicates that, on average, prices of vegetables have increased by 11% annually between 2011 and 2014. Of the vegetables listed above, cauliflower, green peas, beetroot and onions realised the largest increases in value over the period, with average annual increases of 26%, 21%, 15% and 15% 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).

8.1.1.1.3 *Utilisation and Consumption*

The consumption of vegetables is recommended for a healthy lifestyle and is promoted as such globally. Additionally, it is promoted by all the stakeholders in the fresh produce marketing value chain.

In 2014, per capita consumption of fresh vegetables was 43.01kg, approximately 2.9% lower than the previous year. Table 18 displays the annual per capita consumption of vegetables in South Africa over the period 2010 - 2014

TABLE 18. PER CAPITA CONSUMPTION (2010 -2014)

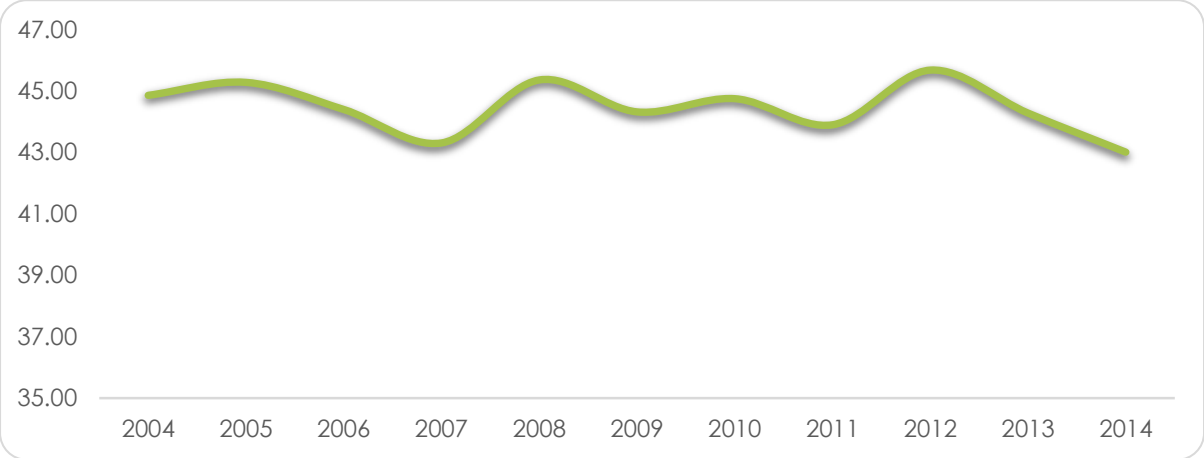
Year	2010	2011	2012	2013	2014
Vegetables (potatoes excluded) (Kg/Year)	44.75	43.90	45.68	44.28	43.01

Source: DAFF, 2015a

While per capita consumption has remained relatively stable over the period in question, there has been a trend of declining consumption each year since 2010. The notable exception in this period is 2012, with consumption being 4.1% higher than the preceding year (2011) and 5.8% higher than 2014.

Figure 13 illustrates the per capita consumption of vegetables over the period 2010 to 2014.

FIGURE 13. PER CAPITA CONSUMPTION (2004 -2014)



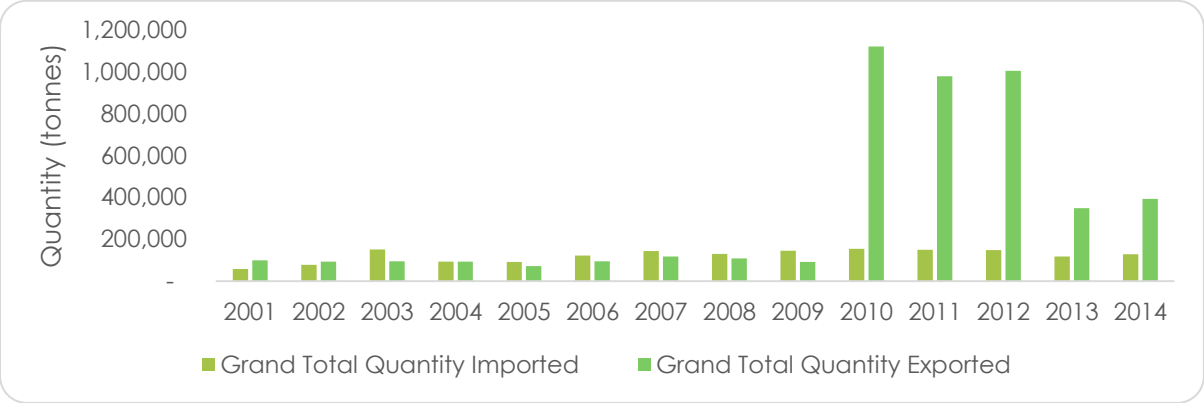
Source: DAFF, 2015a

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

8.1.1.2 Global Markets

Imports and exports are an indicator of South Africa's competitiveness on a global scale, while also contributing to trade balance – whether South Africa is a major exporter, or major importer. Exports, in general, indicate that South Africa produces a surplus of goods (has a competitive advantage in that specific good) that can be distributed to international markets. Imports are generally required to fill a consumption deficit (local production does not meet local consumption) and add to food security. In addition, importing products introduces competition to the local market, requiring local producers to remain efficient. South Africa has historically been a nett exporter of agricultural products, importing only deficits in certain commodities, or niche product. Figure 14 indicates the quantity of vegetable products imported and exported by South Africa between 2001 and 2014.

FIGURE 14. IMPORT AND EXPORT OF VEGETABLES AND VEGETABLE PRODUCTS, SOUTH AFRICA (2001 -2014)



Source: ITC, Trade Map, 2015

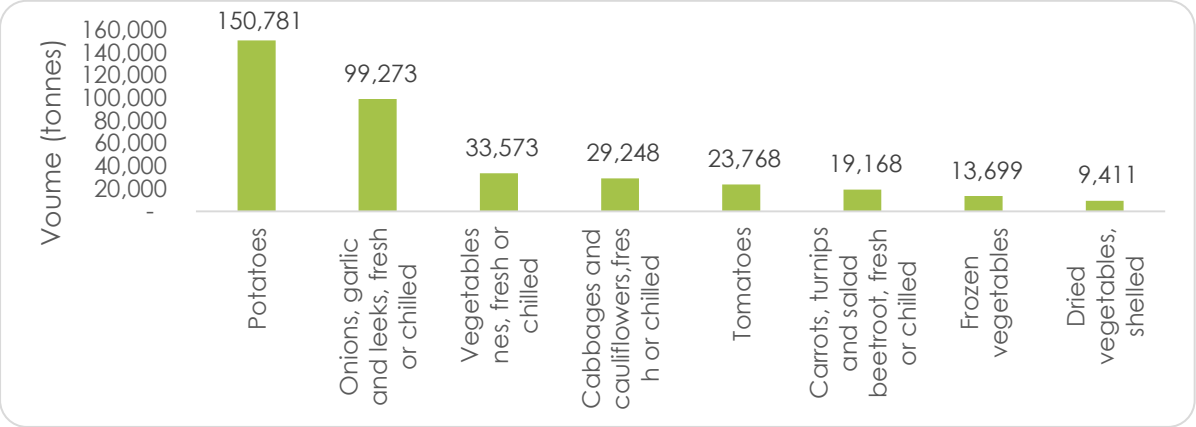
This figure illustrates that exports of vegetables and vegetable products was significantly higher than exports during the period 2010 to 2014. Most export figures for 2010 were, however, estimated by ITC Trade Map and could be over-estimated. Figures for 2012, 2013, and 2014 are more exact figures and not estimated. In summary, the figures suggests that recently South Africa has been a major nett exporter of vegetables and vegetable products. The import and export products are listed in Table 19.

TABLE 19. IMPORT AND EXPORT PRODUCTS FROM SOUTH AFRICA

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 Figure 15.

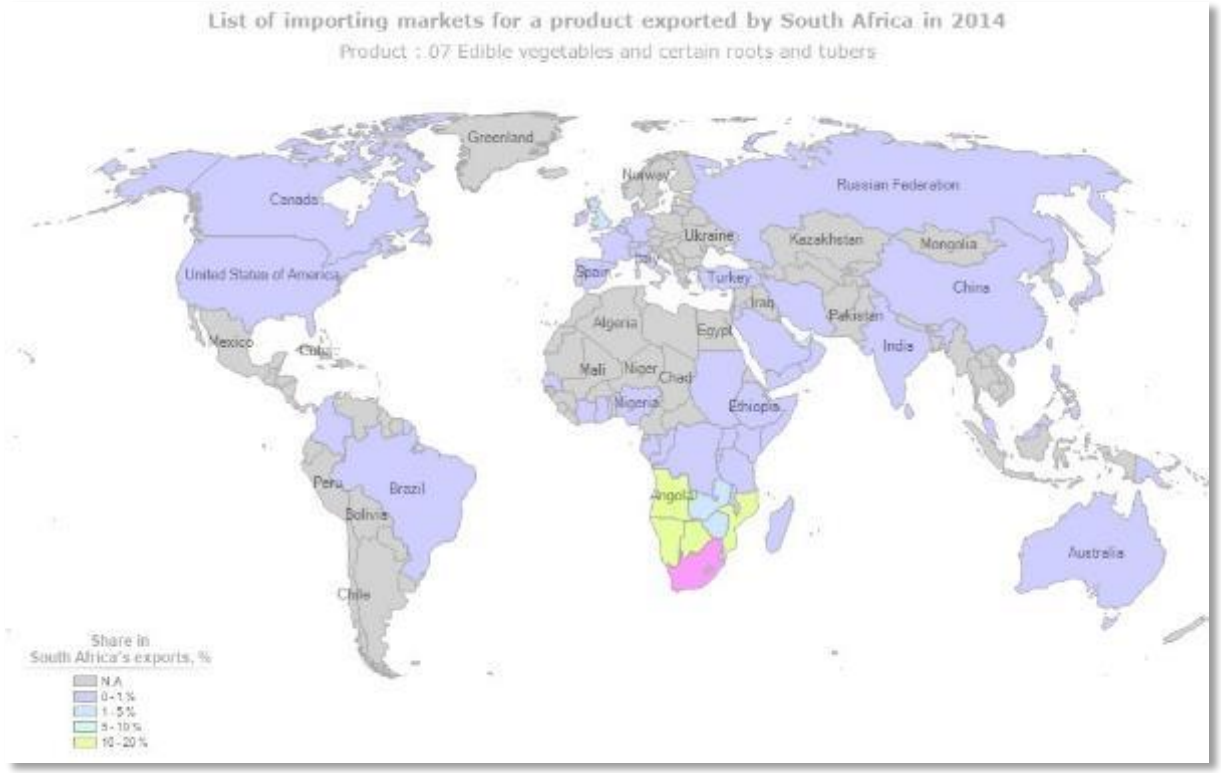
FIGURE 15. MAJOR VEGETABLE EXPORT PRODUCTS FROM SOUTH AFRICA (2014)



Source: ITC, Trade Map, 2015

From this figure it is evident 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 (Map 14).

MAP 14. SOUTH AFRICA'S MAJOR VEGETABLE EXPORT MARKETS



Source: ITC, Trade Map, 2015

MAP 15. SOUTH AFRICA'S MAJOR VEGETABLE IMPORT MARKETS

Source: ITC, Trade Map, 2015

South Africa's major import markets for vegetable products include China, Canada and United States of America (USA) (Map 15). The major import products include dried and frozen vegetables.

It is clear from the above import-export analysis that South Africa is a nett-exporter of vegetables and vegetable products, with SADC countries being the major markets for these products. The major export commodities include potatoes and onions which can be easily stored and transported to the SADC region with relative ease given the proximity and relatively low trade barriers. Of interest is that these commodities are exported mostly in their primary form and have gone through little agro-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 are limited if not non-existent. Most producers raise funding through mainstream finance houses comprising of the commercial

banks, Land Bank and Cooperative finance houses. The major commercial banks, Land Bank and Cooperative finance and their respective financial offerings are summarised respectively below:

8.1.1.3.1 *Land Bank*

The 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; and
- 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 (DAFF, 2006).

8.1.1.3.2 *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 multi-purpose 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.

8.1.1.3.3 *Umhlosinga Development Agency*

The Umhlosinga Development Agency is a municipal entity, and registered private company, dedicated to the planning and implementation of a program of sustainable economic growth and development in the district of uMkhanyakude, KwaZulu-Natal, South Africa. The Agency has the following objectives:

- Foster local action to remove barriers and blockages to equitable and sustainable growth and development of the local economy.
- Facilitate simultaneous and parallel donor, public and private investment to the district economy for maximum socio-economic development impact.
- Broaden and diversify participation in the district economy to reverse economic and social exclusion.
- Develop robust institutional partnerships, linkages and networks to support and optimise development interventions (UMDA, 2014).

8.1.1.3.4 *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 coordination and partnership with various role-players, including global partners, who make international best practices available to local entrepreneurs

8.1.1.3.5 *Agribusiness Development Agency*

The Agribusiness Development Agency (ADA) 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. (ADA, 2015).

8.1.1.3.6 *TWK Agriculture Ltd*

TWK Agriculture Ltd credit division offers financial services for its clients under a range of financial products (TWK, 2015). Short-term and long-term credit facilities are available and each facility has its own application criteria, term and stipulated use, as displayed in the table below:

TABLE 20. TWK AGRICULTURE LTD FINANCIAL PRODUCTS

Credit facility	Intended use	Term
Seasonal (Winter and Summer)	Purchase of production inputs and services	Long-term (1 year)
Month account	In branch purchases	Short-term (30 days)
Forestry loans	Establishment, re-establishment and conservation of plantations	Long-term
Asset finance	Purchase of durable capital goods (tractors, combines and implements)	Long-term

TWK also provides a comprehensive range of insurance products for their clients, namely:

- Personal and Commercial Insurance
- Crop Insurance
- Agricultural Insurance
- Plantations
- Marine and Aviation Insurance
- Guest houses
- Liability Insurance
- Game and Hunting Farms
- Transit cover
- Heavy Commercial Vehicle Insurance

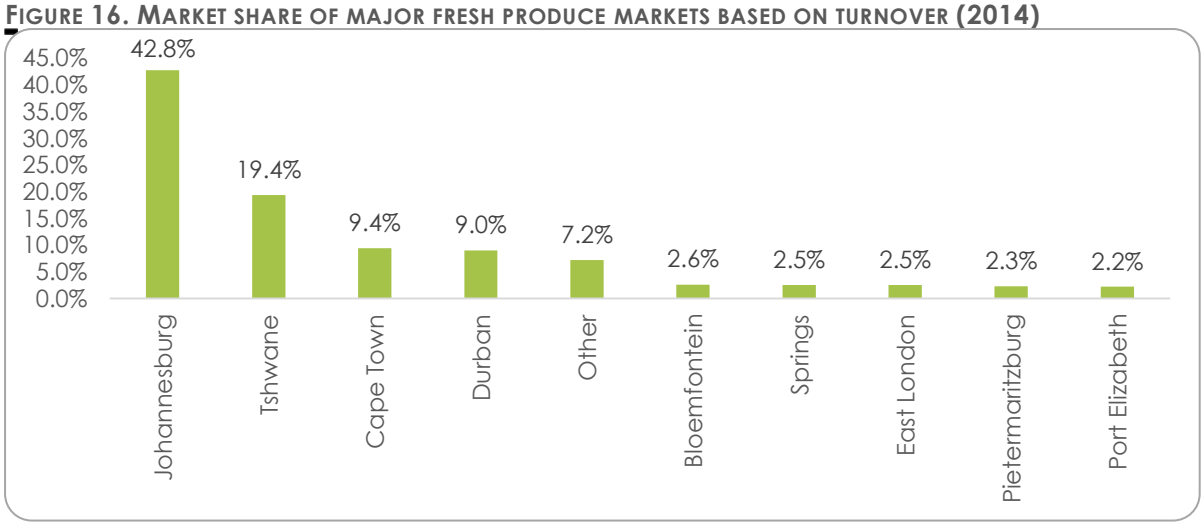
8.1.1.4 Commodity markets

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.

As was indicated in Figure 10, 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 16.

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 on the following page illustrates the national market share of the NFPMs based on turnover.

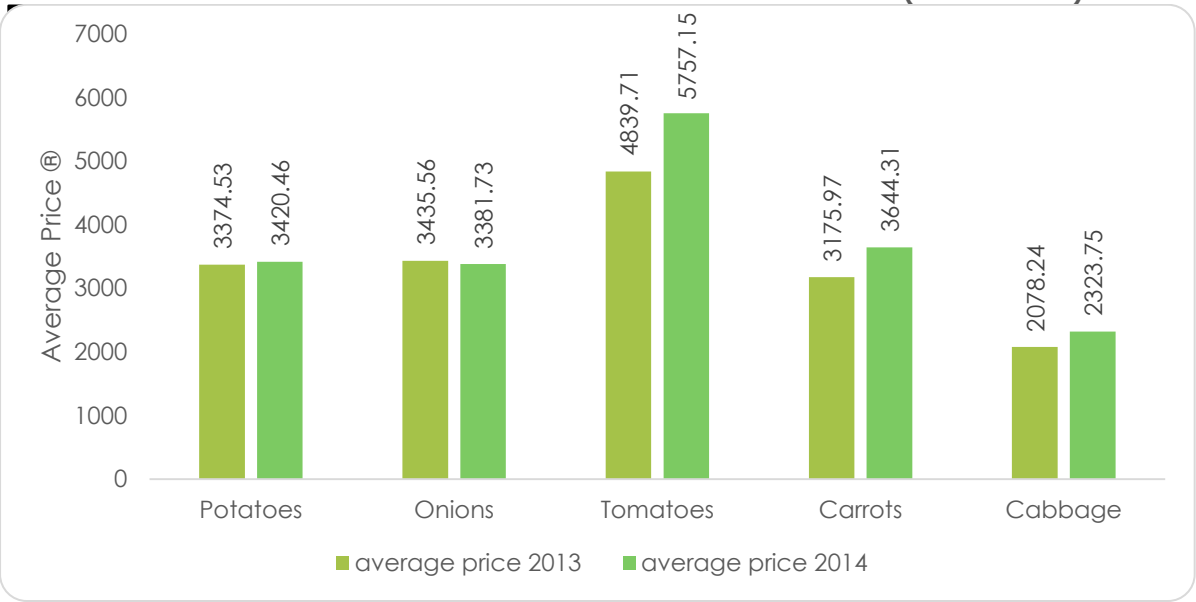
FIGURE 16. MARKET SHARE OF MAJOR FRESH PRODUCE MARKETS BASED ON TURNOVER (2014)



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 17 indicates the average price per tonne for the five major commodities.

FIGURE 17. AVERAGE PRICES OF FIVE MAJOR VEGETABLES AT 12 MAJOR MARKETS (2013 & 2014)



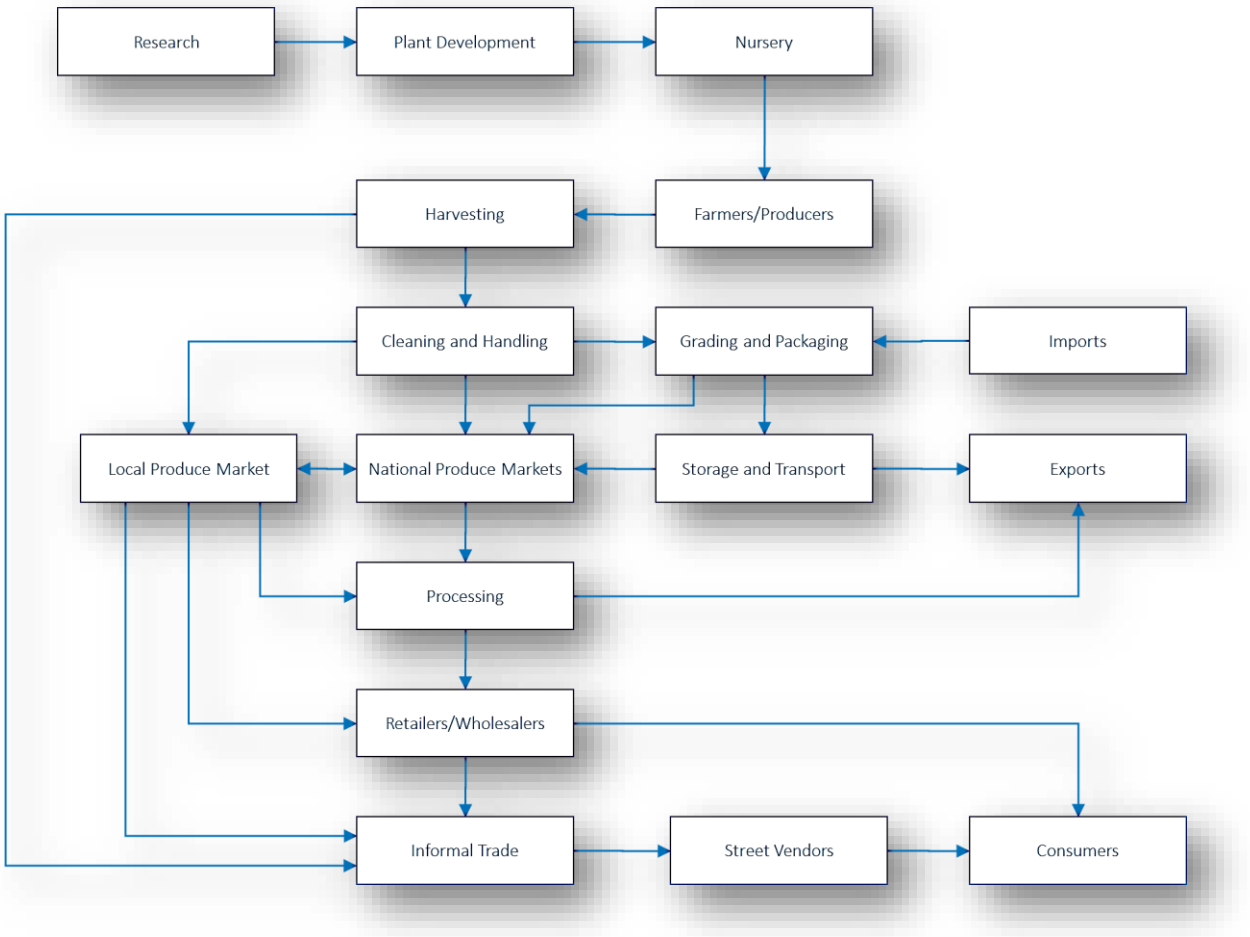
Source: Statistics on Fresh Produce Markets, 2014

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

The following section will provide an analysis of the vegetable value chain and will identify potential agro-processing opportunities for UKDM's Agri-Park to engage in add value activities for primary commodities produced within the district. The development of sustainable supply and value chains in the vegetable sector, from production, through to processing, and finally to markets is important. The value chain will visually represent the process from the production of the commodity through to the consumer. Figure 18 presents the typical value chain for beef and veal production.

FIGURE 18. TYPICAL VEGETABLE VALUE CHAIN



The value chain represents all upstream and downstream opportunities for the vegetable 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.

UKDM is well-suited for vegetable production given the extent of the district and the availability of large swathes of land of medium to high agricultural potential. There are also a number of irrigation schemes such as those at Makhathini and Ndumo B.

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; the National School Nutrition Programme; reliance on imports; water availability; changing consumer patterns and demands (e.g. organic food stuff); 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.

8.1.3 Upstream activities and main input suppliers

As vegetable production is classified as primary production, the upstream activities relevant to the value chain are primarily the input supplies used in the production system. The major inputs for vegetable production include seedlings, fertiliser, weed, pest and disease control, irrigation equipment, machinery equipment and knowledge. Primary vegetable production activities in UKDM are focused on producing the following commodities:

- Tomatoes
- Cabbage
- Green beans
- Chillies
- Peppers
- Butternut
- Sweet potatoes
- Onions
- Spinach
- Green mealies
- Carrots
- Peas
- Sweet corn

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.

8.1.4 Downstream activities and 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 marketing strategy. Table 22 illustrates the potential agro-processing opportunities within the vegetable value-chain.

TABLE 22. AGRO-PROCESSING OPPORTUNITIES IN THE VEGETABLE VALUE CHAIN

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 • Pre-made meals • 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 • Freezing • Slicing and dicing • Cooking • Drying • Canning/bottling of tomatoes	• Tomato puree: Canned or frozen • Tomato soup: Canned or frozen • Tomato paste • Dried tomatoes, possibly stored in oil • Tomato powder

Primary Vegetable	Processing Opportunity	Final Product
	• Tomato jam or preserve	• Tomato cooking sauce or pizza/pasta sauce base (frozen or canned) • Ketchup style tomato sauce • Pickled tomatoes • Ripe tomato chutney • Green tomato chutney
5. Onions	• Canning • Dehydration • Storage, ripening, washing and sorting • Fresh packing and branding • Onion preserve, marmalade	• Powdered for 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

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. The potential marketing channels or outlets to consider and the benefits of each channel are illustrated in

TABLE 23. MARKETING CHANNELS AVAILABLE IN THE VEGETABLE VALUE CHAIN

Channel	Benefits
Street hawkers and visiting hawkers (informal trade)	Important and profitable channel, however, a system should be implemented to coordinate transactions using modern technology otherwise dealing with large numbers of small transactions will be unviable.
Large retail chains	This is becoming the main modern marketing channel for fresh produce, and farmers can collectively access this market through the Agri-Parks scheme.
Large restaurant and fast food chains, large hospitality groups and large employers that provide meals to their employees	May be a large, consistent and fairly easy channel to target and distribute to.

