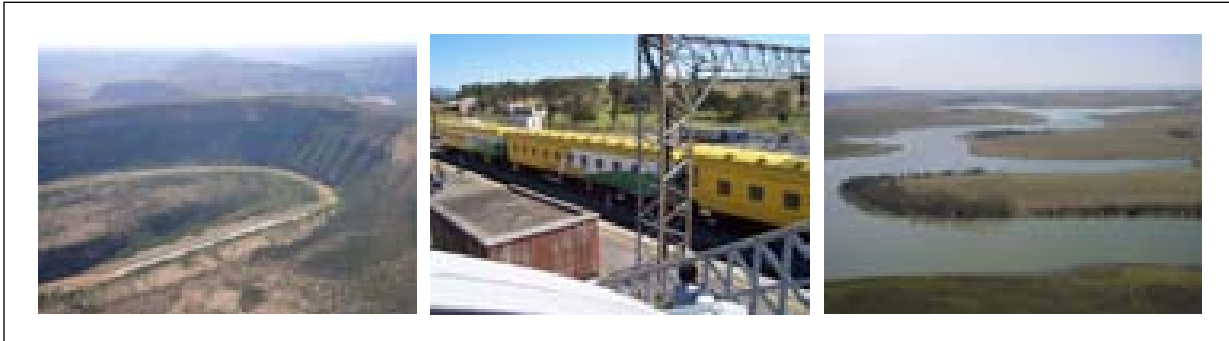


Amathole Economic Development Agency T/A



Amabele Local Spatial Development Framework Plan



**Final
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CONSULTING TEAM

The Amabele Local Spatial Development Framework Plan was prepared by a multi-disciplinary team of consultants under the principal members Tshani Consulting CC. This team comprised the following:

1. Messrs Tshani Consulting CC – Town and Regional Planners, Development Specialists, Tourism Consulting, Project Implementation and Development Facilitation;
2. Messrs ATS Consulting – Agricultural, Rural Development and Engineering Consulting;
3. Messrs Coastal Environmental Services – Environmental Consulting;
4. Messrs Cole Consulting – Economists; and
5. Stewart Scott International – Consulting Engineers.

ACKNOWLEDGEMENTS

The Project Steering Committee comprised the following stakeholder organisations and representatives:-

PROJECT STEERING COMMITTEE
Amahlathi Local Municipality
Amathole District Municipality
Aspire
Department Of Roads And Transport
Department Of Local Government And Traditional Affairs
Department Of Water Affairs
Department Of Agriculture
Eastern Cape Development Corporation
Development Bank Of Southern Africa
Stutterheim Aquatic Club
Amathole Berries
Amathole Local Tourism Association - Escape

The Project Steering Committee meetings were attended by a broad range of stakeholders (refer to table above) and the consistent attendance, constructive input and commitment of these members throughout the planning process is acknowledged with appreciation.

The commitment and contribution of all stakeholders who regularly attended workshops, project steering committee meetings and public consultative sessions is acknowledged with thanks.

EXECUTIVE SUMMARY

Background

A collaborative partnership between Aspire, Eastern Cape Development Corporation, Amahlathi Local Municipality and Development Bank of Southern Africa has enabled preparation of the Amabele Local Spatial Development Framework Plan. This plan underpins the overarching Amahlathi Local Municipality Integrated Development Plan and Spatial Development Framework Plan. In addition, it is aligned with the Amathole Regional Economic Development Strategy and supports state investment in the Kei Rail initiative, whereby Amabele is being revived as a rail transport hub.

The Local Spatial Development Framework Plan (LSDF) is intended to co-ordinate public, community and private sector investment towards the revitalisation of the village and its hinterland. Based on present and future economic activities, the LSDF proposes a new spatial layout (spatial development framework) for Amabele and the surrounding area, taking into account the integral development needs of adjacent Ndakana, covering the blueberry farming operations, other agricultural enterprise opportunities, urban and rural development proposals and associated tourism interventions. The LSDF proposes an appropriate investment framework, budgets timeframes and an institutional model to manage the future investment implementation programme.