Channel	Benefits
Public and private institutions that provide meals to their residents, inmates, learners or patients, and food schemes	This channel is becoming a large market for vegetables, especially for government-run institutions and food programs.
National Fresh Produce Markets	During the initial phase it is the easiest marketing channel for vegetables to start with, however, priority should soon decrease as contracts via more profitable marketing channels are secured.
Vegetable processors	Financial and non-financial support provision can be negotiated, and could be a low-risk marketing channel to start with during the initial phases of the Agri-Park scheme.

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-add 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 marketing considerations for vegetable production include:

- Size of outlet, and cost of servicing it.
- Transport availability and cost - distances affect cost and contribute significantly to a deterioration of commodities, especially on roads that are in poor condition.
- Packaging requirements, 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.

Approximately 46% of the volume of vegetables in South Africa is traded on the major fresh produce markets and 43% are sold directly to consumers or subsistence use. Roughly 7% are destined for processing.

The Global Fruit and Vegetables Processing industry includes all businesses that alter fresh fruit or vegetables to create a higher, valued-added food product for human consumption. Even though fresh vegetables pose stiff competition for frozen vegetables the latter experiences

major growth due to the increase of the global urban population, which has more limited access to fresh fruits and vegetables than rural populations.

"Sales of frozen fruit and vegetables represent the Global Fruit and Vegetables industry's second most important source of revenue, accounting for an estimated 36.0% of revenue. Within this segment, frozen potatoes, the popularity of which is growing across the world, account for the most important specific product type. Other popular frozen vegetables are peas, carrots, beans and vegetable mixes for stir-fries. In the developed nations of the Organisation for Economic Cooperation and Development (OECD), consumers have become more health consciousness and increasingly time-poor, which has driven demand in these countries for frozen fruit and vegetable products. In the developing world, the expansion of middle-classes has led to increased durable good ownership rates. This includes expanded freezer ownership, which are necessary for storing frozen fruits and vegetables. As a result, economic growth and rising incomes have led to expanding demand for products within this segment from the developing world. As a result of this widespread increase in global demand for products within this segment, this product segment has expanded as a share of overall industry revenue over the past five years" (IBISWorld, 2015). This phenomenon is underlined by the growth of frozen vegetables exports which grew by 37% over the period 2005 to 2014. Over the same period, exports of dried vegetables grew by 23%.

TABLE 24. AGRO-PROCESSING OPPORTUNITIES IN THE VEGETABLES VALUE CHAIN

Processing Opportunity	Potential Products
Slicing and dicing	◦ Fresh peeled, cut or diced vegetables ◦ Pre-made/ ready-to-cook meals ◦ Steam-in-the-bag vegetables ◦ Vegetable sauces ◦ Soups
Freezing	◦ Frozen vegetables (mixed or single)
Canning and pickling	◦ Canned vegetables and vegetables sauces
Drying and dehydration	◦ Dried vegetables ◦ Crisps
Pressing	◦ Vegetables oils

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 25.

TABLE 25. 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 • 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 technologies were rated on a scale of 0 (not at all) to 3 (highly applicable), for the purpose of identifying the most suitable only those rated 2 and 3 are provided in the table. 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 26: 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.).

Technology and short explanation where needed	Function or benefit to farmer
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 it's 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.

Technology and short explanation where needed	Function or benefit to farmer
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 (Low 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.

Technology and short explanation where needed	Function or benefit to farmer
Earth mound bag: Rugged plastic designed water storage system fed from surface water, wells or other storage tanks.	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 1 000 – 2 000m^2. Robust and easy to maintain - it can be repaired using same materials, tools and techniques that is required for tyre repair.
Jumbo Thai Jar: Large cement and mesh tanks that provide affordable water storage solutions in areas where water can be scarce or intermittent.	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 localise water flow from pre-punched holes in the drip line.	Low water pressure requirement. Use 50-70% 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.

Technology and short explanation where needed	Function or benefit to 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.
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.

Technology and short explanation where needed	Function or benefit to farmer
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.
Companion planting: Planting two or more plants together for mutual benefit, leading to enhanced quality and growth of vegetables.	Planting compatible plants together can enhance crop quality and growth, improve soil nutrient levels, provide shelter and support, attract beneficial insects and provide a natural pest deterrent. This has the benefit of reducing the need for some farming implements such as trellises, and potentially reducing use of fertilisers and pesticides, with cost savings passed to farmers.

Technology and short explanation where needed	Function or benefit to farmer
Hydroponics: System of growing vegetables in a water-based nutrient solution with or without the use of an artificial medium such as spoil.	Eliminates potential for water stress and ensures constant delivery of balanced nutrient content which can promote accelerated growth and higher yields. Hydroponic vegetable production is not seasonal, enabling year-round production of vegetables. Additionally, it can eliminate the potential for soil borne diseases.
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 goal of the Agri-Park model is to uplift the small-scale farmers in South Africa so they can compete with commercial farmers in future. For the small-scale farmer to be 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.

8.1.7 Job creation and employment opportunities

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

Estimates for job creation can be determined through industry standards of employment per hectare Labour input is a key element of the production process and one of the main production factors in any economy. Table 27 below displays the sectoral labour multipliers applicable to the vegetable production industry, i.e. the number of the job opportunities created at different levels for every additional hectare placed under production.

TABLE 27. VEGETABLE PRODUCTION EMPLOYMENT MULTIPLIERS

Sector	Direct	Indirect	Direct + Indirect
Vegetables	1.9	0.62	2.52

The total multiplier is disaggregated into direct and indirect components.

8.1.7.1 Direct Multiplier – 1.9

The direct multiplier measures the direct impact emanating from a particular sector on itself. For instance, the direct multiplier will measure how an increase in the production of a particular sector will affect employment within the same sector. These direct impacts are very closely related to the sector and, as such, are probably the most important impacts from a strategic planning point of view. The multiplier of 1.9 suggests that close to 2 jobs are created for every additional hectare of land put under vegetable production

8.1.7.2 .Indirect Multipliers – 0.62

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

The vegetable industry is typically a very labour intensive industry and is therefore s an important contributor to employment.

The following table indicates a variety of opportunities that could potentially be created by developing the commodity value chain of vegetables within UKDM.

TABLE 28. SOCIO-ECONOMIC BENEFITS IN THE VEGETABLE VALUE CHAIN

Socio-Economic Benefit	Description
Job Creation	The vegetable enterprise in the Agri-Park will create sustainable employment opportunities from the inception of the project, construction and through to the operation of the Agri-Park. Jobs created during the construction phase of the project will not be sustainable due to the limited duration of the construction period. The vegetable value-chain process will improve the business profitability and therefore operations, similarly the need to increase efficiency and

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

8.1.8 Contribution to food security

Food security, is a major objective of the Agri-Park model and essential for 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 establishment of the Agri-Park in UKDM contributes positively to issues of food security.

Vegetables are the primary source of food and nutrition in both the country and UKDM and ensuring higher levels of productivity within UKDM will have a positive influence of food security The Makhathini Flats have the potential to vastly increase vegetable yields through more

efficient crop production methods, such as rationalisation of plots sizes and crop rotation and also through effective management of irrigation schemes.

Growth of the vegetable industry within UKDM is likely to have a twofold impact on food security. Additional food is produced through increased production, while incomes are generated through employment creation, thereby increasing the purchasing power of the consumer. Estimated contribution to food security can therefore be estimated by assessing production yield estimates and job creation estimates. Estimated production yields for vegetables are summarised in Table 29.

TABLE 29. ESTIMATED PRODUCTION YIELD ESTIMATES

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

Based on the above, it is evident that, In South Africa, the average vegetable yield per hectare of production is 25 tonnes.

Table 30 below provides the estimated income generation potential for every hectare of land placed under vegetable production, as well as the potential portion of income spent on food and food products.

TABLE 30. ESTIMATED INCOME GENERATION POTENTIAL

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 hectare of land placed under vegetable production, 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.

There is a market opportunity in the National School's Nutrition Programme and the example of iLembe DM could be followed in this regard. The KwaZulu-Natal Department of Education has undertaken to roll-out the programme provincially to 5 000 schools with a goal of reaching 2 million children. Several provincial government departments are involved in the project, namely, KZN DARD (provider of the original vegetable seeds), KZN EDTEA, and KZN CoGTA. Contributing to this programme would be a direct contribution to national food security.

8.1.9 Regulatory requirements

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

The various other acts and policies which also apply to the vegetable industry are included in Table 31 below.

TABLE 31: POLICES 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	The purpose of the Agricultural Pests Act, 1983 (Act No. 36 of 1983) and its subordinate legislations is to provide for measures by which

Act	Description
(Act No. 36 Of 1983)	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).

Act	Description
	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

Act	Description
1983 (Act No. 43 of 1983)	and vegetation, and the combat of weeds and invader plants (RSA, 1963b). **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 UKDM 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.

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:

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

The impact that substitutes for vegetables might have on the UDKM 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 and potential entrepreneurs

This subsection indicates the potential emerging farmers that can benefit from the development of vegetables as a commodity. Annexure B presents a list of agricultural projects that are owned and managed by small-scale, emerging farmers and cooperatives and which are supported by various government departments.

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, 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, 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;
- Non-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

A SWOT analysis is high-level, strategic planning exercise that assesses the strengths, weaknesses, opportunities and threats to an organisation or a particular venture. Strengths and weaknesses are internal factors which can be controlled by the organisation while opportunities and threats are exogenous factors over which the organisation has no control. The SWOT analysis does not identify what should be done. Rather, it provides a framework for identifying where strategic opportunities may exist and for avoiding weaknesses inherent in the organisation or preventing external threats from limiting future expansion and growth.

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 • Shortage of skilled workers • Poor farming practices • Quality control • 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 • Short marketing window (perishable)
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)

Source: Urban-Econ, 2015

There are a variety of strengths and opportunities for vegetables within the UKDM, which if taken advantage of, could prove beneficial to the success of the Agri-Park. However, as much as there are strengths and opportunities to take advantage of, there are also potential weaknesses and threats which could prove detrimental to the success of the Agri-Park if not adequately planned for and mitigated against. These have the potential to negatively impact the potential economic gain of producing vegetables and also the loss of opportunity for small- scale and emerging black farmers.

8.2 Livestock (Beef)

8.2.1 Market assessment

In South Africa, the area involved in cattle, sheep and goat farming is approximately 590 000 km^2. This represents 53% of all agricultural land in the country and includes the vast Karoo areas of the Northern and Western Cape provinces, as well as the mixed veld types of the Eastern Cape and the Southern Free State.

8.2.1.1 Local Markets

8.2.1.1.1 *Production*

As rainfall plays a major role in the availability of fodder and grazing, it is logical that a good correlation would exist between rainfall and the size of the national herd, particularly cattle. Numbers vary according to weather conditions. Stockbreeders concentrate mainly on developing breeds that are well adapted to diverse weather, environmental conditions and consumer preferences.

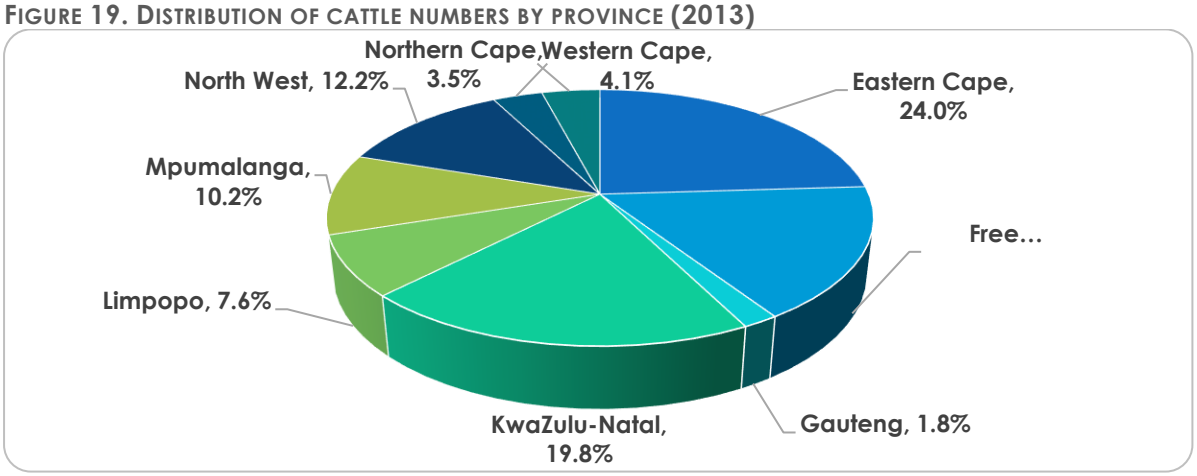
The red meat industry is one of the fastest growing industries in the South African agricultural sector. It contributed approximately 15.5 % to the gross value of agricultural production in the country during 2013/14.

Cattle populations are found throughout the country, but predominantly within the Eastern Cape (24.0%), KwaZulu-Natal (19.8%), Free State (16.7%) and North West (12.2%) provinces. The production of weaners for the feedlot industry is the most frequent form of cattle farming in

South Africa, such that feedlots account for approximately 75% of all beef produced in the country.

The total number of cattle in South Africa at the end of August 2014 is estimated at 13.81 million, comprising various international dairy and beef cattle breeds as well as indigenous breeds such as the Afrikaner and the Nguni. Beef cattle contribute approximately 80% of the total number of cattle in the country, translating into an estimated 11.04 million animals, while dairy cattle make up the remaining 20%. The distribution of cattle populations is presented in Figure 19

FIGURE 19. DISTRIBUTION OF CATTLE NUMBERS BY PROVINCE (2013)



Source: DAFF, 2015b

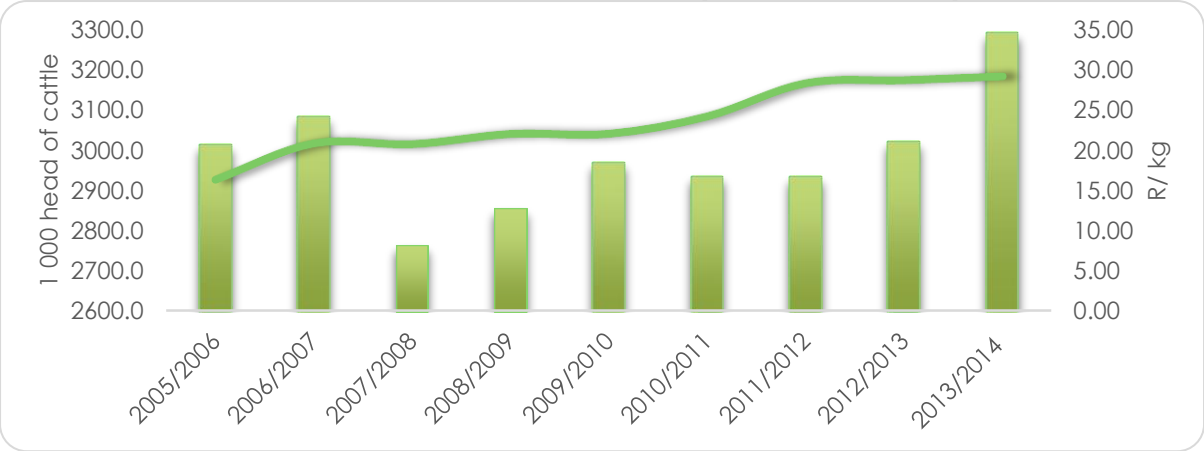
8.2.1.1.2 *Price*

The value of South African beef production in the 2013/2014 season was R22 billion, an increase of 10.8% from the 2012/2013 season. While there have been noticeable fluctuations in the average cattle and calve populations over the period 2005/06 to 2013/14, the general trend has been one of increasing production. Similarly, there has been a trend of increasing prices for beef and veal over this period. These trends are summarised in Figure 20.

This figure illustrates that the number of cattle and calves produced in South Africa has ranged between a low of 2 762 000 in 2007/08 to a high of 3 294 000 in 2013/14. The number of cattle and calves produced in this period in South Africa has ranged from a low of 2 762 000 in 2007/08 to a high of 3 294 000 in 2013/14, a 19% fluctuation. However, between 2005/06 and 2013/14 the number of cattle and calves has seen a fluctuation of 9%.

The average price of beef and veal has also seen a steady, year-on-year increase during this period, increasing from R 28.80/ kg in the 2013/2014 season to R29.27/ kg during the 2013/2014 season. The current price for A2/A3 grade beef and veal products is R35.40/ kg (slaughtered).

FIGURE 20. AVERAGE NUMBER OF CATTLE AND AVERAGE PRICE (2005/06 – 2013/14)



Source: DAFF, 2015a

8.2.1.1.3 *Utilisation and Consumption*

South Africa is self-sufficient in beef production and consumption is therefore closely aligned with production, with the minimal shortfall (2% in 2013/14 season) made up through imports. It is therefore not a major exporter of beef and veal products, exporting only 15 356 tonnes in 2014 to neighbouring SADC countries such as Lesotho, Swaziland and Mozambique. Table 32displays the volume of beef and veal products consumed in South Africa over the period 2005/06 to 2013/14.

TABLE 32. CONSUMPTION OF BEEF AND VEAL

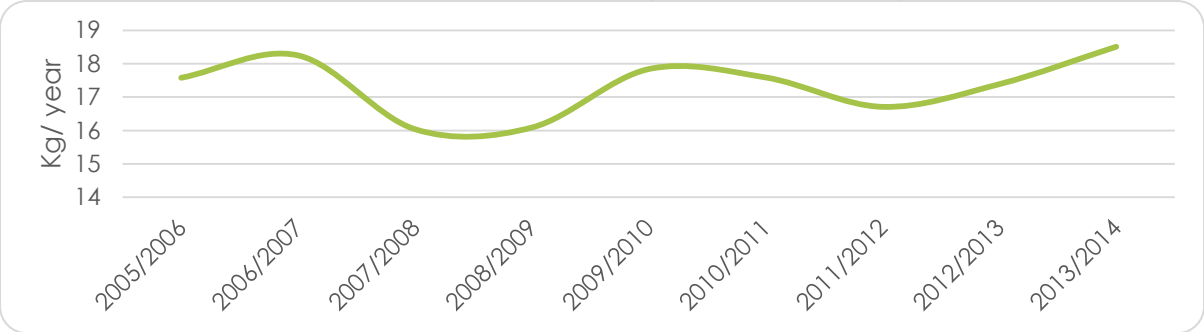
Year	SA origin (1 000 t)	Imports (1 000 t)	Imports as % of total consumption
2005/06	808,1	35	4,2%
2006/07	861,4	33	3,7%
2007/08	770,2	27	3,4%
2008/09	796,7	23	2,8%
2009/10	885,8	23	2,5%
2010/11	869,5	22	2,5%
2011/12	852,1	25	2,9%
2012/13	904,5	19	2,1%
2013/14	982,6	20	2,0%

Source: DAFF, 2015a

The industry is experiencing pressure from various sources, most notably increased competition from overseas producers and changes in consumer preferences towards poultry and other

substitute goods. However, consumption patterns have remained largely stable over the last 8, with an average growth of 0.65% between 2005/06 and 2013/14. This is displayed in Figure 21.

FIGURE 21. PER CAPITA CONSUMPTION OF BEEF AND VEAL (2005/06 - 2013/14)



Source: DAFF, 2015a

8.2.1.2 Global Markets

In 2013, global beef production was approximately 64 million tonnes. The main global producers of beef are South America (24.4%) and Asia (22.5%). Africa accounts for 8.9% of all beef production by volume.

Global beef production volumes by region for 2013 are displayed in Table 33.

TABLE 33. GLOBAL BEEF PRODUCTION (2013)

Region	Tonnes (1 000)	% of Total
Africa	5 694.271	8,9%
Asia	14 373.105	22,5%
Europe	10 140.072	15,8%
North America	12 754.389	19,9%
Central America	2 502.264	3,9%
South America	15 617.999	24,4%
Oceania	2 901.429	4,5%
World	**63 983.529**	**100,0%**

Source: FAOSTAT, 2015

The countries that are part of the regional trading bloc, the Southern African Development Community (SADC), namely South Africa, Botswana, Lesotho, Mozambique, Namibia, Swaziland, Zambia and Zimbabwe, collectively account for 22.5% of African beef production. South African dwarfs its trading partners within SADC in terms of the volume of beef production accounting for 66% of all the beef produced by SADC countries, or 14.9% (851 000 tonnes) of

the African total. Table 34presents a summary of the volume of beef produced by all SADC countries in 2013.

TABLE 34. AFRICAN BEEF PRODUCTION (2013)

Country	Tonnes (1 000)	% of Total
South Africa	**851 000**	**14,9%**
Botswana	47 000	0,8%
Lesotho	13 500	0,2%
Mozambique	25 500	0,4%
Namibia	35 800	0,6%
Swaziland	17 100	0,3%
Zambia	197 827	3,5%
Zimbabwe	103 750	1,8%
Africa	**5 694 271**	**100,0%**

Source: FAOSTAT, 2015

8.2.1.3 Capital markets

Capital markets specific for the Beef value chain are limited. Most producers raise funding through mainstream finance houses comprising the commercial banks, Land Bank and Cooperative finance houses. The major commercial banks, Land Bank and Cooperative finance houses and their respective financial offerings are summarised below:

8.2.1.3.1 *Land Bank*

The 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; and

- 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 (DAFF, 2006).

8.2.1.3.2 *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 multi-purpose 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.

8.2.1.3.3 *Umhlosinga Development Agency*

The Umhlosinga Development Agency is a municipal entity, and registered private company, dedicated to the planning and implementation of a program of sustainable economic growth and development in the district of uMkhanyakude, KwaZulu-Natal, South Africa. The Agency has the following objectives:

- Foster local action to remove barriers and blockages to equitable and sustainable growth and development of the local economy.

- Facilitate simultaneous and parallel donor, public and private investment to the district economy for maximum socio-economic development impact.
- Broaden and diversify participation in the district economy to reverse economic and social exclusion.
- Develop robust institutional partnerships, linkages and networks to support and optimise development interventions (UMDA, 2014).

8.2.1.3.4 *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 coordination and partnership with various role-players, including global partners, who make international best practices available to local entrepreneurs

8.2.1.3.5 *Agribusiness Development Agency*

The Agribusiness Development Agency (ADA) 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. (ADA, 2015).

8.2.1.3.6 *TWK Agriculture Ltd*

TWK Agriculture Ltd credit division offers financial services for its clients under a range of financial products (TWK, 2015). Short-term and long-term credit facilities are available an each facility has its own criteria, term and stipulated use, as displayed in the table below:

TABLE 35. TWK AGRICULTURE LTD FINANCIAL PRODUCTS

Credit facility	Intended use	Term
Seasonal (Winter and Summer)	Purchase of production inputs and services	Long-term (1 year)
Month account	In branch purchases	Short-term (30 days)
Forestry loans	Establishment, re-establishment and conservation of plantations	Long-term
Asset finance	Purchase of durable capital goods (tractors, combines and implements)	Long-term

TWK also provides a comprehensive range of insurance products for their clients, namely:

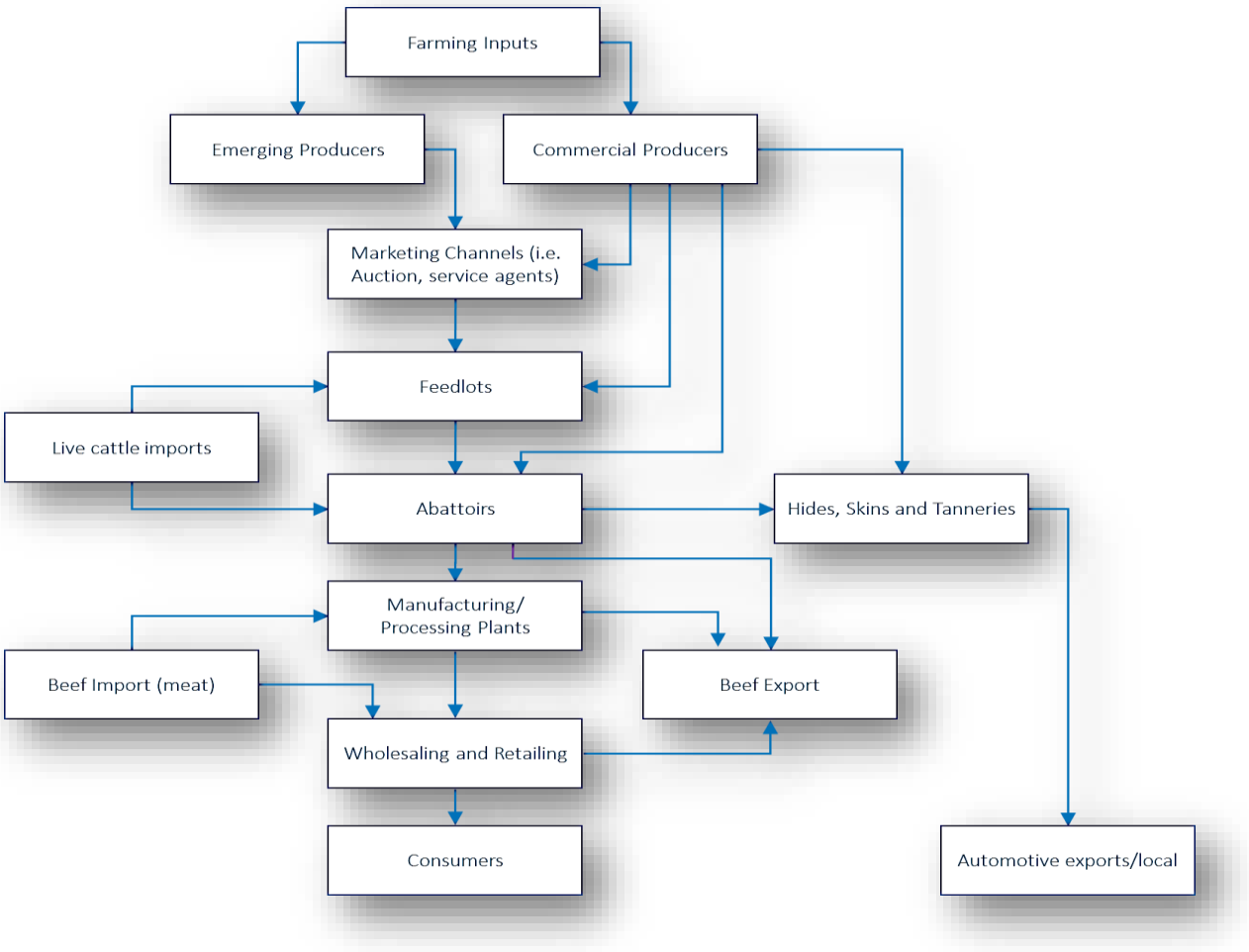
- Personal and Commercial Insurance
- Crop Insurance
- Agricultural Insurance
- Plantations
- Marine and Aviation Insurance
- Guest houses
- Liability Insurance
- Game and Hunting Farms
- Transit cover
- Heavy Commercial Vehicle Insurance

8.2.2 Value chain assessment

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

Figure 22 on the following page presents the typical beef and veal value chain.

FIGURE 22. TYPICAL BEEF AND VEAL VALUE CHAIN



UKDM is well-suited for livestock production and there are several factors which impact on its productivity and growth in the sector. These factors include: growth in the national 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 products); rising costs of agricultural inputs; technological changes and mechanisms; quality standards; farm safety and security; broad based black economic empowerment; skills demand and supply; HIV/AIDS; and changing climate.

Livestock are a highly important commodity in South Africa. Rainfall, climate and other natural resources are suited for livestock production in the region. Factors influencing production include: expansion of the fast-food industry; higher average income of the population; the rapid rate of urbanisation; and the influx of international processing companies.

8.2.3 Upstream activities and main input suppliers

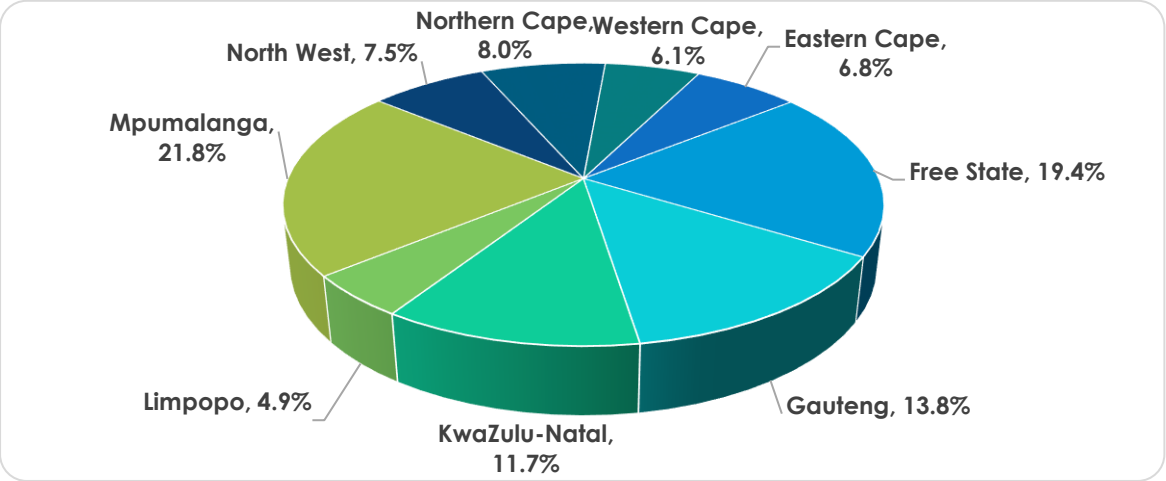
As beef production is classified as primary production, the upstream activities relevant to the value chain are primarily the input supplies used in the production system. The major inputs for livestock production include: animal genetic resources; feeds and forages; veterinary drugs; vaccines; machinery equipment and knowledge. Most of these inputs are supplied by Agricultural Cooperatives in the respective areas, however, there are national and provincial suppliers of inputs into the beef value chain that have a presence in KZN and UKDM. Table 36 presents the main input suppliers into the beef value chain.

TABLE 36. INPUT SUPPLIERS IN THE BEEF VALUE CHAIN

Input Suppliers	Services
AFGRI Animal Feed	◦ Bulk animal feed ◦ Animal nutrient supplements
Coastal farmers' Cooperative	◦ Fertiliser ◦ Fuel ◦ Bulk animal feed ◦ Agro-chemicals (on behalf of Farmers Agri-Care) ◦ Hardware (gumboots, fencing, lubricants, cleaning aides etc.)
Meadow Feeds	◦ Bulk animal feed ◦ Animal nutrient supplements
Obaro	◦ Irrigation ◦ Hardware ◦ Animal health and nutrition ◦ Seeds ◦ Spare parts ◦ Chemicals and fertiliser
South African Veterinary Association	◦ Animal nutrition and health
TWK Agriculture Ltd	◦ Vegetable seed ◦ Fertiliser and organic supplements ◦ Tractors and Implements ◦ Repairs and servicing ◦ Tyre sales and re-treading
Voermol	◦ Bulk animal feed ◦ Animal nutrient supplements

Beef is produced throughout South Africa. The amount of beef produced is determined by the available infrastructural resources such as feedlots and abattoirs, and not necessarily by the number of cattle available in those areas. South Africa has highly developed transport infrastructure that facilitates the movement of cattle and calves from one area to another, including cross-border transit from other countries such as Namibia. For these reasons, Mpumalanga commands the greatest share of beef production in South Africa accounting for 21.8% of the beef produced in 2013, followed by the Free State (19.4%) and Gauteng (13.8%), and KwaZulu-Natal (11.7%). This is illustrated in Figure 23.

FIGURE 23. CATTLE SLAUGHTERED BY PROVINCE (2013)



Source: DAFF, 2015b

8.2.4 Downstream activities and agro-processing opportunities

The red meat industry has evolved from a highly regulated environment to one that is totally deregulated today. Various policies, such as the distinction between controlled and uncontrolled areas, compulsory levies payable by producers, restrictions on the establishment of abattoirs, the compulsory auctioning of carcasses according to grade and mass in controlled areas, the control of supply via permits and quotas, the setting of floor prices, removal schemes, etc., characterised the red meat industry before deregulation commenced in the early 1990s. Since the deregulation of the agricultural marketing dispensation in 1997, the prices in the red meat industry are determined purely on the market forces of supply and demand. Prices of beef increased significantly from 1999/00 to present, mainly due to increased consumption caused by rising living standards of a larger number of consumers and low domestic production.

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

The UKDM Agri-Park could potentially take advantage of the following agro-processing opportunities for beef, illustrated in Table 37 on the following page.

TABLE 37. AGRO-PROCESSING OPPORTUNITIES IN THE BEEF VALUE CHAIN

Processing Opportunity	Potential Products
• Slaughtering	• Beef carcass quarters and retail beef cuts
• Packaging and branding	• Packaged and branded meat cuts
• Freezing and packaging of slaughtered meat cuts	• Frozen beef cut packs
• Canning/bottling and pickling	• Canned/bottled and pickled beef

• Dry-curing and smoking
  • Curing whole beef cuts in brine
  • Curing small beef cuts in brine, further cutting, pressing and canning.
	• Drying, including biltong and jerky
	• Semi-dried, cured and smoked beef (dried beef)
	• Salt beef
	• Corned beef (bully beef)

• Mincing, mixing with seasoning and binders, patty forming, packaging and freezing.	• Patties (frozen)

• Fresh sausage making
  • Cooked and smoked sausage making
  • Dry and semi-dry sausage making
  • Speciality and other diverse sausage making
	• Fresh sausages
	• Cooked and smoked sausages
	• Dry and semi-dry sausages
	• Speciality and other diverse sausages

• Offal marketing	• Various offal products of high value
• Tanning	• Leather
• Rendering	• Rendering products originating from slaughter waste
• Jugging	• Perpetual stew

8.2.5 Competitors

The market players in the beef industry are vertically integrated. They have their own feedlots, abattoirs, processors and distributors. It is estimated that there are approximately 50 000 farmers currently farming with livestock. This includes producers that keep livestock as their main enterprise and those that keep livestock as a secondary enterprise. They own around 8.2 million cattle. There are 240 000 small-scale farmers and 3 million subsistence farmers that own around 5.69 million cattle.

The beef supply chain has become increasingly vertically integrated. This integration is mainly fuelled by the feedlot industry where most of the large feedlots own their own abattoirs, or at least have some business interest in certain abattoirs. In addition, some feedlots have integrated further down the value chain and sell directly to consumers through their own retail outlets. Some abattoirs have also started to integrate vertically towards the wholesale level. Under the previous marketing regime, wholesalers mostly bought carcasses through the auction system. Currently, many wholesalers source live slaughter animals (not weaners) directly from farmers or feedlots on a bid and offer basis, i.e. they take ownership of the animal

before the animal is slaughtered. The animal is then slaughtered at an abattoir of the wholesaler's choice, where after the carcass is distributed to retailers. In some instances, the public can also buy carcasses directly from wholesalers. The abattoir industry has expanded tremendously in number and in capacity (DAFF, 2012b).

8.2.6 Technology

Technology plays a vital role in the development of the agricultural industry and today farmers use technology to assist in producing food for a growing global population. High tech advances have been which can assist in making farming operations easier, more efficient and more profitable. By moulding available technologies to suit their specific management needs, small-scale farmers can improve their operations and compete with larger role-players in the value chain.

The technologies were rated on a scale of 0 (not at all) to 3 (highly applicable), for the purpose of identifying the most suitable only those rated 2 and 3 are provided in the table. By utilising the various technologies, small-scale and emerging farmers can improve on the production of the variety of livestock farmed and ultimately increase their profit.

TABLE 38. TECHNOLOGY AVAILABLE FOR LIVESTOCK PRODUCTION

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

Technology and short explanation where needed	Function or benefit to farmer
Integrated farm management software: Combines information and management systems from various on- and off-farms sources to coordinate farming activities in a highly efficient manner. Includes a variety of technologies e.g. farm asset tracking systems, cloud computing, record keeping, accounting, mapping, water and soil management, weather forecasting etc.	Maximise profitability and efficiency automate some management and administrative tasks. Coordinate and simplify management processes.
SimJunior: Basic financial management and accounting software for the small-scale farmer.	Easy to use. Ideal for the small-scale farmer
Accord: Complete human resource management system for farmers, including payroll, HR record keeping and administration.	Particular strong features of the system include its simplicity and coverage of basic employment legislation.
Agribeef: Complete beef cattle herd (commercial as well as stud) management system).	Approved by most breeder societies. Particularly strong in record keeping and reproduction management.
Feedlot: Feedlot management system for camp groups, sales groups and purchase groups.	Particularly strong in record keeping.
Studmaster Beef: A comprehensive computer program for the management of beef cattle of any breed, focusing more on the breeding side of the herd than the financials. Fully incorporates registration and performance testing.	Particularly strong in animal breeding.
Groundwater Access Via Wells or Boreholes	
Manual well digging or borehole drilling: Although mechanical drilling can reach depths of 150 meters, it is generally too expensive for small-scale farmers. In case the groundwater table are less than 45-meter-deep and the subsoil material are soft, manual drilling or well digging are a cost efficient option.	Gain access to groundwater resources much more cheaply compared to conventional mechanical drilling.
Animal Reproduction	
Artificial insemination (AI): Introduction of the sperm (often stored and transported in a frozen form) into a female animal's uterus (in-vivo fertilisation).	A farmer can cost efficiently introduce generically superior traits into his/her herd or flock without having to buy these superior animals.
Oestrous synchronization: Using hormone treatment to ensure that female dairy and beef cattle becomes pregnant at approximately the same time.	Pregnant cows, and later their calves, can be handled in a single cohort, thereby increasing efficiencies of scale and decreasing cost and effort performing procedures through the different life stages.
Animal Handling	
Hydraulic cattle clamps:	During cattle handling, the traditional clamp causes significant stress to the animal

Technology and short explanation where needed	Function or benefit to farmer
Silent, less stressful and precise clamping of cattle at the neck to allow for safe handling of the animal.	and the clamp often fit too loose or too tight. The new generation hydraulic clamps fits more precisely and does not produce a stress-causing noise.
Cattle hip-clamp: Instrument that allows for easy lifting of cattle.	Allows for convenient, stress and injury free lifting of sick cattle or cattle that need assistance to stand upright again.
Animal Feeding	
Rolling molasses lick A tank filled with molasses with wheels that rotate through the molasses at the bottom of the tank as the cattle lick the fresh molasses at the top of the tank.	Ensuring a fresh supply of molasses as needed by the animals.
Feed mixers with advanced feed circulation capability: The new generation feed mixers are capable of circulating material that needs to be milled into a feed mix towards the centre of the container.	Requires significantly less energy and time compared to conventional hammer mills.
Animal Watering	
Auto-refill watering troughs: Water troughs fitted with a small reservoir and low pressure floating valves to enable automated re-filling.	Not only steady and easy to clean, but also re-fill automatically from a small build-in reservoir which minimizes contamination and risk of wastage.
Animal Health	
Vaccination: Vaccines contains inactive parts (usually the capsid) or molecules that resembles surface proteins of a pathogenic virus or bacterium, which are introduced into the animal's blood stream so that antibodies can be developed. This will enable the animal to develop immunity and to be protected against the pathogen when and if exposed to it later in life. New vaccines are constantly developed therefore it is important to consult with an animal health professional on the most appropriate vaccination program.	Vaccines have a highly positive effect on disease control and even eradication. Very high return on investment.
Antibiotics: Have two main applications in agriculture: 1) To treat infections, which is an important technology but will not be discussed in detail because it is a specialised field that are taken care of by animal health professionals. 2) As a routine feed supplement to animals in intensive farming systems (feedlots, piggeries, chicken houses, fisheries etc.) which can be considered a dangerous and unsustainable practice.	Increased growth rate and resistance against disease in case of routine feeding supplementation, however, the cost to society could be large and devastating.
Veldt Management	
Bush-to-feed converter:	Converts a liability (bushes that reduce the carrying capacity of the veldt) into a

Technology and short explanation where needed	Function or benefit to farmer
Unit that produce feed pellets from shrubs and trees, including species responsible for bush encroachment.	valuable asset (feed for game and cattle). Could be an effective method of bush encroachment control.
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.
Farm Energy	
Wind energy: Wind energy has been used for a long time in South Africa in the form of wind pumps. New generation wind technology allows for uses beyond wind pumping, including electricity generation at micro or farm level scale.	Wind is a renewable form of energy and some areas in South Africa do have sufficient wind development potential, especially when micro-climatic and small-area topographic factors are considered which is appropriate for very small-scale operations. Less vulnerable to theft compared to solar panels.
Solar technology incl. photovoltaic and thermal panels and solar drying and cooking: There are two main forms of solar energy harvesting, i.e. photovoltaic panels that produces electricity, and thermal solar panels or tubes that heat water. Solar energy is also widely used on farms for solar drying and solar cooling.	Solar is a renewable form of energy and most areas in South Africa do have sufficient wind development potential. In fact, some parts of the southern and western Free State, western Limpopo, Gauteng and especially the Northern Cape and North West have excellent solar power potential even at global standards.
Biogas fermenters: Biogas can be produced from a variety of on-farm sources, especially animal dung of animals kept in confined areas. Can be used in the same way as conventional petroleum derived or natural gas.	Enable the farmer to become independent of imported and increasingly expensive mineral or natural gas. Especially suitable for intensive livestock, pig and poultry farmers which produce large quantities of animal waste. New techniques enable even small farmers with just a few animals to produce gas in a viable manner.
Farm Protection, Security and Visual Monitoring	
Video and photographical technology: Fixed point photography, security camera systems and remote sensor-triggered photography.	Valuable to monitor veldt condition, effects of grazing or fire control regime, rehabilitation efforts, and to monitor animal or criminal activity in remote parts of the farm. Some systems notify the farmer by SMS of sensed activity and immediately send the footage by MMS or video clips to the farmer's mobile device (in additional to conventional recording and storage of images or video).
Apps for Mobile Phones and Tablets	
The Merck veterinary manual: Mobile App, available for both Android and Apple. It contains guidelines for the diagnosis, treatment, and prevention of animal disorders and diseases.	Comprehensive animal health and reproduction reference not only to vets but to farmers as well.
Cattle breeds:	Useful for the new farmer to help in breed selection.

Technology and short explanation where needed	Function or benefit to farmer
Overview of the world's more important beef and dairy cattle breeds and their characteristics.	
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	
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.
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.
Radio frequency identification technology: Used to track and identify animals.	Know where the animal is at all times, and to identify a particular animal instantly for record keeping and management

Technology and short explanation where needed	Function or benefit to farmer
	purposes. Especially useful to extensive farming systems and game farmers.

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.

8.2.7 Job creation and employment opportunities

Amongst the objectives of the Agri-Park model the creation of opportunities for employment within the agricultural sector. Employment, however, may not necessarily be a result of expanding primary production, but also the value adding activities that may occur through the value chain.

Labour input is a key element of the production process and one of the main production factors in any economy. Table 39 displays the sectoral labour multipliers applicable to the beef and veal industry, i.e. the number of the job opportunities created at different levels for every additional tonne of beef produced.

TABLE 39. BEEF PRODUCTION EMPLOYMENT MULTIPLIERS

Sector	Direct	Indirect	Direct + Indirect
Livestock production	0.0143	0.0071	0.0214

The total multiplier is disaggregated into direct and indirect components.

8.2.7.1 Direct Multiplier – 0.0143

The direct multiplier measures the direct impact emanating from a particular sector on itself. For instance, the direct multiplier will measure how an increase in the production of a particular sector will affect employment within the same sector. These direct impacts are very closely related to the sector and, as such, are probably the most important impacts from a strategic planning point of view. The multiplier for beef is relatively low, indicating that it has low employment creation potential. For every 70t of beef produced, approximately 1 employment opportunity is created.

8.2.7.2 Indirect Multiplier – 0.0071

Indirect multipliers reflect the impacts that a particular sector will have on all other industries that supply inputs (materials) for the operations taking place in the relevant sector. These 'backward linkages' are important as they measure the broader impact that changes in the direct sector will have on the economy. Frequently, these indirect impacts are significant, and may even exceed the direct impacts themselves. The indirect multiplier (or linkages multiplier) of 0.0071 indicates that for every 140t of beef produced approximately 1 employment opportunity is created within the beef value chain.

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

The following table indicates a variety of opportunities that could potentially be created by developing the commodity value chain of beef.

TABLE 40. SOCIO-ECONOMIC BENEFITS IN THE BEEF VALUE CHAIN

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

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

8.2.8 Contribution to food security

According to the APAP (2014), South African consumption of red meat has increased by approximately 20% in the last 20 to 25 years. Consumption of beef and veal products is expected to increase by a further 22% by 2022, creating a need for livestock production to increase over the same period in order to meet national demand. Additionally, imports of frozen beef products fluctuate from around 2% to 5% each year and there is reason to suggest that South Africa could rely less on imports if it could improve market linkages with the vast herds in the former homelands, which comprise about 40% of South Africa's national herd but little of which enters into formal market networks. Formalising and enhancing beef production in UKDM through the Agri-Park would therefore contribute towards national food security.

Growth of the beef industry within UKDM is likely to have a twofold impact on food security. Additional food is produced through increased production, while incomes are generated through employment creation, thereby increasing the purchasing power of the consumer. Estimated contribution to food security can therefore be estimated by assessing production yield estimates and job creation estimates.

According to UKDM's livestock production plan, the average carcass yield per cow is approximately 258kg. The production plan aims to increase beef production in UKDM through the establishment of a series of feedlots which are intended to provide sufficient throughput to the district's abattoir at Bhambanana. The potential yield of UKDM's livestock industry is presented in Table 41.

TABLE 41. ESTIMATED POTENTIAL YIELD

Beef (livestock)	
Feedlots (no.)	11
Annual throughput per feedlot (no.)	1 200
Average carcass weight (kg)	258
Potential yield (tonnes/ year)	3 405.6

Table 42 presents the estimated income generation potential for every tonne of beef produced, as well as the potential portion of income spent on food and food products.

TABLE 42. ESTIMATED INCOME GENERATION POTENTIAL

Livestock (beef)	
Multiplier	0.0214
Avg. Annual Income (Rands)	31 680.00
Approximate Income generation per tonne (Rands)	677.95
Portion of income spent on food (65%)	440.67

Given a total employment multiplier of 0.00214 for every tonne of beef produced, it is estimated that income generated is approximately R677.95/ t 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 tonne of beef produced R440.67 could be spent on food for every job created.

8.2.9 Regulatory requirements

There are numerous legislation documents governing the production of red meat. These range from regulations governing production inputs (National Water Act), to those governing production (Meat Safety Act) and to production standards and consumption. The most pertinent of the acts are contained in Table 43 below.

TABLE 43. REGULATORY REQUIREMENTS FRAMING THE BEEF VALUE CHAIN

Act	Description
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	This Act provides for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water sources and vegetation, and the combat of weeds and invader plants (RSA, 1963b). **Implication for 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.
Animal Diseases Act, 1984 (Act No. 35 of 1984)	The Act provides for control measures for the prevention of diseases and parasites and for schemes to promote animal health (RSA, 1984).

Act	Description
	Implication for Agri-Park: The Agri-Park needs to be aware of various animal diseases and the relative prevention measures necessary. The AP will be required to implement an animal health and monitoring programme to ensure the health of the broilers.
Livestock Brands Act, 1962 (Act No. 87 of 1962)	The Act regulates the registration of a brand in the name of an owner of livestock for the purpose of identifying the livestock. **Implication for Agri-Park:** It will be the responsibility of the Agri-Park management to register a brand in the name of the Agri-Park in order to identify livestock within the programme.
Animals Protection Act, 1962 (Act No. 71 of 1962)	The act encompasses the prevention of cruelty towards animals. The act further encompasses the code of best practices for the handling and transport of livestock (RSA, 1962). **Implication for Agri-Park:** The Agri-Park must ensure that no cruelty towards it livestock occurs through their handling (transport, feeding, housing, etc.).
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)	The act provides for the appointment of a Registrar of Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies; for the registration of fertilizers, farm feeds, agricultural remedies, stock remedies, sterilizing plants and pest control operators; to regulate or prohibit the importation, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies and stock remedies; to provide for the designation of technical advisers and analysts; and to provide for matters incidental thereto (RSA, 1947). **Implication for 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 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 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.
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	The act aims to provide for the health and safety of persons at work and the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety (RSA, 1993). **Implication for Agri-Park:** The Agri-Park must ensure that a safe working environment is established for all workers and must adhere to all the duties as listed in the occupational health and safety act.
Basic Conditions of Employment Act, 1983 (Act No. 3 of 1983)	The act encompasses those regulations associated with fair labour practices (RSA, 1983c). **Implication for 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	Municipal by-laws will need to be investigated with regard to the establishment of the abattoir in a municipal area.

Act	Description
Regulations, where relevant	**Implication for Agri-Park:** The Agri-Park will not be able to operate an abattoir unless any by-laws regarding abattoirs are met.
Marketing Act, 1968 (Act No. 59 of 1968)	The Act has authorised an establishment and enforcement of regulatory measures to intervene in the marketing of agricultural products, including the introduction of levies on agricultural products (RSA, 1968). **Implication for Agri-Park:** The Agri-Park should establish 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 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 Agri-Park:** The act will assist the Agri-Park in recovering any stolen produce.
Consumer Protection Act (Act No. 68 of 2008)	To promote a fair, accessible and sustainable marketplace for consumer products and services and for that purpose establish national standards relating to consumer protection (National Consumer Tribunal, 2009). **Implication for 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.
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 recognized 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 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 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.

Act	Description
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 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.
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, 19893c). **Implication for Agri-Park:** In the event of export, it is imperative that the Agri-Park establishes and maintains control over the export products. It is the onus of the Agri-Park 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.
Abattoir Hygiene Act, 1992 (Act No. 121 of 1992)	This Act provides for the maintenance of proper standards of hygiene in the slaughtering of animal and in the handling of meat and animal products. The Directorate of Veterinary Services is responsible for enforcement thereof (RSA, 1992a) **Implication for Agri-Park:** The Agri-Park must hire its own its own meat inspection staff to ensure that the red meat products meet the required standards.
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.
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 UKDM 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. Access to credit will allow producers access to the relevant inputs for agricultural production

Act	Description
	purposes and, as such, produce necessary products for the AH (marketing point).
Livestock Improvement Act, 1977 (Act No. 25 of 1977)	The Act regulates the collection and sale of semen and ova and the artificial insemination and inoculation of certain animals, establishment of a system for the evaluation and certification of the performance of certain animals, quality control with regard to the importation and exportation of certain animals, semen, ova and eggs, incorporation of livestock breeders' societies and the maintenance of the legal personality of livestock breeders' societies, and granting of certain exclusive powers relating to the registration of pedigrees of certain livestock to the South African Stud Book and Livestock Improvement Association. **Implication for Agri-Park:** Improving livestock, in particular broilers, is integral in terms of production efficiency. It is thus recommended that the Agri-Park establishes committees and programmes that address issues of livestock improvement in order to maintain standards as set out by the Act.
South African Abattoir Corporation Act, 1992 (Act No. 120 of 1992)	This Act provides for the privatisation of the South African Abattoir Corporation. At the incorporation of the Corporation as a company the Abattoir Industry Act, 1976 (Act No. 54 of 1976) will be repealed. **Implication for Agri-Park:** Beef abattoirs are likely to be privatised through the farmer ownership model.