Renewal of Amabele Village is linked to three key initiatives in the Amabele area; firstly, the Amabele Train station is being upgraded by Department of Transport (DORT) as part of the Kei Rail Improvement Programme aiming at developing the Amabele Train Station as an important transport interchange and freight hub; secondly, the economic spin offs and impacts of the blueberry farming hub being established at Thornhill Farm 15km outside of Amabele and; thirdly, opportunities to position Amabele as one of the tourism gateways of the Eastern Cape rail-based tourism initiatives, linking to the potential of Wriggleswade Dam and nearby natural, cultural and heritage attractions.

Situation Analysis

The situation analysis revealed the potential competitive advantage of Amahlathi through the top three value adding and employment chains as being agriculture and agro-processing (linked to food products); forestry (linked to wood products and furniture) and tourism, (Water-based, eco and game based, rail, cultural and heritage tourism). The conclusion drawn from the analysis of value added economic opportunities and employment is that the primary sectors of agriculture and forestry are vital providers of formal employment in Amahlathi. There is however insufficient value added activity within the local area, but there is significant potential for the growth of natural resource based enterprises from the existing strong economic base.

A study of the physical, demographic and socio-economic characteristics of the area concluded there are a diverse set of vegetation biomes in the vicinity and these are reflective of the diverse geology, climate and topography in and around Amabele. These factors also allow a diverse set of land uses, which, when integrated with agriculture and tourism can be utilised as significant natural resources.

Situated on a prominent escarpment under the foothills of the Amathole mountain range, with high rainfall and high potential soils, both Amabele and Ndakana villages have

potential to play a significant economic role as an agricultural service centre and a special agricultural processing cluster.

Amabele enjoys several strategic accessibility opportunities since it is located next to the N6 and is close to the regional road links of the R63 and R30 connecting Stutterheim to King Williams Town / Bhisho in the west and Khomga and the Wild Coast to the north coast. The Kei Rail link between East London and Mthatha further enhances its transport accessibility. Whilst being relatively small villages, the existing infrastructure and access advantages lend itself to Amabele and Ndakana being developed in partnership to maximise the economic benefits flowing from the identified opportunities and associated investments already underway.

Project Feasibility

Several potential projects and economic enterprises considered necessary to revive Amabele village, integrate and uplift Ndakana, sustain the Kei rail initiative, support the blue berry investment and open up associated agricultural and agro-processing opportunities were identified in the situation analysis stage. These projects were assessed through a feasibility study process and the key issue flowing from this feasibility study concluded sustainable development in Amabele village will only be achieved in the context of uplifting and developing Ndakana as well, in the form of an integrated approach to both settlements. It was concluded that the identified projects are feasible and need to be developed in various private, community and PPP enterprises to enable much needed participation of communities in the region who are in urgent need of economic upliftment.

The large scale investment in berry production, processing and packaging will create substantial employment opportunities and economic spin-offs. However, there is a need to ensure there is diversification of commercial and agricultural enterprises to reduce dependency on the berry project. In addition, the seasonality of employment in the berry project will necessitate farming other crops which will ensure employment in other seasons as well (i.e.: “berry counter-crops”).

The feasibility studies highlighted the implications for Amabele village relating to the transport logistics of moving large numbers of employees to and from Thornhill Farm for work during the peak production period each year. Whilst rail appears to be an attractive option, it is expected road transport will offer the most flexible and manageable option in the short term.

A number of potential tourism developments have been identified for the region, particularly in the vicinity of Wriggleswade Dam. However, the viability and feasibility of these proposals need to be appraised in terms of a Resource Management Plan to be prepared for the catchment and Wriggleswade Dam Area, under the auspices of the Department of Water Affairs and Environment.

Spatial Development Framework Plan

Having conducted intensive consideration of development scenarios and consulted widely with community and stakeholder representatives, a proposed local spatial development framework plan (LSDF) was prepared.

The Stakeholders of Amahlathi have the vision of ***Amabele Village and adjacent Ndakana communities developing in partnership as an integrated Rural Service***

Node centred around the regional transport interchange, founded on thriving, sustainable agricultural enterprises, agro-processing and tourism ventures.