In addition the above-mentioned legislation, livestock production and slaughter in UKDM is also governed by conditions imposed by the World Organisation of Animal Health (OIE) which aim to regulate the spread of Foot-and-Mouth Disease (FMD). These conditions prohibit the transportation livestock across the 'redline', essentially preventing the movement of livestock out of the area for slaughter and thereby creating necessity for establishing an abattoir in Bhamabana, Jozini LM.

8.2.10 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.

Red meat is a great source of iron and protein which is required to keep the body healthy. Red meat isn't the only way to get nutrients and protein which the body requires. There are other sources which consumers could consume such as chicken, fish and eggs. Vegetarian's use non-meat produces as a substitute to red meat including wholegrain bread, cereals including wheat germ, legumes (lentils, peas, baked beans, humus), nuts and seeds, green leafy vegetables (spinach and kale) and dried apricots (Anon., No Year). Additional alternate

products for red meat include turkey, tofu and low fat dairy products. Red meat has more cholesterol and saturated fat than chicken, fish and vegetables for example, and it is for reasons such as these that people look for healthier alternatives to consume.

The above-mentioned alternatives can be used in main meals, particularly in the evening or for the main meal of the day. Eggs are a valuable source of low cost protein, while nuts and seeds can be included in any meal or snack. For individuals consuming vegetarian meals, legumes and beans are a vital source of protein, iron, some fatty acids, soluble and insoluble dietary fibre and micronutrients. The impact that substitutes for red meat might have on the UKDM Agri-Park is likely to be minor, given the constant demand for beef both locally and internationally.

8.2.11 New entrants and potential entrepreneurs

This subsection indicates the potential emerging farmers that can benefit from the development of beef as a commodity. Annexure B presents a list of agricultural projects that are owned and managed by small-scale, emerging farmers and cooperatives and which are supported by various government departments.

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

Convenience foods or also known as time-saving foods as they are partially, or completely prepared are increasing in demand as consumers spending power increases and more value is given to time-saving. Red meat specific convenience foods include microwave meals and already prepared dishes for the oven. The increasing demand of quick-food has increased the number of quick-food items available to consumers in the last two decades. The most likely consumers to buy these items include modern families (families that lead an individualistic

lifestyle and do not sit down to as many traditional meals), middle- to high-income families, and younger families.

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

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

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

Small-scale and emerging farmers in the informal market are generally supplied by communal farmers who in terms of location are far from any formal market. Informal markets include farmer-to-farmer or farmer-to-consumer and/ or farmer to unregistered buyer sales. Key players in the informal food chain include communal area farmers, auctioneers, speculators and local traders. Two important reasons for keeping cattle for example were income generation and for family consumption. Young small-scale farmers indicated that preference was given to selling of livestock through abattoirs and auctions rather than through private sales and speculators, while older small scale farmers who have low education and mistrust the carcass classification system shun abattoirs as a result. The sustainability of livestock based livelihoods is threatened by the competition for natural resources such as land and water, and decreasing grazing areas, as well as challenges such as poor nutrition, poor management practices, inadequate knowledge, not keeping up with current technology, inability to obtain and understand the formal market information (Soji, et al., 2015).

8.2.13 SWOT analysis

SWOT analysis is high-level, strategic planning exercise that assesses the strengths, weaknesses, opportunities and threats to an organisation or a particular venture. Strengths and weaknesses are internal factors which can be controlled by the organisation while opportunities and threats are exogenous factors over which the organisation has no control. The SWOT analysis does not identify what should be done. Rather, it provides a framework for identifying where strategic opportunities may exist and for avoiding weaknesses inherent in the organisation or preventing external threats from limiting future expansion and growth.

Strengths	**Weaknesses**
• Contributor to food security • Proximity to major markets • Availability of natural resources (land) • Availability of skills	• Uncoordinated production • Competition for limited resources • Difficult to finance • Limited employment opportunities
Opportunities	Threats
• High agro-processing potential • Changing consumer preferences regarding labelling and organic production • Increasing demand for beef products globally (export market) • Cooperative farming (alliances – economy of scale) • Technological advancement	• Increasing production input costs • Market limitations • Consumer habit • Market competition • Extreme weather conditions (drought, hail, frost) • Pests and disease problems • Widespread stock theft • Overgrazing • Food safety/ bio-security issues • Regional competition& inadequate border controls • Retailer consolidation (preference toward particular producers)

Source: Urban-Econ, 2015

There are a variety of strengths and opportunities for livestock production within UKDM, which if taken advantage of, could prove beneficial to the success of the Agri-Park. However, as much as there are strengths and opportunities to take advantage of, there are also potential weaknesses and threats which could prove detrimental to the success of the Agri-Park if not adequately planned for and mitigated against. These have the potential to negatively impact the potential economic gain of producing livestock and also the loss of opportunity for small-scale and emerging black farmers.

8.3 Cotton

8.3.1 Market assessment

Cotton is traditionally produced in the following areas in South Africa: Limpopo Province in the Springbok Flats from Bela-Bela to Mokopane, North West Province covering the areas of Taung, Stella, Delareyville and Maratsane, KwaZulu-Natal in the Makhathini Flats, Mpumalanga and Northern Cape in the Lower Orange River, Vaalharts, Douglas and Prieska districts.

Cotton is also produced within the following SADC countries: Namibia, Swaziland, Botswana, Malawi, Angola, Mozambique, Tanzania, Democratic Republic of Congo (DRC), Zambia and Zimbabwe (DAFF, 2014c).

8.3.1.1 Local Markets

8.3.1.1.1 *Production*

Over the past 15 years, cotton production in South Africa has been contracting (see Figure 24) mainly because of the low level of international cotton prices resulting from subsidies and government support in developed countries, which are creating distortions in the international market.

The outlook for the cotton sector in South Africa in the long-term is not positive with some market commentators predicting a worst case scenario of a complete disappearance of the local spinning industry. In the medium-term, there does however exist a viable market for imports, especially imports of organic cotton. Demand for the latter is expected to grow exponentially over the next few years as retailers, led by the Woolworths Group, move to

increase their ranges of organic cotton garments (Cotton Guide, 2015). Cotton also faces stiff competition from crops such as maize and sunflower where prices offer farmers greater profitability whilst requiring fewer management inputs.

The local cotton crop production estimate for 2015/16 is depicted in Table 44.

TABLE 44. COTTON PRODUCTION ESTIMATES 2015/16

Production region/ province	Irrigation (ha)	Dryland (ha)	Yield irrigation (kg/ ha)	Yield dryland (kg/ ha)	Production (200kg bales of cotton lint)	% crop hand picked	% crop ginned so far
Limpopo							
Loskop	848	0	4 500	0	6 678	1	0
North & South Flats	18	368	3 500	800	625	0	0
Dwaalboom/ Thabazimbi	0	0	0	0	0	0	0
Weipe	368	0	3 000	0	2 040	0	0
Northern Cape							
Vaalharts	1 152	0	5 011	0	10 682	0	0
Lower Orange River	786	0	4 500	0	6 543	0	0
Rest of N. Cape	1 402	0	5 632	0	14 608	0	0
North West							
Stella/ Setlagoli	1 430	0	4 50	0	11 905	0	0
Taung	0	0	0	0	0	0	0
KwaZulu-Natal	230	600	2 500	500	1 600	100	0
Mpumalanga	28	389	4 500	646	685	100	0
Eastern Cape	0	0	0	0	0	0	0
RSA TOTAL	**6 262**	**1 357**	**4 683**	**623**	**55 366**	**4**	**0**
***Swaziland**	0	1 000	0	500	900	100	0
***Botswana**	0	0	0	0	0	0	0
***Namibia**	0	0	0	0	0	0	0
***Zimbabwe**	0	0	0	0	0	0	0
*** Mozambique**	0	0	0	0	0	0	0
GRAND TOTAL	**6 262**	**2 357**	**4 683**	**1 123**	**56 266**	**6**	**0**

Source: Cotton South Africa, 2016

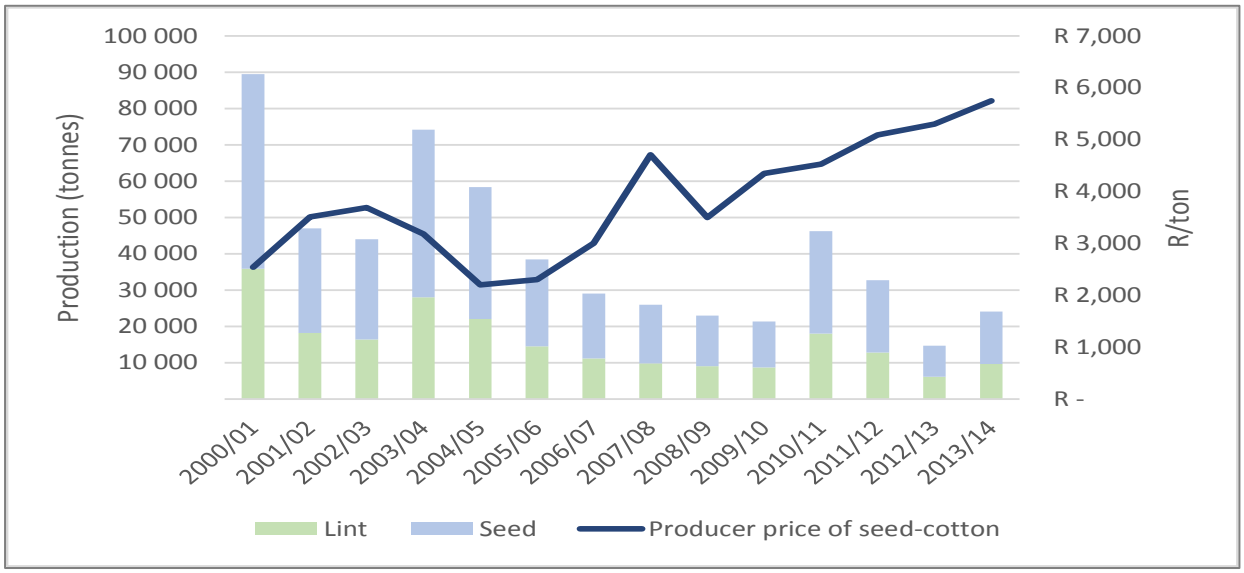
*Particulars relate to expected purchases of seed cotton by RSA & Swaziland ginners from these countries.

Due to the drought, the dryland area planted is only 1 357ha, 80% less than the previous year. Crop production under irrigation is projected at 6 262ha. Total estimated production of 56 266 lint bales is down 41% from the previous season, with approximately 900 lint bales produced in Swaziland by the country's gin and sold in South Africa.

8.3.1.1.2 *Price*

Figure 24 illustrates that the producer price for seed cotton has seen a steady increase since the 2008/ 09 marketing season. The average year-on-year increase was 11% reaching R5 750 per tonne during 2013/2014.

FIGURE 24. PRODUCTION AND PRODUCER PRICE TRENDS



Source: DAFF, 2014c

8.3.1.1.3 *Utilisation and Consumption*

Cotton is one of the most versatile crops grown and is noted for its versatility, appearance, performance and comfort. Primarily used in the production of textiles, it also finds application in the manufacture of oils, fertiliser and meal for animal feed.

Table 45 illustrates South Africa's cotton lint production, imports, consumption and exports for the period 2004/05 to 2014/ (actual) and projections for 2015/16.

TABLE 45. SOUTH AFRICA COTTON LINT PRODUCTION, IMPORTS, CONSUMPTION AND EXPORTS

Year	Production (tonnes)	Imports		Consumption (tonnes)	Exports (tonnes)	Ave. price (c/kg)
		SADC (tonnes)	Other (tonnes)			
2004/05	28 021	22 258	7 179	59 224	0	1 109
2005/06	22 041	19 834	7 576	48 186	6 599	737
2006/07	14 483	29 798	9 134	46 515	7 733	723
2007/08	11 173	28 610	13 473	46 797	6 583	924
2008/09	9 820	26 982	9 426	42 641	5 337	1 235
2009/10	9 077	18 001	4 105	25 842	6 567	1 120
2010/11	8 682	16 109	1 772	22 774	6 371	1 204
2011/12	17 989	11 694	6 540	19 619	14 377	1 364
2012/13	12 799	11 437	3 207	18 971	11 176	1 508
2013/14	6 245	13 389	6 218	22 398	3 454	1 674
2014/15	9 503	14 966	3 115	20 774	6 635	1 855
2015/16	19 094	est. 17 000 in total		22 000	15 000	1 800

Source: Cotton SA, 2016

Current domestic lint consumption for the 2015/16 marketing season is projected at 22 000 tonnes, a projected increase of 1 226 tonnes from last year and up 3 029 tonnes from the slump in 2012/13, indicating that the local industry is currently rebounding (Cotton SA, 2016). Average prices fetched for cotton lint within the South African market are largely stable for the current year, with only a slight decrease from the 2014/15 market year. This is likely to have a positive impact on production as stable prices at the current level will encourage farmers to consider producing cotton over other crops.

8.3.1.2 Global Markets

During the 2008 food crisis, less cotton was planted in favour of staple food crops. Consequently, total world cotton stock was at a very low level during 2009 when the economy suddenly recovered in some parts of the world. This lead to a huge increase in world cotton prices during 2011 (see Figure 25) which resulted ultimately in a production increase (Erasmus, 2011).

FIGURE 25. HISTORICAL COTTON PRICES (10 YEAR TREND)

	Actual	Chg	%Chg
Crude oil	29.76	▼ 1.01	-3.28 %
Brent crude c	33.57	▼ 0.71	-2.07 %
Natural gas	1.8450	▼ 0.011	-0.59 %
Gasoline	0.9644	▼ 0.0189	-1.92 %
Heating oil	1.0500	▼ 0.0266	-2.47 %
Gold	1225.84	▼ 8.21	-0.67 %
Silver	15.34	▼ 0.09	-0.58 %
Copper	2.07	▼ 0.01	-0.34 %
Corn	370.25	▲ 0.25	0.07 %
Cotton	59.85	▲ 0.15	0.25 %
Platinum	942.08	▼ 4.55	-0.48 %
Soybeans	882.00	▼ 1.25	-0.14 %
Rice	10.83	▼ 0.08	-0.69 %

Source: Trading Economics, 2015

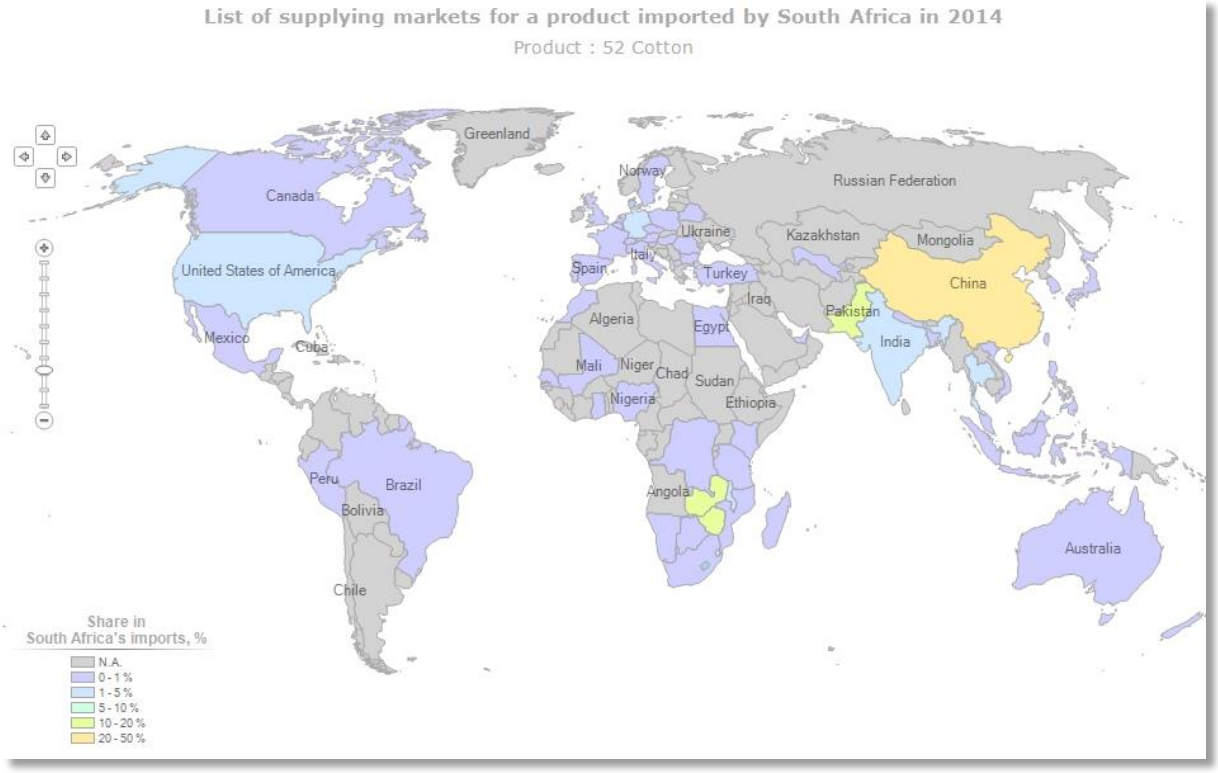
South African cotton production cannot meet demand and the country is therefore a net importer of cotton lint. Between 40% and 60% of annual demand is met through imports.

The major barrier for foreign cotton producers in the South African market is the current tariff structure. Imports of cotton from SADC member states enter the South African market at a zero rate of tariff whilst imports from non-SADC member states pay a R1.60 per kilogram tariff. In spite of this, China is South Africa's major import market for cotton, accounting for approximately 28% of all imports in 2014.

The SADC region, due to the SADC Free Trade Agreement, is also a large trading partner with, with Zimbabwe and Zambia accounting for approximately 11% and 17% of annual imports respectively. These countries are very competitive producers of cotton, collectively producing almost half of the volumes produced in the region. Map 16 illustrates the major cotton import markets for South Africa.

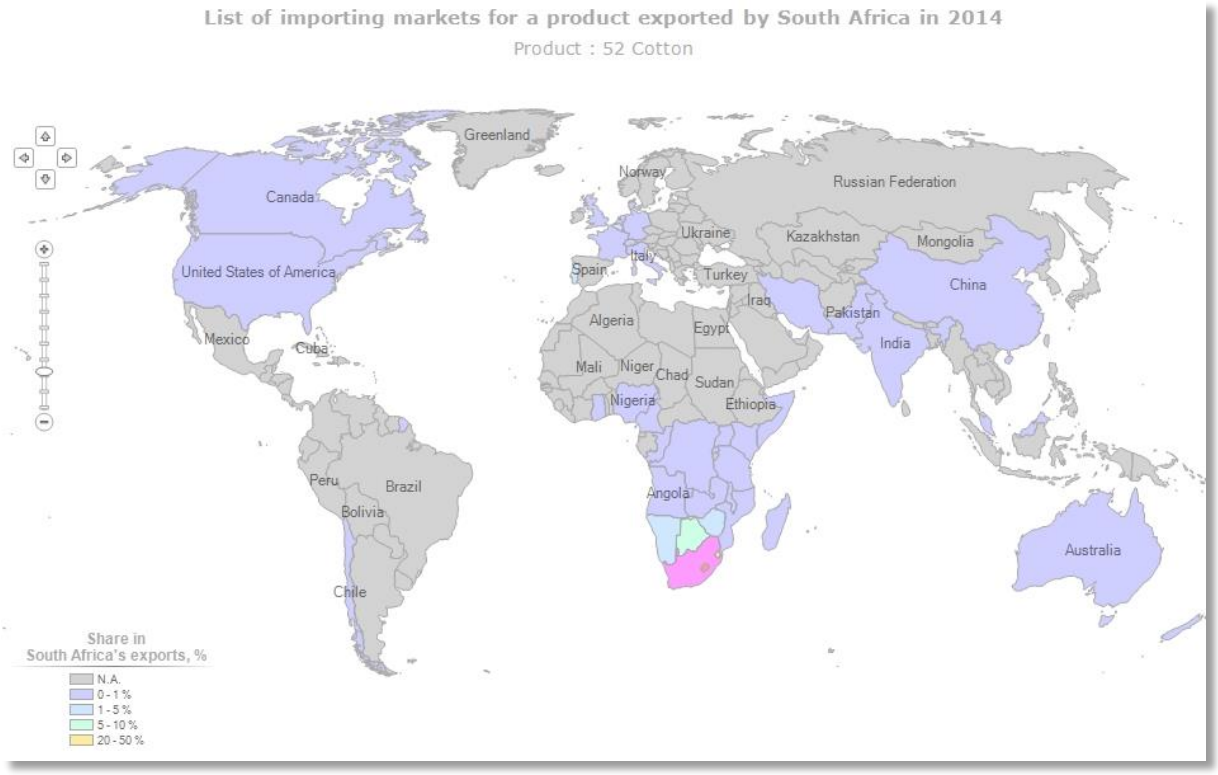
Small volumes of cotton are exported to some SADC partners, with Lesotho and Swaziland accounting for 44% and 29% of South Africa's annual cotton exports respectively. Namibia (3%), Botswana (10%) and Zimbabwe (2%) account for the bulk of the remainder of the country's exports. Botswana. Map 17 displays the major cotton export markets for South Africa.

MAP 16. SOUTH AFRICA'S MAJOR COTTON IMPORT MARKETS



Source: ITC, Trade Maps, 2015

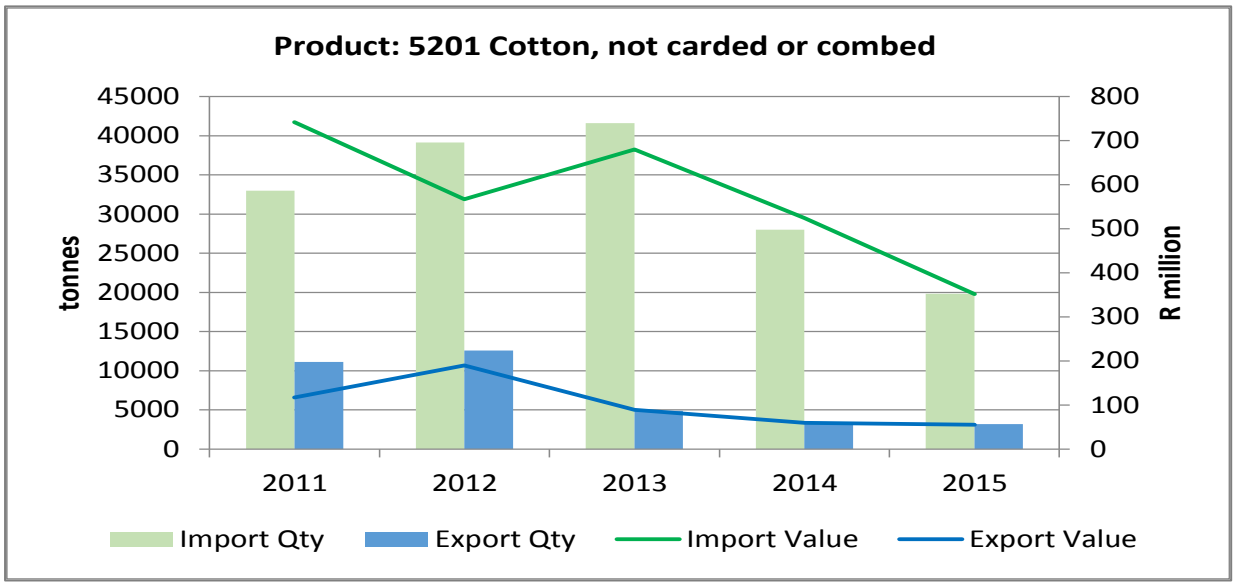
MAP 17. SOUTH AFRICA'S MAJOR COTTON EXPORT MARKETS



Source: ITC, Trade Maps, 2015

Figure 26 displays the cotton lint imports and exports over the past five years.

FIGURE 26. IMPORT AND EXPORT VALUE AND QUANTITIES



Source: ITC Trade Maps, 2015

This figure illustrates a general trend of decline in terms of the quantity and price of imports and exports of cotton. While there is significant scope for increasing cotton production in South

Africa due to current the current quantities produced failing to meet the quantities required for long-term sustainability, it should be noted that export prices are also showing a downward trend over the past five years. The is due in large part to the continual drop in the market price of synthetic alternatives such as polyester which are cutting into cotton's market share. It is positive, however, that the price of cotton has stabilised in the short-term.

As a high labour intensive crop, especial when handpicked, cotton production creates the prospect of employment creation, however, the high cost of human resources in South Africa limits the competitiveness of South African produced cotton, especially when compared to our major cotton trading partners within the SADC bloc and also in Asia – China and India. The results in strong demand for imports from these countries.

8.3.1.3 Capital markets

Capital markets specific for the cotton value chain are limited if not non-existent. Most producers raise funding through mainstream finance houses comprising of the commercial banks, Land Bank and Cooperative finance houses. The major commercial banks, Land Bank and Cooperative finance and their respective financial offerings are summarised respectively below:

8.3.1.3.1 *Land Bank*

The 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; and
- 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 (DAFF, 2006).

8.3.1.3.2 *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.

8.3.1.3.3 *Umhlosinga Development Agency*

The Umhlosinga Development Agency is a municipal entity, and registered private company, dedicated to the planning and implementation of a program of sustainable economic growth and development in the district of uMkhanyakude, KwaZulu-Natal, South Africa. The Agency has the following objectives:

- Foster local action to remove barriers and blockages to equitable and sustainable growth and development of the local economy.
- Facilitate simultaneous and parallel donor, public and private investment to the district economy for maximum socio-economic development impact.

- Broaden and diversify participation in the district economy to reverse economic and social exclusion.
- Develop robust institutional partnerships, linkages and networks to support and optimise development interventions (UMDA, 2014).

8.3.1.3.4 *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 coordination and partnership with various role-players, including global partners, who make international best practices available to local entrepreneurs (SEDA, 2015).

8.3.1.3.5 *ADA (Agribusiness Development Agency)*

The Agribusiness Development Agency (ADA) 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. (ADA, 2015).

8.3.1.3.6 *TWK Agriculture Ltd*

TWK Agriculture Ltd credit division offers financial services for its clients under a range of financial products (TWK, 2015). Short-term and long-term credit facilities are available an each facility has its own criteria, term and stipulated use, as displayed in Table 46 on the following page.

TABLE 46. TWK AGRICULTURE LTD FINANCIAL PRODUCTS

Credit facility	Intended use	Term
Seasonal (Winter and Summer)	Purchase of production inputs and services	Long-term (1 year)
Month account	In branch purchases	Short-term (30 days)
Forestry loans	Establishment, re-establishment and conservation of plantations	Long-term
Asset finance	Purchase of durable capital goods (tractors, combines and implements)	Long-term

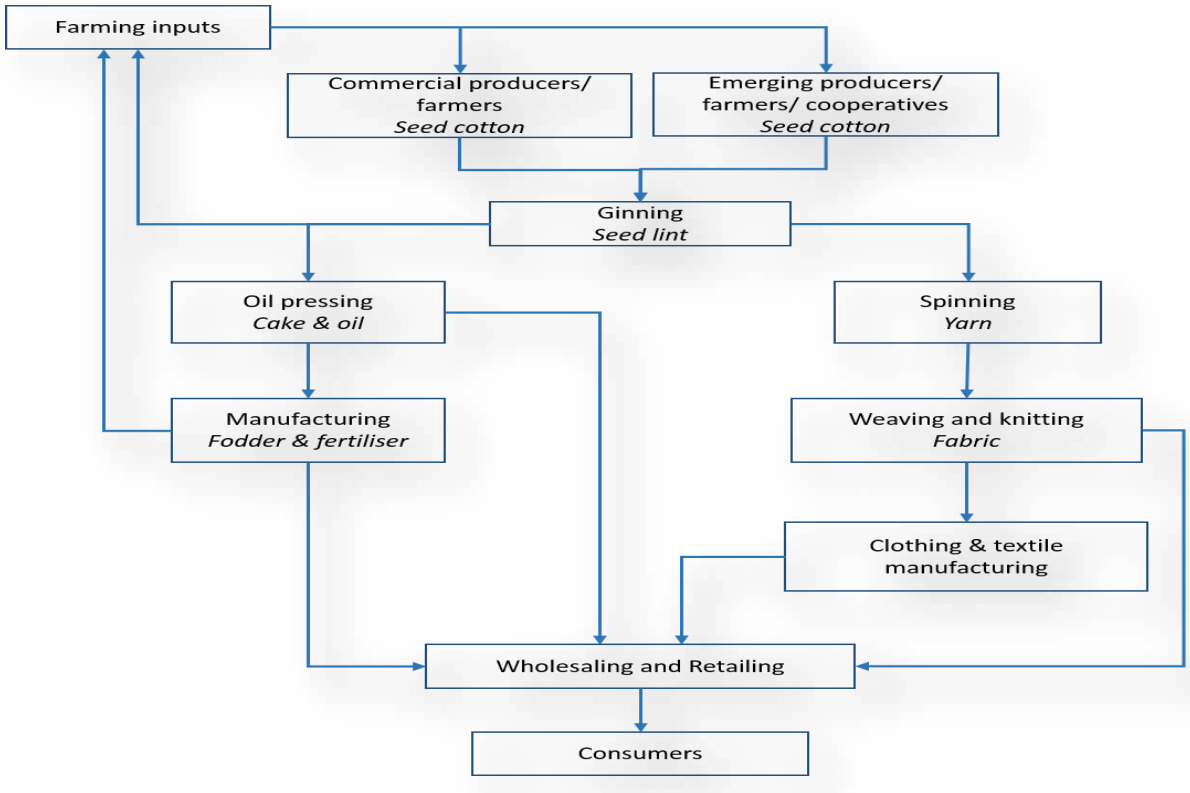
TWK also provides a comprehensive range of insurance products for their clients, namely:

- Personal and Commercial Insurance
- Crop Insurance
- Agricultural Insurance
- Plantations
- Marine and Aviation Insurance
- Guest houses
- Liability Insurance
- Game and Hunting Farms
- Transit cover
- Heavy Commercial Vehicle Insurance

8.3.2 Value chain assessment

Figure 27 presents the typical cotton value chain.

FIGURE 27. TYPICAL COTTON VALUE CHAIN



8.3.3 Upstream activities and main input suppliers

As cotton production is classified as primary production, the upstream activities relevant to the value chain are primarily the input supplies used in the production system and the actual production activities themselves.

In terms of primary production, the following activities take place (ARC, 2016):

- Seed planting at soil depth of 25-40mm;
- The seedling will emerge within 7 days;
- Thinning should take place at about 3 weeks after germination to adjust the plant population to 35 000 plants/ha for dry land (rain-fed) conditions or 80 000 plants/ha where irrigated farming is practiced;
- Flowering usually commences within 70 days of planting and ceases within 130 days;
- The fibre attains its maximum length at 30 days after pollination and subsequently increases in strength due to the precipitation of cellulose on the inside of the fibre wall;
- When the maturation of the fibre in the bolls has terminated, the stresses in the boll are so large that the burs are forced open. The fibre then dries very rapidly;
- Harvesting by hand can commence, but for mechanical/ machine harvesting the farmer should wait until at least 60% of the bolls have burst before harvesting the first picking;
- A second picking can be postponed to autumn since the last bolls take longer to open because the physiological requirements to force bursting are reached much later.

The major inputs for cotton production include: cotton seed; fertiliser; pesticides; irrigation (water); machinery equipment and knowledge. In UKDM, most of these inputs are supplied by Ubongwa Cotton Development Services, the business arm of the Ubongwa Cotton Farmers Cooperative.

8.3.4 Downstream activities and agro-processing opportunities

Cotton is traditionally produced under both irrigation and dryland agricultural practices and the plant produces two distinct commodities, each with their own downstream application: fibre (lint) and seed. The cotton plant produces these two commodities in a ratio of 1: 1.62, meaning that for every 1kg of fibre produced, approximately 1.62kg of seed is produced. The lint and seed are mechanically separated in the ginning process or by hand.

Approximately 5 percent of the total seed crop is reserved for replanting of the next crop. Cottonseed is a very valuable by-product of the cotton plant and the remainder of it feeds

into the cotton agro-processing industry and is used to manufacture animal feeds and oils that are used in the food processing industry.

Cotton lint is used exclusively as an input into the textile manufacturing industry, first being spun into yarn by spinners which is then woven or knitted into clothing and textiles.

8.3.5 Competitors

Domestic support and export subsidies provided by governments of many other cotton producing countries create serious distortions in the international market. This factor together with the strength of the rand against the dollar and combined with uncertain weather conditions, have placed serious pressure on the domestic cotton production in recent years. International markets for cotton and derived products remain distorted because of the huge amounts of trade and production distorting support granted to cotton producers mainly in the USA, China and the European Union. The South African cotton production industry also faces strong import competition from SADC countries. About 99% of cotton lint imports during the 2005/06 season originated from SADC countries. Since January 2004 when the SADC Free Trade Agreement allowed duty-free cotton lint imports from SADC countries, South African producers are finding it increasingly difficult to compete with SADC imports.

In 2006 there were nine ginneries in South Africa. Cottonseed is either sold by grower to a ginner who gins the cotton and sells the cotton lint for his own account to spinners and the seed to processors. The grower may also choose to contract the ginner to gin the cotton on his/ her behalf on payment of a ginning fee and to then sell the lint to spinners and the seed to processors. The following is a breakdown of the existing cotton industry in South Africa.

Table x: Summary of existing cotton production in South Africa (2006)

Cotton Ginners	Ownership	Market Share
Clark Cotton Gin	Premier group	33.85%
N.S.K	Company	29.13%
Weipe Cotton Gin	Privately by farmers	10.40%
N.C Ginnery	Company	8.09%
Makhathini Gin	100% black owned	8.67%
Orange Cotton Gin	Cooperative	3.90%
The remainder of the market share is split between Valhaarts Gin, Loskop cotton and Da Gama Cotton.		

Source: DAFF, 2014c

8.3.6 Technology

Technology plays a vital role in the development of the agricultural industry and today farmers use technology to assist in producing food for a growing global population. High tech advances have been which can assist in making farming operations easier, more efficient and more profitable. By moulding available technologies to suit their specific management needs, small-scale farmers can improve their operations and compete with larger role-players in the value chain.

Table 47 indicates the various technologies that the Agri-Park can use within UKDM. By utilising the various technologies, small-scale and emerging farmers can enhance their competitiveness within the cotton value chain.

TABLE 47. COTTON PRODUCTION TECHNOLOGY

Technology and short explanation where needed	Function or benefit to farmer
Mechanisation	
Weighted pickers/ harvesters: Provides more efficient means to pant, weed and harvest cotton crops than manual labour. Also assists in determining the yield of early generation progeny.	Effectively determining the yield of early generation progeny enables smallholder farmers to make informed decision regarding crop retention which in turn enables more efficient resource use and less wastage.
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 risks (e.g. back strain, wearing of joints and skin, etc.).
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,	Maximise profitability and efficiency automate some management and administrative tasks. Coordinate and simplify management processes.

Technology and short explanation where needed	Function or benefit to farmer
accounting, mapping, water and soil management, weather forecasting etc.	
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.
Near-infrared (NIR) spectroscopy: Analysis of sugar juices in sugarcane and agro-processed products to determine sugar content which can inform selection of seed variety to ensure high yields.	Ease of use and fast analysis. Prohibitively expensive unless supplied by large sugar role-players (Tongaat-Hulett, Illovo, TSB)
Irrigation Systems (Water Delivery)	
Drip irrigation: Precise, efficient and practical method of delivering water and nutrients to crops.	Maximises productivity while minimising use of natural resources (up to 50% less water). Particularly useful in UKDM given the current drought, although it requires effective management of the Makhathini and Ndumo irrigation schemes.
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).
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	Enable the farmer to select suitable crops to farm with, and to diversify the farm's enterprises.

Technology and short explanation where needed	Function or benefit to farmer
hundreds of forage crop species for extensive animal farmers.	
Genetics	
Cotton breeding and DNA markers: Cotton breeding programmes aim to improve cotton genes to create a more resilient crop which produces higher yields.	By carefully selecting the cotton seed varieties which are suitable to the climatic conditions of the Makhathini Flats, small-scale farmers can enhance their competitiveness.
Other	
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.
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.
Radio frequency identification technology: Used to track and identify animals.	Know where the animal is at all times, and to identify a particular animal instantly for record keeping and management purposes. Especially useful to extensive farming systems and game farmers.

The 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 Job creation and employment

An important feature of the industry is that production can occur on both drylands and those under irrigation. Additionally, it creates employment in rural and deep rural regions which are typically job-starved due to a lack of economic development and associated opportunities. Direct employment occurs in both in the cotton field and the cotton gin and cuts across a diverse array of skillsets, from farm labourer to agricultural scientist.

Labour input is a key element of the production process and one of the main production factors in any economy. Table 48 displays the sectoral labour multipliers applicable to the cotton industry, i.e. the number of the job opportunities created at different levels for every additional hectare placed under cotton production.

TABLE 48. COTTON PRODUCTION EMPLOYMENT MULTIPLIERS

Sector	Direct	Indirect	Direct + Indirect
Cotton	1	0.3	1.03

The total multiplier is disaggregated into direct and indirect components.

8.3.7.1 Direct Multiplier: 1

The direct multiplier measures the direct impact emanating from a particular sector on itself. For instance, the direct multiplier will measure how an increase in the production of a particular sector will affect employment within the same sector. These direct impacts are very closely related to the sector and, as such, are probably the most important impacts from a strategic planning point of view. The multiplier of 1 suggests that every additional hectare of land placed under cotton production has the potential to create one employment opportunity.

8.3.7.2 Indirect Multiplier: 0.3

Indirect multipliers reflect the impacts that a particular sector will have on all other industries that supply inputs (materials) for the operations taking place in the relevant sector. These 'backward linkages' are important as they measure the broader impact that changes in the direct sector will have on the economy. Frequently, these indirect impacts are significant, and may even exceed the direct impacts themselves. The indirect multiplier (or linkages multiplier) of 0.3 indicates that for every 3 additional hectares of land placed under cotton production, approximately 1 employment opportunity is created in the value add component of the value chain.

The cotton industry is typically a very labour intensive industry, especially in UKDM where 100% of the cotton is harvested by hand, and therefore is an important contributor to employment. However, it should be noted that a portion of the employment opportunities created in cotton are seasonal and therefore should not be considered as full-time opportunities.

The following table indicates a variety of opportunities that could potentially be created by developing the commodity value chain of cotton within UKDM.

TABLE 49. SOCIO-ECONOMIC BENEFITS IN THE COTTON VALUE CHAIN

Socio-Economic Benefit	Description
Job creation	The cotton enterprise in the Agri-Park will create sustainable employment opportunities from the inception of the project, construction and through to the operation of the Agri-Park. Jobs created during the construction phase of the project will not be sustainable due to the limited duration of the construction period. The cotton value-chain process can improve business profitability and therefore operations, similarly the need to increase efficiency and the need/ capacity for additional human resources to operate ginneries, transportation equipment etc.
Developing skills	Environmental, consumer, and animal health are the most important statutory requirements in food production, management, and standardisation. To continually produce healthy products and become profitable one must comply with the rules of the game, therefore developing the skills of the workers, management, and stakeholders to adhere to the standards of the industry and of the Agri-Park as contemplated in the service charter will go a long way. Therefore, historically disadvantaged South Africans, women, disabled and the youth will have to be taught and trained in necessary skills (bookkeeping, call center management, Safety and Health management, Hygiene), Managers will have to be trained in financial, marketing, production and strategic agri-business management courses. Technicians will have to be trained in product quality and safety, equipment calibration techniques.
Spin-off opportunities	The cotton enterprise has many potential spin-offs extending beyond the borders of the Agri-Park. This includes creating opportunities for packaging material manufacturers; transport industry for efficient transport systems; arts and crafts makers etc. The existence of the Agri-Park itself contributes the most to the communities around the areas, the transfer of communication and technologies, roads, water and sanitation infrastructure and related services.
Support to emerging farmers	The Agri-Park will need to ensure that sufficient quantities and quality cotton fibre is supplied at all times. Therefore, will require the department to improve and expand on their extension services to assist local farmers with information, priority needs, and guidance. This relates to issuing of climate change and variability cold temperature, drought signals, water management guidelines and financial support to an extent.

8.3.8 Contribution to food security

Whilst cotton does not directly contribute to food security, it does provide income generation and employment creation opportunities, which in turn increase the purchasing power of those who farm it. Table 50 presents the estimated income generation potential for every tonne of beef produced, as well as the potential portion of income spent on food and food products.

TABLE 50. ESTIMATED INCOME GENERATION POTENTIAL

Cotton	
Multiplier	1.30
Avg. Annual Income (Rands)	31 680.00
Approximate Income generation per hectare	41 184.00
Portion of income spent on food (65%)	26 769.60

Given a total employment multiplier of 1.3 for additional hectare of land placed under cotton production, it is estimated that the income generated is approximately R41 184/ ha of land under cotton production, 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 land under cotton production R26 769.60 could be spent on food for every job created.

Additionally, through its input both a fertiliser and an animal feed, it indirectly contributes to food security. Given that the UKDM Agri-Park is seeking to promote and enhance the production of both vegetables and livestock, there is potential for some of the cotton produced in the district to be used upstream of the vegetable and livestock value chains.

8.3.9 Regulatory requirements

There is very little legislation which specifically relates to cotton production. However, there are still legislative statutes which govern its production inputs and output as an agricultural product. The most pertinent of the acts are contained in Table 51 below.

TABLE 51. REGULATORY ENVIRONMENT OF THE COTTON VALUE CHAIN

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

Act	Description
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.
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	The act aims to provide for the health and safety of persons at work and the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety (RSA, 1993). **Implication for Agri-Park:** The Agri-Park must ensure that a safe working environment is established for all workers and must adhere to all the duties as listed in the occupational health and safety act.
Basic Conditions of Employment Act, 1983 (Act No. 3 of 1983)	The act encompasses those regulations associated with fair labour practices (RSA, 1983c). **Implication for 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 abattoir in a municipal area. **Implication for Agri-Park:** The Agri-Park will not be able to operate an abattoir unless any by-laws regarding abattoirs are met.

Act	Description
Marketing Act, 1968 (Act No. 59 of 1968)	The Act has authorised an establishment and enforcement of regulatory measures to intervene in the marketing of agricultural products, including the introduction of levies on agricultural products (RSA, 1968). **Implication for Agri-Park:** The Agri-Park should establish 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 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 (Act No 68 of 2008)	To promote a fair, accessible and sustainable marketplace for consumer products and services and for that purpose establish national standards relating to consumer protection (National Consumer Tribunal, 2009). **Implication for 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.
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 recognized 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 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 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.
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 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.

Act	Description
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 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.
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 UKDM 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. Access to credit will allow producers access to the relevant inputs for agricultural production purposes and, as such, produce necessary products for the AH (marketing point).

8.3.10 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 major substitute product for cotton is synthetic fibres such as polyester, which offer consumers a cheaper alternative to cotton textiles. Rising inflation in South Africa, especially on food products places strain on consumers and results in absorption of larger portions of disposable income. This in turn create an impulse for reduction in costs on non-essential goods, such as clothing. Polyester prices are currently in decline and manufacturers of textiles made from these fibres can undercut cotton textiles, thus absorbing a growing portion of cotton's market share.

8.3.11 New entrants and potential entrepreneurs

This subsection indicates the potential emerging farmers that can benefit from the development of cotton as a commodity. Annexure B presents a list of agricultural projects that are owned and managed by small-scale, emerging farmers and cooperatives and which are supported by various government departments.

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 market demand for textiles, although slightly lagging, increasingly reflects the sophistication of developed country markets, and the local clothing and textile industry has grown accordingly to offer a comprehensive range of textiles, from natural and synthetic fibre production to non-woven textiles, spinning, weaving, tufting, knitting, dyeing and finishing.

A flurry of new initiatives and awards has thrust the fashion industry firmly into the sustainability spotlight. It can take more than 20,000 litres of water to produce 1kg of cotton; equivalent to a single T-shirt and pair of jeans. Where possible, some companies have moved away from natural crops altogether, with *The North Face* pledging to use 100% recycled polyester fabric by 2016, material that will be mainly sourced from post-consumer water bottles.

Other notable trends which can potentially impact demand for cotton are:

Hemp

Hemp often scores points for its durability and rapid growth without excessive use of water and pesticides. It does not dye as well as cotton, and not everyone appreciates its linen-like and sometimes scratchy feel. However, manufacturers, are introducing more updated textures that look like denim or wool.

Bamboo

Bamboo, a common alternative fibre has recently lost its claims to increased sustainability. Several years ago, the miracle grass was touted as an environmentally-friendly alternative but it has since emerged that the fibres spun from bamboo require so many solvents that it is virtually indistinguishable from rayon or viscose.

Other materials such as stinging nettle and tencel (from harvested trees) have gained interest, but the ecological impact of their processing and concerns about scalability have raised questions.

Synthetics

When it comes to scale, synthetic fabrics are showing more promise. The era of more collaboration and less patent litigation, at least when it comes to developing more ecologically-friendly textiles, offers hope. Some of this change is due to companies like Nike initiating the sustainability index for their products, which boosts the sharing of ideas and innovation.

But with the size of the global textile industry, and increased awareness about its massive and oft-destructive impact, an emphasis on improved textile recycling technology will be crucial if the garment industry will truly become more sustainable. More closed-loop systems will be needed; as of now what few exist are in their infancy.

While cotton is one of the most versatile crops grown by mankind, there is a societal trend towards textiles manufactured from alternative synthetic fibres such as polyester. Polyester is occasionally added to cotton in order to reduce price and create a hardier end-product.

Recycled fibres

The changes are starting at the base of the supply chain with companies such as Aquafil, a synthetic fibre manufacturer that recycles fishing nets and unwanted textiles into regenerated yarns for use as carpet or fabric. The company has spearheaded an effort to raise awareness about the dangers of plastic ocean trash and 'ghost gear', and works with NPOs and aquaculture companies to collect unwanted plastic equipment to churn into new textile fibres, which it brands as Econyl. The company in turn says it can collect those garments made from its fibres, recycle them again and continue the closed-loop recycling process.

Levi Strauss, for example, has modernised and transformed its brand and supplier value chain in part by emphasising sustainability in everything from its garments to long after the sale. The company has spun recycled plastic bottles into its iconic demine jeans and has worked with other countries to launch the Better Cotton Initiative (Edie.net, 2014).

8.3.13 SWOT analysis

SWOT analysis is high-level, strategic planning exercise that assesses the strengths, weaknesses, opportunities and threats to an organisation or a particular venture. Strengths and weaknesses

are internal factors which can be controlled by the organisation while opportunities and threats are exogenous factors over which the organisation has no control. The SWOT analysis does not identify what should be done. Rather, it provides a framework for identifying where strategic opportunities may exist and for avoiding weaknesses inherent in the organisation or preventing external threats from limiting future expansion and growth.

Strengths	Weaknesses
• High potential for job creation • Available infrastructure (Makhathini Cotton Project) • High level of experience in cotton farming	• Not a contributor to food security • Declining international demand • Difficult to finance • Lack of technological development • Water intensive
Opportunities	**Threats**
• Establishing a mill within UKDM could create a local market • Intensive production • Employment opportunities • Cooperative farming (alliances – economy of scale) • No local competition - KZN Clothing and Textile and Fashion Cluster supply potential.	• Increasing input costs • Rising cotton prices (Pressure) • India and China being considered as countries for high value added garments (Competition) • Market limitations • Extreme weather conditions (drought, hail, frost) • Change in consumer preference (alternatives to cotton - polyester)

Source: Urban-Econ, 2016

There are a variety of strengths and opportunities for cotton production within UKDM, which if taken advantage of, could prove beneficial to the success of the Agri-Park. However, as much as there are strengths and opportunities to take advantage of, there are also potential weaknesses and threats which could prove detrimental to the success of the Agri-Park if not adequately planned for and mitigated against. These have the potential to negatively impact the potential economic gain of producing cotton and also the loss of opportunity for small-scale and emerging black farmers.

9 Agri-Park Concept Development

Investment strategies for the development of Agri-Parks generally imply the use of a wide range of partnerships, approaches, and tools in order to integrate the production chain and collaborate accordingly. In developing and emerging economies, the concept of Agri-Parks has gained momentum as innovative attempts aimed at applying spatial planning principles and economic development 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' is 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 Agri-Parks concept makes use of economic corridors, in this section the Agri-Parks concept will be evaluated along with the Agri-Parks alignment to economic corridors. The section will also cover the proposed number of RUMCs, and FPSUs for UKDM and the product flows for each of the selected commodities.

The Agri-Park concept consists of four components, namely, FPSUs, primary production (which comprise small-scale/ emerging farmers and commercial farmers), the AH/ AHs, and the RUMC.

The ideal number of FPSUs required in UKDM is a function of both the spatial extent (12 821 km²) and population density (48 persons per km²). UKDM's population density is the second lowest in the province and therefore must be considered a low density district. Thus, based on the Table 1, the proposed catchment areas for the FPSUs, AHs, and RUMCs in areas of low population density are as follows:

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

UKDM has an area of approximately 12 821km² and taking into consideration the proposed catchment areas and population density, as a suggestion, it is proposed that UKDM would require:

- 7 FPSUs,

- 1 AH

However, given the existing infrastructure in the district and the significantly different processing activities required for each commodity, it is proposed that the UKDM Agri-Park has 3 AHs. Additionally, it is recommended that each province should have 1 central RUMC which coordinates the various components of the province's Agri-Parks. The proposed location of the RUMC is within eThekwini Municipality. It should be selected on the basis of the following criteria:

- Accessibility
- Infrastructure (electricity/ water)
- Agglomeration
- ICT
- Urban environment

The key role and function of the FPSU is to provide small-scale farmers with input supplies; extension support; mechanisation support; local logistics support; primary produce collection; limited grading; and through-put to AHs. 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 the AH. The proposed development concepts for each of the selected commodities are discussed in the following sub-sections.

9.1 Proposed development concept of commodity 1: Vegetables

TABLE 52. PROPOSED DEVELOPMENT CONCEPT FOR VEGETABLE PRODUCTION

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
Key Role & Function	Provides facilities for input supplies and primary/ initial processing activities: • Input supplies (such as irrigation, seed, fertliser, pesticides, herbicides, etc.); • Training and extension support; • Mechanisation support; • Local logistics support; • Limited sorting of fresh vegetables; • Some packaging; and • Some storage, and processing for local markets, through-put of excess products to AH.	The core role of the SHF would be primary production of a variety of fresh vegetables which are suitable to the climate and resource availability of the district and are primarily supported by the two irrigation schemes at Ndumo and Mjinid.	To provide support to the SHF, including guidance and training with regards to vegetable farming activities.	The role of the AH is to provide: • Training to SHF and FPSU personnel; • Logistics; • Agro-processing; • Storage/ warehousing facilities; and • Packaging facilities; • Logistics.	The role of the RUMC is to provide market intelligence, assist farmers, and processors in managing a nexus of contracts,
Location	Vegetable production occurs predominantly in the north of the district iin the north of the district. It is proposed that exisiting FPSUs near primary production sites be utilised: • Ndumo B In addition to this site, it is proposed that an the	All SHF involved in vegetable production in UKDM, especially those in the Makhathini Flats iin the uMhlabuyalingana and Jozini LMs and also in Ndumo B where primary vegetable production is mostly concentrated.	Not aware of the location of CF in the district.	The JVAC, located in Jozini LM is proposed as the AH for the UKDM Agri-Park. Recapitalisation of this infrastructure is considered catalytic for vegetable production since it has important upward and downward linkage ramifications – take up product from users and pass on processed goods to	The proposed location of the RUMC is within eThekwini Municiplaity. This location is proposed on the basis of the following: 1. Accessibility 2. Infrastructure (electricity/ water) 3. Agglomeration 4. ICT

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
	UKDM Agri-Park will require 4 more FPSUs at the following locations: • Hluhluwe; • Manguzi; and • Mbazwana. There is exisiting support infrastructure at Ndumo B, while Manguzi and Mbazwana provide geographic support coverage for SHF in the east of the district and are located on economic activity corridors with good trasnport linkages to the JVAC. DRDLR has also committed funding to establshing an FPSU infrastructure aroudn Hluhluwe.			the market, acting as the agent between producer and market. With the development of the abattoir, producers are incentivised to enter into production since they view this as a market opportunity, while the market would view this as an additional supplier.	5. Urban environment
Human Resources (HR)	The FPSUs will provide the following HR: • Agricultural extension officer/ support office (2); • Machine operators/ Local mechanisation centre and workshops (2); • Agronomist (for soil testing etc.) (2); • Researchers (2)	Personnel required by SHF and CF to manage the production of vegetables include: • A farm manager; • Farm workers; and • Administrators' • Voluntary/ established CF to mentor the SHF (as many as possible).		The AH will provide the following HR; • Administrative manager (2); • Quality control personnel (2); • Staff to manage the agro-processing facilities; • Research and Demonstration personnel; • Training personnel (1).	The RUMC will provide the following HR: • IT expert/personnel (1); • Administrative manager (1); • Training personnel; • Marketing agents (to facilitate market linkages, facilitate contracts with wholesalers and major retail outlets and also to garther information on prices at fresh produce market that would be

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
					communicated to the AH and FPSU).
Training	One of the key functions of the FPSU would be to provide training and extension support on various farm and administrative practices, to the SHF. Extension officers will need to be trained in the respective fields.	SHF would require training on: • Best production practices; • Fertiliser application; • Irrigation application; • Weed and pest control; and • Administration and financial governance	CF to train SHF on vegetable farming through a mentorship progra.mme.	Some training would also be required at the AH e.g.: • Training of processing staff on how to handle and operate various processing equipment; • Training on best practices, with regards to changing demand and supply; and • Training on new innovations as they surface.	Training of training personnel on how to disseminate information to the SHF, AH and the FPSU.
Key product/ activities	The core activities of the FPSU are: • Logistics; • Training; • Planting; • Harvesting; • Production planning /scheduling; • Farmer production management, and • Access to irrigation.	The core activities of the SHF and CF involved in vegetable production are: • Land preparation (land clearing, bed making); • Vegetable farming (planting, fertliisation, disease control, irrigation etc.); • Harvesting of fresh produce; and • Bagging of vegetables/ loading into field trucks.		The core activities of the AH are: • Collection of fresh vegetables; • Grading and sorting; • Further quality control; • Packaging; • Processing (peeling, slicing, drying, cooking etc.) of fresh vegetables; • Storage of products; • Some marketing;	The core activities of the RUMC are: • Dissemination of information; and • Maketing and distribution of final products to different wholesalers and major retail outlets.

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
				• Transportion of products to the markets.	
Infrastructure/ Equipment	The FPSU would require the following equipments/ infrastructure: • Transport (e.g Bakkie or pick-up vehicles); • Vegetable cleaning, sorting, grading and drying machines; • Destoner; • Weighing and packaging machines; • Local packhouse; • Small-scale processing facilities for local market; • Produce sorting facility; • Auction facility; • Storage facility; and • All equipments listed to be required by the SHF.	The SHF and CF migght 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 row); • Digger/ harvester (double row); • Windrower; • Hand hoes; • Field trucks (used totransport vegetables from the field to the packhouses ot the AH); • Crates or containers for in-field storage and transport of produce; and • Digging sticks (for manual harvesting)		The AH would require to put in place the following equipments/ infrastructure: • Administrative facilities; • Rental facilities; • Agro-processing facilities (peeler, slicers and dicers, freezer, cooking facilities for making sauces); • Packaging facilities; • Quality control facilities; • Agricultural input distribution and sales centre; • Retail facility; • Training centre;and • Logistics and transport facility.	The RUMC would require the following equipments/ infrastructure: • Administrative facilities and ICT centre.
Logistics	The FPSU should organise a primary logistics collection centre in the form of pack houses where trucks (bakkie/pick up vehicles) collect vegetables from various farms and convey it to the pack houses. Cold storage transport might also be	A logistics plan will be necessary for the transport of input and harvested products. Farmers will need to be grouped and scheduled into the production plan accordingly. Pick-up and drop-off points will need to be demarcated for each group accordingly in order to streamline the logistical process. The farmers will then be required to pick-up and drop-off products at this point at scheduled times.		The same transport will be used to collect fresh vegetables from the FPSU for transporting to the AH for processing. The transport assets would therefore serve multipel purposes.	The RUMC is responsible for marketing and distribution plans. The responsibilities include: • Collation of production and processing quantities; • Liasing with buyers;

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
	required dependnet on commodities being transported.				• Distribution/logistics plans; and • Determining input quantities required for output quantites.
Technology/ ICT	Tracking devices on all vehicles to enhance security and also prevent misuse. Also, the FPSU would require subscriptions to certain Apps from the RMUC to remain conversant with the current prices fetched on the global, national and local market, so as to be able to strategically supply vegetables and vegetable products to the markets.	In order to boost their production efficiency the SHF and CF would require: • Mordern tools and mechanisation equipment; • Mobile devices for subscription to Apps to enble them receive information from the RUMC on weather forecast, disease control etc.		In order to remain conversant with the current prices fetched on the global, national and local market, so as to be able to strategically vegetables and vegetable products to the markets, the AH would also require subscription to certain Apps from the RMUC. This will enable the AH to remain informed.	The RMUC will provide an Information database that all the various basic components of the Agri-Park can subscribe to.
Job creation (Estimate)	***It is estimated that the UKDM Agri-Park will create approximately 756 new employment opportunities (569 direct and 187 indirect) for vegetable production.*** ***(Based on the assumption that land already identified with potentialfor vegetable production is effectively put under production).*** ***If additioanl land with potential for vegetables is identified and placed under production, this is likely to create employment opportunities over and above this estimate.*** ***Additionally, there are likely to also be temporary employment opportunities created during the construction phase of the various Agri Park components***				

Notes:

[1] Semi-manual harvesting involves the removal of foliage 24hrs before harvesting, with the use of harrow, which clears the foliage from the area to facilitate the final harvesting. After foliage is removed, a plough is used to expose the tubers after which the vegetables are hand-picked.

[2] Mechanical harvesting involves the use of harvester and a trailer which runs alongside with the harvester and collects the harvested vegetables in bulk.

The amount of labour required is dependent on the level of mechanisation on the farm.

Average yield per hectare for vegetable production in South Africa is about 25 tonnes per hectare (25 000kg/ha).

Per capita vegetable consumption is estimated to be 67kg per annum.

Approximately 30-40% of national production is destined for processing, while 60-70% is destined for local fresh produce markets.

9.2 Proposed development concept of commodity 2: Livestock (Cattle/ Beef)

TABLE 53. PROPOSED DEVELOPMENT CONCEPT FOR LIVESTOCK (BEEF) PRODUCTION

Production Flow	FPSU (livestock centres)	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
Key Role & Function	Provides facilities for primary and initial processing activities: • Supply and collection of feed; • Provision of veterinary services/ dip tanks; • Provision of extension services; • Weighing; • Feedlot equipment hire; • Facilitation of farmer organisation and association administrative operations; • Local market livestock sales/ auctions; and • Training of emerging farmers and agriculture students.	The core role of the SHF would be primary production of cattle livestock, through rearing new calves to weaners.	CF should be encouraged to provide technical skills transfer and mentoring to SHF, as well as contribute a smaller portion of livestock to the FPSU, AH and RUMC.	The primary role of the AH is the processing of cattle livestock, including: • Intensive feeding/ livestock finishing at associated feedlot/s; • Abattoir; • Provides facilities for processing, packaging and labelling; • Inspection and quality control; • Distribution and transportation of beef products to the market; and • Local market sales.	Links the beef producers to local and international markets: • Provision of market intelligence in the beef and related industries; • Identification of beef markets; • Interact and negotiate with buyers in the various market channels; and • Undertake contractual agreements

Production Flow	FPSU (livestock centres)	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
Location	Livestock production and grazing occurs throughout the north of the district in uMhlabuyalingana and Jozini LMs. It is proposed that exisiting livestock centres be utilised as FPSUs for beef production: • Ingwavuma; and • Phelendaba. The FPSUs should create linkages with the exisiting abattoir in the district in order to limit duplication of functions and infrastructure. The outcome of the UKDM feedlot project initiated by TIKZN in July 2015 should be incorporated into the FPSU system for beef production with the FPSU linking SHF to the feedlots and the abattoir.	All SHF involved in livestock production in UKDM, especially those in uMhlabuyalingana and Jozini LMs where primary livestock production is mostly concentrated.	There are very few CF involved in livestock prooduction in UKDM and their location is unknown.	The abattoir at Bhambanana, in Jozini LM is proposed as the AH for beef production. Additionally, the non-functioinal feedlot should be capacitated and brought online and linked to the AH in order to provide the oportunity for more intesive feeding of weaners. Effective use of this infrastructure is considered catalytic for beef production since it has important upward and downward linkage ramifications – take up product from users and pass on processed goods to the market, acting as the agent between producer and market. With the development of the abattoir, producers are incentivised to enter into production since they view this as a market opportunity, while the market would view this as an additional supplier.	The proposed location of the RUMC is within eThekwini Municiplaity. This location is proposed on the basis of the following: 1. Accessibility 2. Infrastructure (electricity/ water) 3. Agglomeration 4. ICT 5. Urban environment

Production Flow	FPSU (livestock centres)	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
Human Resources (HR)	The core HR personnel that the FPSU would require are: • Extension officers (1); • Administrative Managers (1 per FPSU); • Animal health specialist (1). • Administration staff; • Security Guards; • Drivers; Operators; • Cleaners; • Training personnel; and • IT assistants .	The core HR personnel that the SHF and CF would require are: • Farm manager (1); • Farm labourers (feeding, vaccinating etc.); and • Herders.		The AH would require the following HR personnel: • Administrative manager (1); • Abattoir manager (1); • Feedlot manager (1); • Logistics operation manager (1); • Meat processing operator supervisors (2); • Food Science Specialists (1); • Quality control manager (1); • Hygiene manager (1); • Administration officers; • Processing operators; • Abattoir operators; • Feeders; • Security guards; • Cleaners; • Drivers; and • Mechanical operators. Additionally, independent meat inspectors will be required as per the Meat Safety Act.	The RUMC will provide the following HR; • Administrative manager (1); • Marketing manager (1); • Administration officers; • Marketing personnel; • Economic advisors; • Training personnel; and • IT assistance.
Training	One of the key functions of the FPSU would be to provide training and extension support on various farm practices to	SHF would require training on: • Best farm practices; • Use of tools and equipments;	CF to provide training and mentorship to SHF on best practice in livestock production.	The following training opportunities can be made available at the AH:	The following training opportunities can be made available at the RUMC:

Production Flow	FPSU (livestock centres)	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
	the SHF and CF as required. Additionally, the following training opportunities can be made available: • Extension services training; • Regulatory standards and requirements training; • Health and safety training; • Management skills; • Training for emerging farmers; • Agriculture computer programme skills; and • Computer literacy	Interpretation of market information • ICT; • Breeding Techniques; • Business skills; and • Finance skills.		• Machine operation training; • Processing skills; • Health and safety training; and • Management skills	• Market analysis skills; • Supply chain and logistics skills; • Trading (local and international); and • Agriculture computer programme training.
Key product/ activities	The core activities of the FPSU are: • Sale of livestock to the AH and associated feedlot; • Feeding of weaners for approx 90-120 days; • Vaccination of livestock; • Weighing of livestock; • Auction and sales of livestock to the public; • Quality and quantity control; and	The core activities of the SHF and CF are likely to be: • Fencing; • Veld preparation to prevent selective area grazing; • Soil management; • Fodder flow planning; • Provision of shelter; • Feeding facilities, including water supply; • Vaccination scheduling; • Adherence to statutory hygeine and health and safety standards especially in relation to FMD; • Rearing calves and weaners.		The core activities of the AH are: • Flaying; • Eviscerating; • Carcass splitting and quartering; • Deboning; • Cubing; • Mincing; • Portioning; • Curing; • Marinating; • Packaging; • Freezing; • Further quality control; • Monitoring of health and safety standards;	The core activities of the RUMC are: • Collection of final products from the AH; • Quality and quantity control; • Maketing and distribution of final products to different wholesalers and major retail outlets; • Exporting of final products;

Production Flow	FPSU (livestock centres)	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
	• Transportion of livestock to the AH and feedlot.			• Cold storage of products; • Some marketing; and • Transportion of products to the RUMC.	
Infrastructure/ Equipment	The FPSUs would need to ensure that the following equipments/ infrastructure are made available: • Weighing facilities; • Dip tanks for vaccinations; • Transportation of cattle; • Auction and sales centre/ yard; • Training facilities; and • Administration offices.	The SHF and CF would require the following equipments, which can be hired from the FPSU: • Handling equipment such as calf tables, cattle headgates, squeeze chutes, loading chutes, weighing sclaes, head chains, squeeze chute adaptors; • Corral systems; • Fencing; • Feeders (for feedlot operations & for supplements for grazing operations); • Waterers and water tanks.		The AH would require to put in place the following equipments/ infrastructure: • Administrative facilities; • Agro-processing facilities (abattoirs etc.); • Waste mannagement facilities; • Packaging facilities; • Cold storage (carcass chiller)facility; • Quality control facilities; • Helath inspection facilities and tools; • Agricultural input distribution and sales centre; • Logistics and transport facility.	The RUMC would require the equipments/ infrastructure: • Administrative facilities/ information centre.
Logistics	The FPSUs should establish a collection/ delivery and logistics schedule for SHF to drop-off livestock. Coordination with the feedlots is important as this is where livestock will be fattened before slaughter. Coordination	SHF should be organised into groups (cooperatives). Each group should have a group head that would communicate information from the farmers to the FPSU and also arrange for delivery of inputs with the FPSU. It	CF should provide small quanties of beef products to FPSU in order to ensure constant supply levels needed to access markets and maintain contracts.	The same transport (will be used to collect and transport cattle from the SHF and FPSU from the to the AH for slaughter and further procesisng and packaging.	Transportation to the different markets from the AH, especially international markets can also be arranged through the RUMC. The products that are stored at the RUMC holding facilities will also be

Production Flow	FPSU (livestock centres)	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
	with the AH once weaners are ready for slaughter.	is suggested that there should be input collection centres which would serve as small offices for the group heads. The group heads would work closely with the AH and the FPSU.			transported to the identified markets.
Technology/ ICT	The following technology and ICT opportunities can be used: • Modern farming tools; • Planning tools and computer programmes; • Tracking devices on farming machinery and transport; • Computer programmes related to track keeping of cattle production activities; • Internet access for farmers and trainees.	In order to boost their production efficiency, the SHF would require: • Modern rearing tools; • Castration of bulls that are not meant for breeding, to prevent inbreeding and uncontrolled mating of animals; • Oestrous synchronisation of female animals to reduce cost of doing artificial insemination and other cost related to raising of young calves; • Artificial insemination, to introduce certain desirable traits into the herds and also to minimise the cost of having to purchase several bulls to serve the female animals; • Mobile devices for subscription to Apps., to enable them receive information from the RUMC on weather forecast, disease control etc.		In order to remain conversant with the current prices fetched on the global, national and local market, so as to be able to strategically vegetables and vegetable products to the markets, the AH would also require subscription to certain Apps from the RMUC. This will enable the AH to remain informed.	The RMUC will provide an Information database that all the various basic units of the Agri-Park can subscribe to.
Job creation (Estimate)	***It is estimated that the UKDM Agri-Park will provide 73 new employment opportunities (49 direct and 24 indirect) for beef production. (Based on the assumption that the livestock production plan is sucessfully implemented)*** ***Additionally, there are likely to be temporary employment opportunities created during the construction phase of the various Agri-Park components.***				

Notes:

***The amount of labour required is dependent on the level of mechanisation on the farm.**

***Average yield per cow for beef production is carcass weight of approximately 258kg,**

***Per capita beef consumption is estimated to be 17.6kg per annum.**

9.3 Proposed development concept of commodity 3: Cotton

TABLE 54. PROPOSED DEVELOPMENT CONCEPT FOR COTTON PRODUCTION

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
Key Role & Function	Provides training and extension support services for SHF involved in cotton production.	The core role of the SHF would be primary production of cotton.	CF should be encouraged to provide technical skills transfer to SHF through mentoring.	Provides additional training facilities and logistics equipment for cotton SHF and FPSU.	Provides market intelligence, assists farmers and processors in managing a nexus of contracts, large warehousing.
Location	An FPSU for cotton production should be established in close proximity to the highest concentration of primary production near the Makhathini Flats. It is recomended that Mjindi is a suitable location to support primary production of cotton.	All SHF involved in primary production of cotton which are mostly concentrated in the Makhathini Flats.	There are no commericial cotton farmers in the district.	Makhathini (Mjindi) is proposed as the AH for the UDM Agri-Park. The cotton gin is considered as the catalyst for cotton production since it has important upward and downward linkage ramifications – take up product from users and pass on processed goods to the market, acting as the agent between producer and market. The cotton gin incentivises producers to enter into production since they view this as a market opportunity, while the market would view this as an additional supplier.	The proposed location of the RUMC is within eThekwini Municiplaity. This location is proposed on the basis of the following: 1. Accessibility 2. Infrastructure (electricity/ water) 3. Agglomeration 4. ICT 5. Urban environment

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
Human Resources (HR)	The FPSU will provide the following HR facilities; • Agricultural extension officer/ support office (2); • Machine operators/ mechanics (Local mechanisation centre and workshops) (2); Agronomist (for soil testing etc.) (2); • Researchers (2); • Voluntary/ established CF to mentor the SHF (as many as possible).	The core HR personnel that the SHF and CF would require are: • Farm manager (1); • Seasonal staff (harvest labour); • Some permanent staff to manage day-to-day farm operations.		The AH will provide the following HR; • Administrative manager (2); • Quality control personnel (2); • Staff to manage the agro-processing facilities; • Research and Demonstration personnel; • Training personnel (1).	The RUMC will provide the following HR; • Administrative manager (1); • Marketing manager (1); • Administration officers; • Marketing personnel; • Economic advisors; • Training personnel; and • IT assistance.
Training	One of the key functions of the FPSU would be to negotiate with the SA Cotton Producers Association to facilitate training and extension support on various farm practices to the SHF and CF as required.	SHF would require training on: • Best farm practices; • Use of tools and equipments; Interpretation of market information; and • ICT • Business skills; and • Finance skills.	CF to provide training and mentorship to SHF on best practice in sugarcane production.	Some training would also be required at the AH e.g.: • Training of machine operators/ mechanics; • Training on best practices, with regards to changing demand and supply; • Training on new innovations as they surface; and • Training on hygiene and food health and safety practices.	Training of training personnel on how to disseminate information to the SHF, commercial farmers, AH and the FPSU.
Key product/ activities	The core activities of the FPSU are: • Provide training facilities and space for training of SHF; Provide machine maintenance and mechanical services; and	The core activities of the SHF and CF are likely to be: • Land preparation; • Seed planting; • Irrigation (where necessary); • Harvesting; and • Logistics.		The core activities of the AH are: • Negotiate with SA Cotton Growers Association to provide training to SHF; • Training facilities and space; and • Mechanical and extension services	The core activities of the RUMC are: • Negotiation of concessions with mills for the Agri-Parks SHF to deliver cotton for ginning.

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
	• Provide logistical support to SHF and CF.				
Infrastructure/ Equipment	The FPSU, in conjunction with existing gins, would need to ensure that the all equipment required by SHF are made available.	The SHF and CF would require the following equipments, which can be hired from the FPSU: • Logistics equipment; • Mechanised farm equipment (tractors, planters, weeders, harvesters); • Drip irrigation systems.		The AH would require to put in place the following equipments/ infrastructure: • Administrative facilities; • Rental facilities; • Agricultural input distribution and sales centre; • Training centre; • Student and staff housing; • Logistics and transport facility.	The RUMC would require to put in place the following equipments/ infrastructure: • Administrative facilities/ information centre.
Logistics	The FPSU should organise a primary logistics collection centre that coordinates with local gin to collect cotton from various farms and convey it to the gin.	SHF should be organised into groups. Each group should have a group head that would communicate information from the farmers to the FPSU and also arrange for delivery of inputs with the FPSU. It is suggested that there should be input collection centres which would serve as small officies for the group heads. The group heads would work closely with	There is no logistics role envisaged for CFs.	If the sugarcane cannot be transported directly to the gin then it should be delivered to the AH and stored there until sufficient volume is accrued to make transport viable.	The RUMC does not have an envisaged logistics role.

Production Flow	FPSU	Smallholder farmers (SHF)	Commercial farmers (CF)	AH	RUMC
		the FPSU, AH and cotton gin.			
Technology/ ICT	Tracking devices on all vehicles to prevent hijack and also to monitor the movements and locations of the drivers. Also, the FPSU would require subscription to certain Apps from the RMUC to remain conversant with the current prices fetched on the global, national and local market.	In order to boost their production efficiency and buffer against potential cash flow problems, the SHF would require: • Modern tools; • Knowledge of modern farminig practices such as intercropping and crop rotation; and • Mobile devices for subscription to Apps to enable them receive information from the RUMC on weather forecast, disease control etc.		In order to remain conversant with the current prices fetched on the global, national and local market, the AH would also require subscription to certain Apps from the RMUC. This will enable the AH to remain informed.	The RUMC will provide an information database that all the various basic units of the Agri-Park can subscribe to.
Job creation (Estimate)	***It is estimated that the UKDM Agri-Park ha steh potnetial to provide approximately 5 200 new employment opportunities (4 000 direct and 1 200 indirect) for cotton production.*** ***(Based on the assumption that all land already identied with potential for cotton production is successfully put under production and that the irrigation reuqired for this is available and effectively managed).*** ***If additional land is identified for cotton production and cotton projects are succesfully implemented, and linked to the FPSU and AH for cotton, then additional employment opportunities are likely to be created within this value chain.*** ***Additionally, there are likely to also be temporary employment opportunities created during the construction phase of the various Agri-Park components***				

9.4 Combined Agri-Park concept for the District

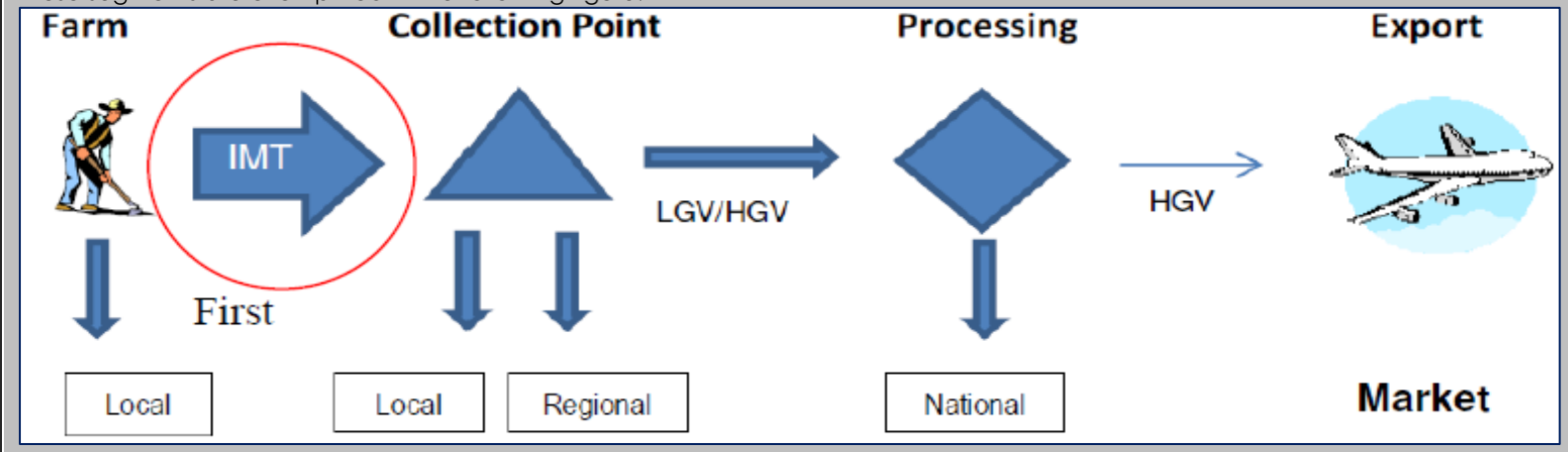
The following development concept summarises the above concepts to form a single, streamlined concept that draws on the main elements and activities of each of the role-players. The following concept provides a broader overview of the Agri-Park development in comparison to the individual concepts, and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

TABLE 55. PROPOSED COMBINED AGRI-PARK CONCEPT FOR UKDM

Production Flow	FPSU	Smallholder Farmers (SHF) & Commercial farmers (CF)	AH	RUMC
Key Role & Function	• Agricultural input supplies, • Training and extension support, • Mechanisation support, • Local logistics support, • Primary produce collection, • Through-put to AH. The FPSUs will have limited sorting, packaging, storage, and processing for local markets with through-put of excess products to AH.	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.	The AH has a major function as a processor of agricultural produce and distribution centre. Other auxiliary functions for the AH include: • Training; • Logistics; • Storage/warehousing; • Packaging; • Labelling; and • Product distribution.	The RUMC is to provide market intelligence and assist farmers, and processors in managing a nexus of contracts.
Location	Given that the district is characterised by a relatively low population density it is recommended that an FPSU is established in each of the following 7 locations: • Hluhluwe; • Ndumo B; • Manguzi; • Mbazwana; • Ingwavuma; • Phelendaba; and • Mjindi/ Makhathini Flats	These farmers will be distributed throughout the district. In addition to these farmers, state-owned land can be allocated for the production of all 3 commodities.	Given the differences in the three commodities being prioritised for inclusion in the Agri-Park, it is proposed that each commodity has its own AH for processing. Therefore, the following locations are proposed for the district's AHs: • JVAC – Vegetables; • Bhambanana abattoir – Beef; • Makhathini/ Ubongwa Cotton Gin – Cotton;	The proposed location of the RUMC is within eThekwini Municiplaity. 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 (HR) & Job creation estimate	The FPSU will provide the following HR/HR facilities: • Agricultural extension officers' / support office;	On farm personnel required to manage production include: • Farm managers; • Farm workers/labour; and • Administrators.	The AH will provide the following HR: • Administrative staff; • Quality control personnel; • Processing/floor staff; • Research and demonstration personnel; and	The RUMC will provide the following HR: • IT expert/ personnel; • Administrative staff; • Training personnel; and • Marketing personnel.

Production Flow	FPSU	Smallholder Farmers (SHF) & Commercial farmers (CF)	AH	RUMC
	• Machine operators/ Local mechanisation centre and workshops; • Agronomists; • Researchers; and • Voluntary/ established commercial farmers Effective implementation of primary production support activities has the potential to create approximately 379-564 employment opportunities within the 7 FPSUs (approx. 54-81 per FPSU).	In total, primary production of the 3 commodities has the potential to create an estimated 3 093-4 618 employment opportunities in primary production. This will increase with continual OPEX focused on primary production.	• Training personnel. Effective implementation of projects within the UKDM Agri-Park will potentially create approximately 569-846 employment opportunities within the Agri-Parks 3 AHs (approx. 81-120 per AH).	The jobs created at the RUMC cannot be ascribed solely to the establishment of the UKDM Agri-Park since the RUMC will be a provincial component shared by all of the province's Agri-Parks. It is not possible to estimate the employment creation potential of this component of the Agri-Park.
Training	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; • Animal husbandry; and • Business administration.	The on-farm personnel will require training in their respective fields of production. Training of such personnel should include: • Production practices; • Business administration; and • Marketing.	Staff within the AH 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; and • 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; • Data dissemination; and • Contract management.

Production Flow	FPSU	Smallholder Farmers (SHF) & Commercial farmers (CF)	AH	RUMC
	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.			
Key Products & Activities	The core activities of the FPSU are: • Logistics; • Training; • Input supply; • Extension services; • Production planning/scheduling; and Farmer production management.	Key products: • Fresh vegetables • Livestock (cattle) and by-products; and • Cotton. Key activities • Preparation of the facilities; • Field preparation; • Cultivation; and • Animal husbandry.	The core products of the AH are: • Collection of produce; • Processing of product; • Packaging and labelling; • Storage; • Marketing; and • Transportion of products to the markets.	The core services of the RUMC are: • Dissemination of information; and • Maketing and distribution of final products to different wholesalers and major retail outlets.
Infrastructure & Equipment	The FPSU would require the following equipment & infrastructure: • Transport (e.g Bakkie or pick-up vehicles); • Storage facilities; • Weighing and packaging equipment (crates); and • Retail outlet for the local market.	Infrastructure & equipment requirements include: • Mechanised tools and implements; • Vehicles and logistics infrastructure; • Irrigation systems;	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; and	The RUMC would require to put in place the following equipment/infrastructure: • Office facilities/ information centre; and • ICT

Production Flow	FPSU	Smallholder Farmers (SHF) & Commercial farmers (CF)	AH	RUMC
			• Administrative offices.	
Logistics plan	The focus of the logistics plan is to develop a strategy to move farm produce to market as smallholder and emerging farmers seek to become important players in the emerging food supply chain in South Africa. The logistics plan draws on challenges and opportunities faced 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, found on primary roads where collection is typically easier. The key role-players in this segment are the farmers who move the produce from their farm to the consolidation/ collection point. 2. The intermediate transport segment realises the movement of produce from the primary consolidation, or collection point, to an intermediate point, or in this case an AH. The key role-players at this point are larger, commercial farmers, or transporters. 3. The final transport segment will move product from the intermediate point to the final market, or destination. These segments are exemplified in the following figure:  The above figure is a generic emerging, or small-scale farmer's logistics chain that contains the farm, consolidation/ collection points, intermediate processing points and the final markets for the product. The first mile, in general, is the most important segment since it can be the most expensive segment of the logistics chain. It is often the case that product quality is compromised through bruising and aging in this segment.			

Production Flow	FPSU	Smallholder Farmers (SHF) & Commercial farmers (CF)	AH	RUMC

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

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

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

The following steps provide a broad outline toward the logistics plan, in which all elements of the 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 AH.

Production Flow	FPSU	Smallholder Farmers (SHF) & Commercial farmers (CF)	AH	RUMC
	5. Implement a logistics management system and programme through the RUMC that will move product from the AH to the market/ final product destination. The specific roles and functions of the farmers, the FPSU, Agri-Hub and RUMC are specified as follows: • The farmers may either opt to transport their produce to the collection point themselves, or make use of FPSU transport. • The FPSU will be responsible for the movement/ transportation of the product from farms to the collection point to the AH. • The AH can opt to collect produce from the FPSU, or have it delivered by the FPSU. The AH should also transport final products to the market, or RUMC. • The RUMC will provide the market intelligence and therefore the timing of the movement of the product. The RUMC will play an important role in planning, implementing and managing the logistics programme.		
Technology/ICT	To develop the efficiency required to manage the Agri-Park 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 AH are in the way of produce. The ability to know this will assist in the FPSU being able to meet the demands of the AH. Technology and ICT is, thus, a key input to the value chain in coordinating activities between role-players. Specific technologies that can assist for the individual entities and the entire value chains are detailed below: o ***Production management software***: Can assist farmers' and the FPSU in production coordination and management. o ***Logistics management software***: Can be integrated throughout the value chain in order to assist the coordination of logistical activities and move product from farm to fork in the most efficient manner. o ***Weather apps***: Can assist farmers' and the FPSU in production. o ***Market apps***: Understanding the market conditions is integral to making production based decisions (i.e. what to produce and when to supply the market). Importantly, technologies and ICT within the Agri-Park 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.			

9.5 High-level costing (CAPEX)

The following section provides a summary, on the projected CAPEX costs for the UKDM 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	7	R20 976 730	R146 837 115
Agri-Hub	3	R23 123 400	R23 123 400
Grand Total			**R169 960 515**

The above estimate is based on a projected 7 FPSUs and 3 Agri-Hubs (1 per commodity) within the UKDM and is arrived at using all information available at the time of writing. The total estimate for the FPSUs is approximately R146 837 115, or an average cost of R20 976 730 each. Wherever possible, existing production support infrastructure and systems have been suggested and the CAPEX already incurred (where available) has been factored into these estimates. FPSUs are to be implemented over an 8-10 year period and the estimated CAPEX should be allocated as such.

It is estimated that the JVAC would require approximately R23 123 400 CAPEX injection in order to repurpose it as the AH for vegetable processing. The budget includes the estimated turnkey solutions (all-inclusive costs) for vegetables. The construction and expansion of the AH will be implemented over a number of years and, as such, the budget should be allocated accordingly.

The RUMC includes office space which will be required for the information centres that are responsible for relaying market information to and from the Agri-Park. Based on the catchment area depicted in the Agri-Park concept, it is proposed that initially there should be one RUMC established which should be strategically positioned in the KZN province in order to service all the Agri-Parks in the province. It is estimated that the RUMC will cost approximately R18 089 975 and will be implemented over a number of years.

The implementation plan that follows makes it clear the time periods for implementation. The total estimated budget for the Agri-park is R169 960 115 for a 10 year period, or approximately R17 million per year.

9.6 Conclusion

The above concepts address the conceptual roles of each of the actors within the Agri-Park with key role and function, location, human resources, training, key activities 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 contribute to the Agri-Park's efficiencies.

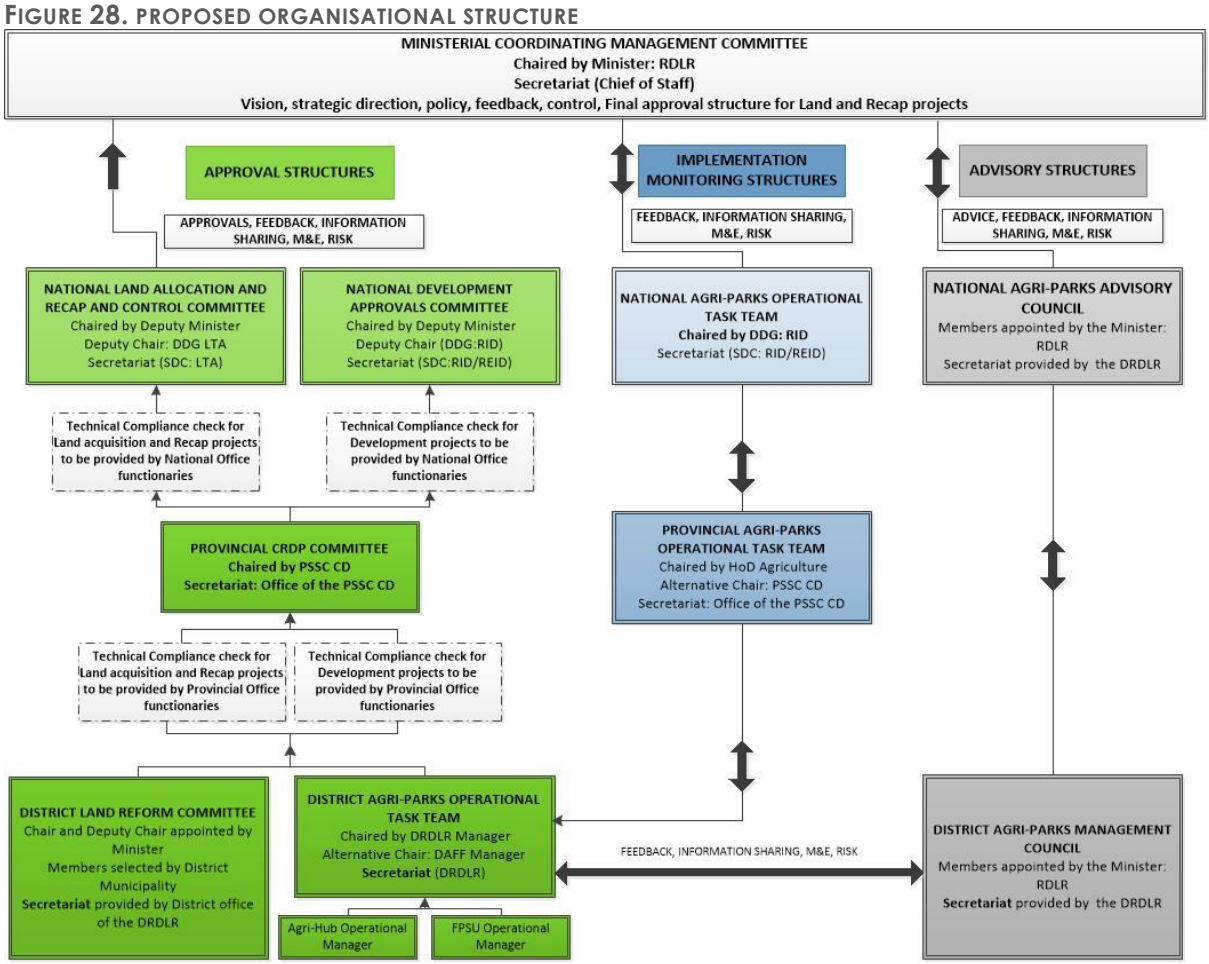
It is important that functions are complementary and coordination between the role-players is occurs in a manner that streamlines product flow. The ability to do this will ensure that a quality product is moved from farm to the final market and then the consumer. Integration of the system will further 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 effective and timeous coordination between role-players. The logistics functions and technology/ ICT employed are therefore integral to the success of the system.

10 Proposed Organisational Structure

In order to successfully implement the various projects which form part of the UKDM Agri-Park, it is necessary to develop a sound understanding of the organisational structure within which it will function. The proposed organisational structure for UKDM is illustrated in the schematic below.

FIGURE 28. PROPOSED ORGANISATIONAL STRUCTURE



Source: Urban-Econ, 2016

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.

Each of the above-mentioned structures is described in detail in this section.

10.1 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 is also referred to as the "voice" of the stakeholders/ interested parties in Agri-Parks. The DAMC, like the NAAC, consists of representatives from various organisations. The DAMC's 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, and 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 initiated at the district level.

The approval structures that form part of the Agri-Parks include the DAPOTT, District Land Reform Committee, Provincial Comprehensive Rural Development Programme (CRDP), 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 of interpreting all the information and acting as a monitoring agent to provide advice 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.

However, the abovementioned functions are 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 Figure 29 on page 203). 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.*

Where specialist skills are required to inform decisions regarding project selection then it is recommended that the relevant specialists are included in the PCRDP.

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 Ministerial Coordinating Management committee (MCM). 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 are operational at 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 form 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 Operations Manager

The main function of the Agri-Hub operational manager is to oversee the implementation and operations of the Agri-Hub. The Agri-Hub operations manager is to be appointed at the district level and should report directly to the DAPOTT. Auxiliary duties required for the role include:

- *Processing and distribution of agricultural produce;*
- *Coordination of relevant 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; and*
- *Managing storage, processing, packaging and quality control procedures for all agricultural produce.*

10.2.7 FPSU Operations Manager

The primary function of the FPSU operations manager is to oversee the implementation and operations of the FPSU. The FPSU operations manager is to be appointed at the district level and should report directly to the DAPOTT. Auxiliary duties will include:

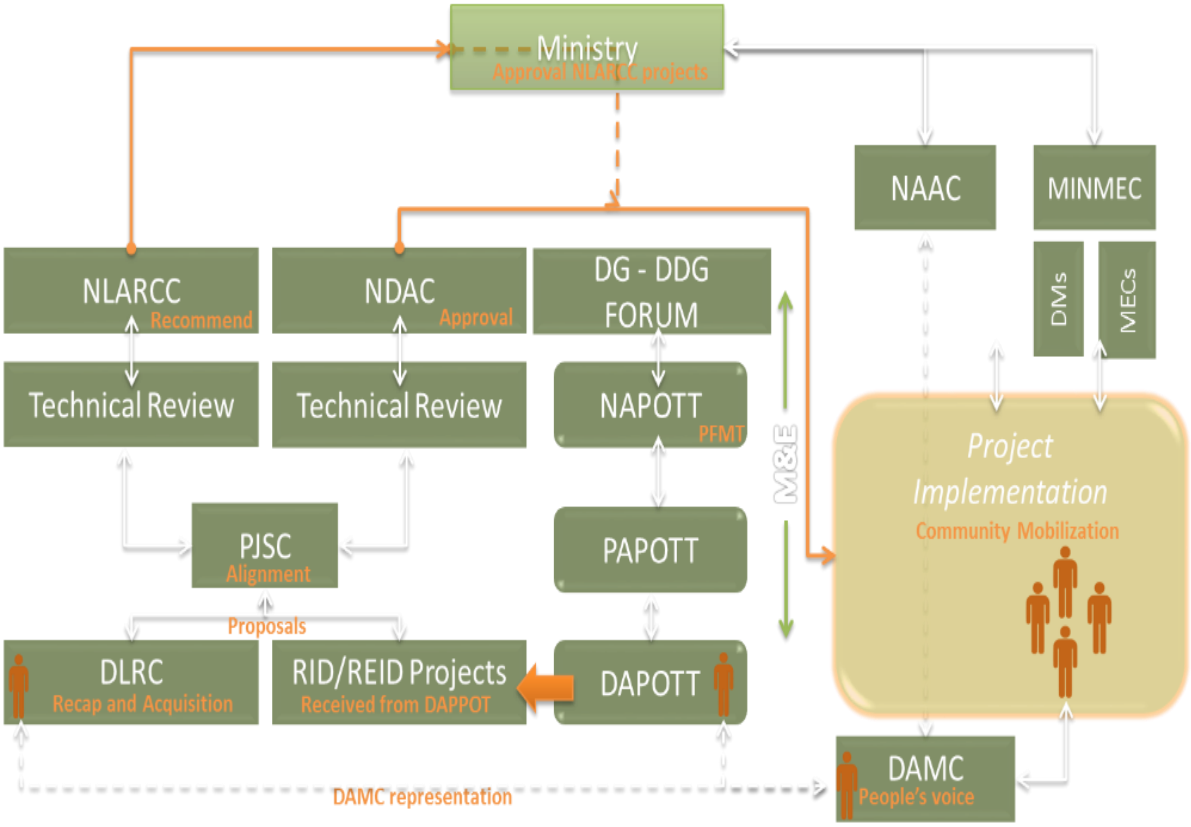
- *The organisation of agricultural input supplies, and* management of extension support services, mechanisation and local logistics support for smallholder farmers;
- *Production planning and scheduling based on market knowledge and local agronomic research;*
- *Dissemination of relevant market intelligence to smallholder farmers; and*
- *Coordination of relevant training for all staff*.

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 and the NAPOTT. PAPOTT and NAPOTT are however not exclusively dedicated to Agri-Parks, these two structures also play a

role in the monitoring and implementation of other programmes that can influence the Agri-Parks programme.

FIGURE 29. PROPOSED IMPLEMENTATION AND MONITORING STRUCTURES SCHEMATIC



Source: Urban-Econ, 2016

10.3.1 NAPOTT

The NAPOTT has various functions that are focused 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 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, and 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

Implementation is a crucial element in any strategy and needs to adhere to realistic timeframes and role-players. This section focuses 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 AH.

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

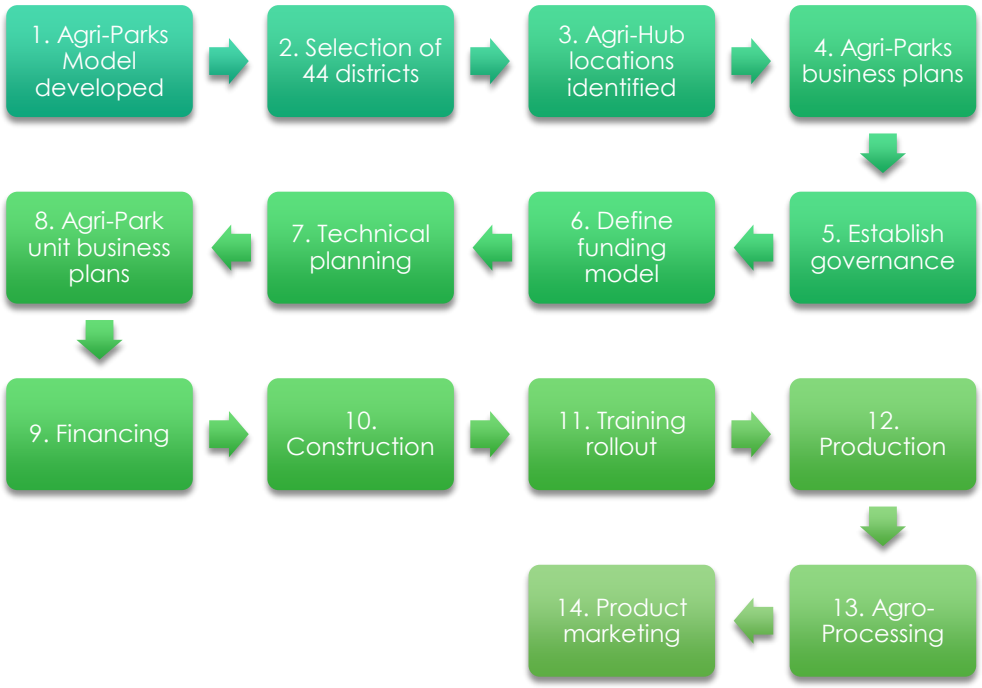
- Understanding the implementation process and what is required for the process;
- How to align the implementation of the Agri-Parks programme with various government initiatives in developing agriculture;
- Recommendations that will streamline and assist the development of the Agri-Parks programme; and
- 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 uMkhanyakude District Municipality's Agri-Parks programme, starting with the implementation process.

11.1 Implementation process

The implementation process is a step-by-step sequence of expected implementation of the Agri-Park. In developing the implementation process for the UKDM Agri-Park, the stages that occurred before the development of the Business Plan are considered along with the relevant steps that should occur to make sure that the UKDM Agri-Park and is up and running with the top three commodities being produced, processed and sold to the identified markets.

FIGURE 30. UMKHANYAKUDE AGRI-PARK IMPLEMENTATION PROCESS



The steps indicated in Figure 30 can be briefly described as follows:

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

Section 3 of this Business Plan provides an analysis of the policies that are related to the Agri-Park's development along with the implications involved. However, for implementation that is effective and allows the district's Agri-Park to function efficiently, the programmes influenced by these policies should also be identified to make sure that the Agri-Park aligns with the programme's targets. Thus, programmes related to the Agri-Park from different government departments have been identified along with the Agri-Park's alignment to these programmes. Table 56 illustrates the alignment of the Agri-Park to the government programmes and incentives.

TABLE 56. THE UMKHANYAKUDE AGRI-PARK'S ALIGNMENT TO GOVERNMENT PROGRAMMES

Programme/ Project/ Campaign	Description	Agri-Parks Alignment
Agricultural Programmes		
Agricultural Broad-Based Black Economic Empowerment (Agri-BEE)	The implementation of Agri-BEE is based on the commodity value chain approach. The approach is fundamental in creating partnerships, linkages, and networks	✓ The Agri-Park will focus on the development of the value chains for each of the identified commodities.

Programme/ Project/ Campaign	Description	Agri-Parks Alignment
	for balanced, mutually benefiting results for all concerned. The Agri-BEE 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. Agri-BEE also encourages partnerships between established agricultural enterprises and emerging farmers and entrepreneurs.	✓ 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 • Agro-logistics planning • Early warning climate systems	✓ 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. ✓ 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	✓ Training forms part of the Agri-Parks many roles. ✓ Training requires research and development initiatives that should align with R&D

Programme/ Project/ Campaign	Description	Agri-Parks Alignment
	national agricultural research system.	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 agricultural production, and increased agricultural trade. The programme builds on lessons that have been learnt from previous land reform projects, reviews, the Land Summit and implementation reforms.	✓ The Agri-Park forms part of the market for farmers and will therefore encourage production. ✓ Models are to be developed to distribute state own land and ensure land tenure is in place for producers. ✓ 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	✓ 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.

Programme/ Project/ Campaign	Description	Agri-Parks Alignment
	partnerships with all sectors of society.	
National Rural Youth Service Corps programme (Narysec)	Narysec is a youth skills development and employment programme that also forms part of the CRDP. The programme also provides character building programmes, soft and hard skills training and dispatches youth to rural areas for rural development projects. The programme further transforms the youth of rural areas, from being job seekers to being job creators.	✓ The Agri-Parks programme will encourage youth to participate in agriculture by creating viable and attractive agricultural enterprises.
Rural Enterprise and Industrial Development (REID)	REID is in place to facilitate poverty reduction, social organisation, youth development and the development of cooperatives, rural enterprises and industries.	✓ The 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.
KZN DARD Agri-Hubs Development	The KZN DARD 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.
Other		
Dube Tradeport Industrial Development Zone	The Dube Tradeport, located at King Shala International Airport, and in close proximity to both Durban and Richard's Bay Harbours, is an international air logistics platform geared towards promotion of foreign and domestic investment.	✓ The Dube AgriZone is aligned with the Agri-Parks model through its promotion of smallholder famer development ✓ The IDZ provides UKDM's Agri-Park with potential access to export markets
Richard's Bay Industrial Development Zone (RBIDZ)	Linked to the international deep-water port of Richard's Bay, this facility is deemed a Special Economic Zone (SEZ) and is	✓ The RBIDZ has identified food and beverage agro-processing as one of its strategic opportunities. ✓ The IDZ provides UKDM's Agri-Park with potential access to export markets

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 UKDM.

TABLE 57. RECOMMENDATIONS FOR THE IMPLEMENTATION PROCESS FOR UKDM'S AGRI-PARK

	Recommendations
Infrastructure	○ Where necessary, roads should be developed and upgraded to accommodate transport vehicles that collect and distribute good within the 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 FPSUs 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 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 and in short supply during times of drought.
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 given the current drought conditions in the province and district.
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

Recommendations	
	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. o 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	o 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 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. o 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. o 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	o The RUMC should be strategically situated on a nexus of transportation linkages in the province, notably the N2/ N3 corridors. The strategic location will allow the Agri-Park to take advantage of potential export opportunities available at the RB IDZ and also at Dube Tradeport. Further investigations should be made to identify a site for the development of the RUMC and the land acquisition process should begin as soon thereafter as possible. o The FPSUs 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. o Develop an inventory a map 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. o Business Plans should be developed for each of the entities within the Agri-Park, including the farmers, FPSUs, the AH and the RUMC. The business plans are required to detail the operations of each of the entities, further detailing their role and responsibility within the Agri-Park. o PPPs should be developed to enhance the strength and competitiveness of the Agri-Hub: An agglomeration of expertise is required to ensure the

Recommendations	
	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 allow smallholder and emerging farmers ease of access to markets, a crucial area for the success of these farmers. o 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. o The District Agri-Parks Management Councils (DAMC) should engage with other departments, especially the existing DAPOTT structure, 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 Environment	o 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. o 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. o 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. o 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. o Meet objectives: Producers should be educated on the objectives of the Agri-Park so that they are able to meet the expectations that are set out within the Agri-Parks business/ operating policies. The ability for producers to cooperate within the system is important in meeting the objectives of the programme.
Funding /investment	o 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.

Recommendations	
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 Cape 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. ○ The district should form partnerships with some of the existing main players in the various industries to enable them penetrate local and international markets. The management of the Agri-Park 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. ○ Farmer's must apply to form part of the Agri-Parks programme: Farmers need to develop business plan and follow an application process that will allow them to form part of the Agri-Parks programme. This forms part of a due diligence process that is to be formulated by the relevant parties, including the DRDLR, DARD, UKDM, DAMC and DLRC. The Agri-Park requires that producers are able to produce and meet market 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 UKDM. The recommendations inform what needs to be done in order to achieve the goals that have been set out within the business plan.

11.3.1 Recommended catalytic projects

Over and above the recommendations compiled in Table 57, projects that will assist in kick starting and supporting the Agri-Park's success are recommended. These are referred to as catalytic projects that will be the main focus of the Agri-Park.

Vegetables: The Jozini Value Adding Centre (JVAC) located in Jozini town is currently operating at sub-optimal levels. There has been interest from the private sector in investing in the existing infrastructure to equip the building to process agriculture. Significant public sector investment has already been incurred on the development of the JVAC and therefore this will limit the additional investment required to transform the centre into an agro-processing facility for vegetables. This will incentivise smallholder farmers to consider vegetable production by creating a market for their produce and will also link consumers, via the RUMC, to this produce, thereby stimulating vegetable production within the UKDM Agri-Park.

Livestock (Beef): The uMkhanyakude DM abattoir is located at Bhambanana in Jozini LM. This abattoir has received in the region of R60-100 million of public sector funding and it is essential that this funding is efficiently put to use. The abattoir is essential in the district due to the presence of the FMD red line which restricts movement of live animals and therefore it has created a market for livestock farmers within the DM. Very little additional funding will be necessary for this abattoir to be viable, although it will be essential that the district's livestock production plan is effectively implemented in order to ensure viable throughput to the abattoir.

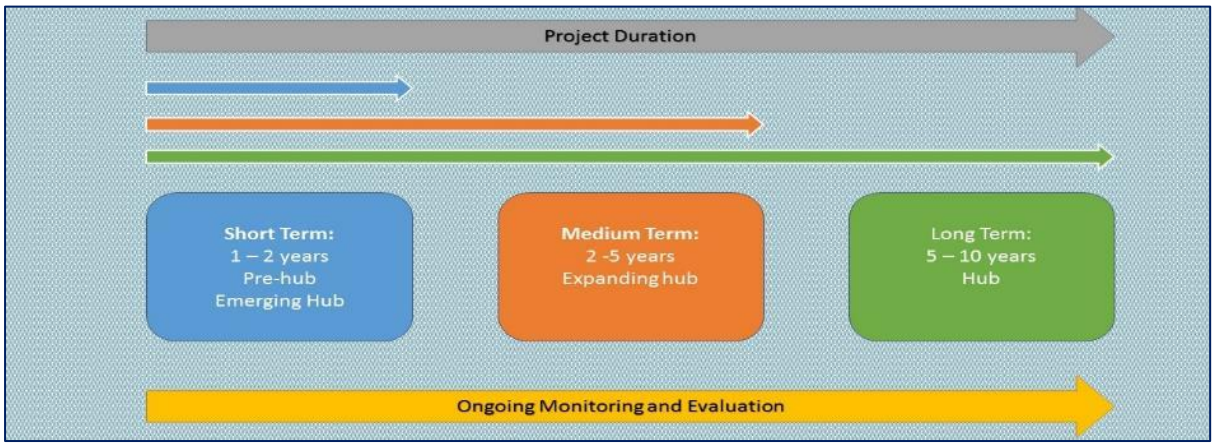
Cotton: The Cotton Ginnery in Makhathini has recently been refurbished with 3 of the 5 gin stands being replaced. It has a capacity to process in the region of 25 000t of cotton annually, with an opportunity to increase capacity by approximately 10 000 – 15 000t by replacing the remaining 2 gin stands. The Ginnery is the backbone of cotton production in the region and is currently under cooperative ownership, providing smallholder cotton farmers with a market for their products. It will be imperative to ensure that Water Use Licence Agreements are effectively administered and distributed to ensure that there is sufficient irrigation for cotton production.

11.4 Action plan

Implementation is a crucial element in any strategy and needs to be adhered to realistic timeframes and role-players. This subsection focusses on the implementation actions for the elements as discussed within this document. The implementation plan is structured in a way that it follows a phased approach in order to prioritise the necessary actions that will help in facilitating an enabling environment for the establishment of the Agri-businesses within the 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 Figure 31 and show the actions to be taken over the project duration. The main implementation actions associated with each term will be discussed with their details thereafter.

FIGURE 31. IMPLEMENTATION PLAN



11.4.1 Short-term: Agri-Park 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 UKDM AH 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 AH which was laid out in the previous phase.

During this phase the core AH businesses should be established and the focus should start shifting towards forming linkages with other agro-processing functions, such as private investors, emerging farmers and supporting services in the UKDM. 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 year two to year four.

11.4.3 Medium-term: Expanding the Agri-Hub

The expanding AH is when the AH 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 AH. At this stage the agri-businesses within the UKDM 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 year 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 UKDM AH reaches maturity. The focus of this phase should be on improving and furthering efficiency within the Agri-Park and larger UKDM 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, a step-by-step guide to implementation is detailed on the following page.

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 Management Councils (DAMCs)										
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										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	3. Commodity identification										
	4. Policy and strategy alignment										
	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 structure										
	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										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	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										
	2. Identification of potential Public Private Partnerships										
	3. Secure private investors / technical partners										
	4. 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										
	5. Agri-Hub - core activities, production cycles and distribution functions of the Agri-Hub should be evaluated										
	6. RUMC - Investigate market intelligence										
	7. Identification of land parcels related to farming areas (mapping)										
	8. Consultations with technical specialists										
	9. Development of the Agri-Parks Monitoring and Evaluation Framework										
STEP 7: Detailed Business Plans	1. Development of detailed business plans for each FPSU										
	2. Development of a detailed business plan for the AH										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	3. Development of a detail business plan for the RUMCs										
	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 institutions										
	3. Prepare application pack										
	4. Apply for financing										
	5. Project financial close										
STEP 9: Construction	1. Finalise the project designs and drawings										
	2. Conduct a bill of quantities										
	3. Prepare tender documentation										
	4. Tender evaluation and selection process										
	5. Site preparation										
	6. Construction Facilities & upgrade of existing infrastructure										
	7. 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										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	inputs to be able to supply adequate production levels										
	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										
	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										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	2. Product development, which includes 3. all aspects such as packaging, labelling and branding										
	4. Analyse processing volumes and capacity										
	5. Investigate prospective buyers, possible distribution and marketing channels, possible export destinations										
	6. Design processing facilities/ production lines, taking into consideration procedures to prevent contamination, proper food handling hygiene, sanitation system, pest management system etc.										
	7. Identify product (s) regulations and food safety requirement										
	8. Develop a comprehensive logistic plan of how products will be received for processing										
	9. Develop a quality control system										
	10. Purchase of: processing equipment, production materials, identification of suppliers location										
	11. Recruit and train employees										
	12. 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,										

Project / Action	Description / Plan	Time Frame (Years)									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	competitors, prospective buyers/ consumers, industry analysis, etc.										
	2. Assess the market to determine local, national, regional and international trends, available market information, product market, market size, supply performance, market drivers and constraints, competitors, potential poverty reduction impacts, etc.										
	3. Set market price, depending on cost of production, competition, quality and the target market										
	4. Engage off-take agreements based on future production in terms of quantity, quality etc.										
	5. Determine promotion and advertising channels that are best suitable to influencing consumers' decision to buy the products.										
	6. Distribute and market products										
	7. Continuous engagement with potential/future clients										
	8. Hosting of Road shows, Trade fair, industry summits, etc.										

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Annexure A: Commodity prioritisation model

Possible crop/livestock for District	A. Biophysical criteria					B. Enterprise viability criteria														C. Economic development criteria												D. Political and social criteria												Sub-totals					
	Temperature	Water/moisture	Land type, capability and soil	Weed, pest and disease resilience	Adaptability to adverse conditions	**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.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.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		**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	2		3	2	3		2	2	1	1		2	3	3	1		3	1							
Vegetables	2	3	2	2	2		2	3	3	3		3	3	2		3	3	3	3		3	3		2	3	2		2	2		2	2	3		3	3	3	3		3	3	3	2		3	3		**23**	**60**	**46**	**56**	**185**
Livestock - Cattle/ Beef	3	3	3	2	2		2	3	3	2		2	2	3		3	2	2	1		2	2		1	2	2		2	3		2	2	1		3	3	3	3		3	3	2	1		3	2		**28**	**52**	**35**	**51**	**166**
Cotton	3	3	3	2	2		2	2	1	3		3	3	2		3	2	2	2		2	3		2	3	2		3	2		1	2	2		3	3	3	3		3	2	3	3		1	2		**28**	**48**	**42**	**47**	**165**
Mangoes	3	2	2	2	2		2	2	2	2		2	1	2		2	2	1	1		2	2		3	3	2		2	2		2	3	2		3	1	2	3		3	2	3	3		3	2		**23**	**40**	**42**	**48**	**153**
Dry beans	2	2	2	2	1		2	2	2	3		2	3	2		2	2	2	3		2	2		2	2	1		2	2		1	2	3		3	1	2	3		3	2	3	3		3	3		**19**	**48**	**37**	**49**	**153**
Cassava	3	3	3	2	2		2	2	2	3		3	2	2		2	2	3	2		3	2		3	2	2		2	1		1	1	2		1	1	2	3		3	2	3	3		2	2		**28**	**48**	**34**	**41**	**151**
Sugar cane	3	2	3	2	2		2	3	2	1		3	2	2		3	1	3	1		3	2		2	2	2		2	3		2	3	3		3	1	2	2		3	1	1	2		2	1		**25**	**47**	**45**	**33**	**150**
Livestock - Goat	3	3	3	3	3		2	2	2	2		2	2	3		3	2	3	2		2	2		1	2	1		2	1		1	1	2		3	1	2	2		1	2	2	1		3	2		**30**	**50**	**30**	**38**	**148**
Essential Oils	2	3	2	2	2		1	2	2	3		2	1	3		1	3	1	1		3	3		3	2	2		2	2		2	3	2		3	1	2	3		1	2	3	3		1	3		**23**	**41**	**45**	**39**	**148**
Marula	3	3	3	3	3		1	2	3	2		3	2	2		2	2	3	2		1	2		1	2	2		2	2		3	3	1		2	1	1	3		1	2	2	2		1	2		**30**	**46**	**38**	**31**	**145**
Groundnuts	2	2	3	2	2		2	2	2	2		2	2	2		2	2	2	2		1	2		1	2	2		3	2		1	2	2		2	1	3	2		3	2	3	3		2	2		**22**	**44**	**36**	**43**	**145**
Maize	2	2	2	2	2		1	2	2	1		2	3	2		2	2	2	1		2	2		2	2	2		2	2		2	3	3		3	1	3	3		3	2	1	2		3	2		**20**	**39**	**43**	**42**	**144**
Pineapples	3	3	3	3	2		1	2	2	1		3	2	2		1	2	2	2		2	2		2	2	2		2	2		3	3	1		3	1	3	2		1	1	2	3		1	3		**29**	**40**	**40**	**33**	**142**
Livestock - Game	3	3	3	3	3		3	2	3	1		1	1	3		2	1	2	1		1	2		2	2	2		2	2		3	3	1		1	1	3	1		1	2	2	1		1	3		**30**	**44**	**39**	**29**	**142**
Cashew nuts	2	2	2	2	2		2	2	2	2		2	1	3		2	2	2	1		2	2		2	2	1		2	2		2	2	2		1	1	3	3		1	1	3	3		2	2		**20**	**44**	**37**	**35**	**136**
Poultry	2	3	3	2	1		1	2	1	1		1	2	2		3	2	2	2		2	2		1	1	1		2	2		2	1	3		1	1	1	2		3	2	2	2		3	2		**24**	**38**	**36**	**38**	**136**
Medicinal Plants	3	2	2	3	2		2	2	2	3		2	2	2		3	2	2	1		2	2		2	2	2		2	1		1	1	2		1	1	2	3		1	1	2	3		1	3		**24**	**45**	**32**	**29**	**130**
Forestry	2	2	2	2	1		2	2	1	2		2	1	2		2	2	2	1		2	2		1	2	2		1	2		2	2	2		3	1	2	1		3	1	1	3		1	2		**19**	**39**	**34**	**31**	**123**

Source: Urban-Econ & OABS, 2015

Annexure B: Emerging smallholder farmers

Project	Local Municipality	Ownership	Commodity	Area under production/ potential
Hlanganani	Umhlabuyalingana	Communal	Vegetables	4ha
Sicabazini Cooperative	Umhlabuyalingana	Communal	Vegetables	25ha
Masibonisane	Umhlabuyalingana	Communal	Vegetables and crops	7,5ha
Malwe	Umhlabuyalingana	Communal	Vegetables	50ha
Vukulime	Umhlabuyalingana	Communal	Vegetables and crops	30ha
Khombindlela	Umhlabuyalingana	Communal	Vegetables	10ha
Uthandolwabalimi	Umhlabuyalingana	Communal	Vegetables	15ha
Owethusonke	Umhlabuyalingana	Communal	Sweet potato	30ha
Kwasa	Umhlabuyalingana	Communal	Sweet potato	14ha
Isambane	Umhlabuyalingana	Communal	Sweet potato	30ha
Zamani	Umhlabuyalingana	Communal	Vegetables and crops	2ha
Sicelusizo	Umhlabuyalingana	Communal	Vegetables	2ha
Siboneni	Umhlabuyalingana	Communal	Vegetables	2,5ha
Zamimpilo	Umhlabuyalingana	Communal	Vegetables	1,5ha
Hlakaniphani	Umhlabuyalingana	Communal	Vegetables	2ha
Senzakwenzeke	Umhlabuyalingana	Communal	Vegetables and crops	3ha
Zikhandle	Umhlabuyalingana	Communal	Vegetables	2ha
Zethembe	Umhlabuyalingana	Communal	Vegetables and sweet potato	1,5ha
Zamimpilo	Umhlabuyalingana	Communal	Vegetables	2ha
Ubuhlebuyeza	Umhlabuyalingana	Communal	Vegetables	3ha
Christmas Together	Umhlabuyalingana	Communal	Vegetables	1ha
Madendeshane	Umhlabuyalingana	Communal	Vegetables	3ha
Oqondweni	Umhlabuyalingana	Communal	Vegetables	10ha
Mantimba	Umhlabuyalingana	Communal	Vegetable	15ha
Sizakancane	Umhlabuyalingana	Communal	Vegetables	11ha
Asivukesisebenze	Umhlabuyalingana	Communal	Vegetables	12ha
Shoemakers	Umhlabuyalingana	Communal	Vegetables	17ha
Land Reform Manzengwenya	Umhlabuyalingana	Communal	Livestock	13ha
Marula	Umhlabuyalingana	Communal	Marula jam	3ha
Senzokuhle	Umhlabuyalingana	Communal	Groundnuts	200ha
Ukhuthulwengono	Umhlabuyalingana	Communal	Poultry	1ha
Cebisumqondo	Umhlabuyalingana	Communal	Goats	3ha
Siyakhona Womens	Umhlabuyalingana	Communal	Poultry	0,5ha
Zakhelukuphila	Umhlabuyalingana	Communal	Poultry	0,5ha
Silethithemba	Umhlabuyalingana	Communal	Goats	3ha
Mshudu Ground Nuts	Umhlabuyalingana	Communal	Groundnuts	50ha
Umvongoshane Ground Nut	Umhlabuyalingana	Communal With Established Coop	Groundnuts with vegetables rotation	50 ha
Coastal Cashew Nuts	Umhlabuyalingana	Maphuthaland Coastal Cashews	Cashew nuts	932 ha
Marula Processing Plant	Umhlabuyalingana	DARD and Cooperative	Collect marula fruit from existing indigenous plants	N/A
Manguzi Mango Cooperative	Umhlabuyalingana	DRDLR/ Cooperative	Collect mango fruit from existing indigenous plants	Plan to build a processing plant
Hamba Nathinkosi	Umhlabuyalingana	Communal	Vegetables	10ha
Ngondini	Hlabisa	Communal	Maize	20ha
Ezibayeni	Hlabisa	Communal	Potatoes/ maize	20ha
Vulamehlo	Hlabisa	Communal	Vegetables	1.5ha
Vukuzenzele	Hlabisa	Communal	Vegetables	0.5ha
Mfuze	Hlabisa	Communal	Field crops	23ha
New Stand	Hlabisa	Communal	Field crops	59ha
Ntiyantiya	Hlabisa	Communal	Field crops	32ha
Zamimpilo	Hlabisa	Communal	Vegetables	2ha
Lethukuthula	Hlabisa	Communal	Field crops	12ha
Thubelihle	Hlabisa	Communal	Field crops	1ha
Inqubeko	Hlabisa	N/A	Vegetables	0.7ha
Siyaphambili	Hlabisa	N/A	Vegetables	1ha
Ngongo Cooperative	Jozini	Communal	Groundnut, cassava, dry beans , sweet potatoes and cotton planned	20ha
Jobe Phase 3	Jozini	Communal	Groundnut, dry beans , sweet potatoes , indigenous leafy vegetables and cotton planned	N/A
Kwajobezineshe Cooperative	Jozini	Communal	Groundnut, dry beans , sweet potatoes and cotton	N/A
Jozini Value Adding Centre -Agro Processing	Jozini	KZN Dept COGTA	Packhouse	200ha
Vukuzenzele Planned Project	Jozini	KZN DARD	Vegetables	20ha
Hlanganani Project	Jozini	Communal	Vegetables	4.5ha
Ubuhlebesizwe	Jozini	Communal	Vegetables and dry beans	
Thuluzobona Cooperative	Jozini	Communal	Vegetables and crop production	80ha
Makhonyeni Cooperative	Jozini	Communal	Crop production (maize and dry beans)	20ha
Thandanani Cooperative	Jozini	Communal	N/A	N/A
Bambanani Cooperative	Jozini	Communal	N/A	N/A
Kubambezingelayo Cooperative	Jozini	Communal	N/A	N/A
Khiphindlala Cooperative	Jozini	Communal	Vegetables	4ha
Siphilandemvula Cooperative	Jozini	Communal	Vegetables and dry beans	4.5ha
Kusile Garden	Jozini	Communal	Vegetables	4ha
Mthidlwe Cooperative	Jozini	Communal	Vegetables	10ha
Ubongwa Cotton	Jozini	DARD	Cotton production and processing in rotation with winter crops i.e. Maize, butter nuts and beans	Currently 450ha. We anticipated to plant 2000ha with potential of 10000ha
Makhathini Cotton Gin	Jozini	Working with DAFF with an aim to transfer Farmers to cooperative	Cotton processing with all relevant packaging materials and facilities	N/A
Ibandla Cooperative	Jozini	DARD/ Makhathini Irr.	Vegetables, fresh maize	245ha
Lindokuhlengathi Cooperative	Jozini	DARD/ Makhathini Irr.	Vegetables, fresh maize	536ha
Amanguni Cooperative	Jozini	DARD/ Makhathini Irr.	Vegetables, fresh maize	111ha
Isinwazi Cooperative	Jozini	DARD/ Makhathini Irr.	Vegetables, fresh maize	38ha
Makhathini Irrigation Scheme	Jozini	Mjindi Farming, Dard, Cooperatives And Individuals	Crop and vegetable production	>4000ha

Project	Local Municipality	Ownership	Commodity	Area under production/ potential
Insikayezwe Dev Crop	Jozini	DARD/ Makhathini Irr.	Vegetables, fresh maize	10ha
Isibonelo Women Cooperative	Jozini	DARD/ Makhathini Irr.	Vegetables,amadumbe,banana & fresh maize	10ha
Ndumo A & B Ndumo Irrigation Scheme	Jozini		Vegetables	200ha are under crop and vegetable production. The DRDLR plans to support phase 2 with the implementation of at least 40% during the 2015/16 financial year.
Jabulani Cooperative	Jozini	DARD/ Makhathini Irr.	Vegetables, fresh maize	10ha
Isilungiso	Mtubatuba	Communal	Vegetables/ broiler	3ha
Dukuduku Mushroom Project	Mtubatuba	DARD/cooperative	Mushroom production and value adding	Production/ value adding
Siyavuka	Mtubatuba	Communal	Field crops	2ha
Siyazama	Mtubatuba	Communal	Field crops	3ha
Nkwazi	Mtubatuba	Communal	Vegetables and field crops	3ha
Zimele Rural Woman Empowerment	Mtubatuba	Communal	Vegetables	2ha
Amandlabesifazane	Mtubatuba	Communal	Vegetables	5ha
Ubambiswano	Mtubatuba	Communal	Vegetables	5ha
Mnothiphansi	Mtubatuba	Communal	Vegetables	14ha
Natal Peaceful Cooperative	Mtubatuba	Communal	Crops	3,5ha
Ikusasalethu	Mtubatuba	Communal	Vegetables	2ha
Ubuhlebuyeza	Mtubatuba	Communal	Vegetables	2ha
Izandlazethu	Mtubatuba	Communal	Vegetables	3ha
Vukuzimele	Mtubatuba	Communal	Vegetables	1ha
Vusikhanda	Mtubatuba	Communal	Vegetables	1.5ha
Majonijoni	Mtubatuba	Communal	Vegetables	1ha
Thembalembokode	Mtubatuba	Communal	Vegetables	1ha
Ntulufakazi	Mtubatuba	Communal	Vegetables	1,5ha
Umkhumbi Ka Noah	Mtubatuba	Communal	Vegetables	1.3ha
Isabelo Youth Project	Mtubatuba	Communal	Vegetables	2.5 ha
Khathalisela	Mtubatuba	Communal	Vegetables	1ha
Ikhwezi	Mtubatuba	Communal	Vegetables	2.5ha
Mchakwini	Mtubatuba	Communal	Vegetables	1ha
Nyalazi/Hluhluwe (Mqiyeni)	Mtubatuba	Communal	Crops	70ha
Nyalazi Community Garden	Mtubatuba	Communal	Vegetables	20ha
Nkolokotho	Mtubatuba	Communal	Vegetables and crops	50 ha
Zamanawe	Mtubatuba	Communal	Vegetables	3ha
Ukukhanya	Mtubatuba	Communal	Vegetables	2ha
Mpokwe	Mtubatuba	Communal	Vegetables	3 ha
Ukukhanya	Mtubatuba	Communal	Vegetables	1 ha
Nqabayethu	Mtubatuba	Communal	Vegetables	1 ha
Sisonke	Mtubatuba	Communal	Vegetables	3 ha
Buhlebethu	Mtubatuba	Communal	Vegetables	2 ha
Sibonelo	Mtubatuba	Communal	Field crops	50 ha
Sugar Cane Project	Mtubatuba	N/A	N/A	N/A
Banana Project	Mtubatuba	N/A	N/A	N/A
Fruit Production	Mtubatuba	N/A	N/A	N/A
Sweet Potato Project	Big 5 False Bay	N/A	N/A	N/A
Pine Apple Production	Big 5 False Bay	N/A	N/A	N/A

Livestock projects

Name of project	Local Municipality	Ownership	Commodity	Area under production/ potential
Menziphilisiwe	Jozini	N/A	Broiler	0.5 ha
Amandlabesifazane	Jozini	N/A	Broiler	0.5ha
Zamimpilo mama	Jozini	N/A	Broiler	0.5ha
Izimele Broiler	Jozini	N/A	Broiler	0.5ha
Isiqhelo	Jozini	N/A	Broiler	0.5ha
Amangwane poultry	Jozini	N/A	Broiler	0.5ha
Sivikindlala	Jozini	N/A	Broiler	0.5ha
Makekela poutry youth	Jozini	N/A	Broiler	0.5ha
Dongolwethu	Jozini	N/A	Broiler	1 ha
Amandlentuthuko	Jozini	N/A	Feedlot	230ha
Sifunulwazi Farming Cooperatives	Mtubatuba	DRDLR/Cooperative	This is a layer production enterprise with 9 women DRDLR has a plan to support the project with the production inputs, equipment' and infrastructure	Egg production
Umkhanyakude Red Meat Project	Jozini	DARD/ DRDLR/ Livestock associations	This entails the construction of the grazing camps, pastures, custom feeding programmes, revitalization of sale yards, livestock infrastructure and auctioning services	Ha identified in all five local municipalities
Bhambanana Abattoir	Jozini	DARD/Livestock association	N/A	Abattoir with the capacity to slaughter 50 heads per day
Sothembile Cooperative	Jozini	Communal	Irrigation, fencing, farm roads, poultry houses, abattoir/ broilers	2ha
Zamangembuzi Agric Cooperative	Umhlabuyalingana	N/A	Goat production enterprise	1Ha (100 Ewe)