In order to achieve the future vision, the following development objectives have been formulated:

- ***Managed development*** to upgrade the villages of Amabele and Ndakana to improve the quality of life and access to basic services, social facilities and employment opportunities;
- ***Upgrading of infrastructure*** to support the growing transport services and new land development initiatives;
- ***Targeted agricultural enterprises*** with community, private sector and Public/Private/Community Partnerships in identified areas of opportunity; and
- Establishment of ***tourism enterprises*** linked to integrated tourism packages, tourism routes and attractions in the surrounding region.

Structured in line with the over-arching Amahlathi SDF, the plan sets out the proposals for Amabele to grow into a “rural service node” and for Ndakana to be formalised in the form of a “category B Settlement”.

The LSDF also proposes the upgrading of two vital and strategic routes, being the road through Ndakana and the road linking Amabele to Wriggleswade Dam and beyond. Several Special Development Areas are included in the plan, including; a Rural Development Zone, a Land Reform zone (in alignment with the SDF) a Tourism Zone (mainly around Wriggleswade Dam) and an Agricultural Zone between Amabele and Ndakana.

This LSDF is supported by an environmental, economic and infrastructure plan containing details of the necessary elements to achieve successful development in Amabele, Ndakana and the land around these villages. These include the blue berry project, berry related businesses (such as bees, honey, compost and vermiculture) and other agricultural projects (such as wattle management, charcoal, vegetable production, forestry, timber and timber products).

Of vital importance to managing the anticipated growth of vehicle and pedestrian traffic in and around Amabele, will be the need to create a new junction arrangement on the N6 with an activity street linking the junction to the Amabele station and a new taxi/bus rank, business centre and parking facility. In future, the strategic link to Wriggleswade Dam will require a road-over-rail bridge and a service road linking directly into Amabele village in order to accommodate large vehicle and passenger traffic and prevent conflict between road and rail over the existing level crossing. All other necessary infrastructure will require upgrading over time to support the development process.

Implementation

The Local Spatial Development Framework Plan will need to be implemented through the collaboration of all stakeholders. In order for this to occur it is proposed that the current project steering committee be adjusted to become an Implementation Committee with participation of all interested and affected organisations. Aspire will need to provide continued managerial and secretarial support to the committee, although its main function would be co-ordination and project management of the implementation programme.

The agricultural projects, enterprises and agro-processing cluster have the potential to grow into a considerable set of initiatives around Ndakana. These will not succeed unless technical expertise, mentorship and training is secured to ensure firstly; management of the farmers and their structures and, secondly; agronomic management of the farming operations with mentorship.

The implementation programme involves a total investment by the public and private sector of approximately R260 million over the next ten years, divided into three phases of three year periods each. The employment potential on Thornhill Farm would reach an estimated 4800 job opportunities and a further 420 job opportunities in Amabele and Ndakana Villages.

In phase one, a total of 25 project elements are to be implemented between the years of 2010 and 2013 at an estimated cost of R118.2 million. These projects include detailed planning, survey, land acquisition, infrastructure, land for a packaging and processing plant with managerial housing and establishment of a special agricultural processing cluster, wattle and bee projects and revival of high value crop farming on arable soils around Ndakana.

Phase two is intended to continue with the agricultural projects, provide infrastructure to Amabele and Ndakana, commence formalising and upgrading of Ndakana settlements, initiate tourism infrastructure at the station and within the special development zone, create taxi rank facilities and new commercial precincts. The estimated budget for the period 2013 to 2016 is R67.2 million.

Phase three involves expansion of the agricultural projects with high value crops, extensive forestry and further wattle management projects. The settlement upgrading and formalising at Ndakana would be completed and additional road works and housing would be developed in Amabele. The special agro-processing cluster would see the establishment of an alternative energy alien eradication/energy plant and continued development of high value crops including berries, fruit, flowers and vegetables. The estimated budget for phase three for the period 2016 to 2019 amounts to R74.5 million.

1. INTRODUCTION

Preparation of the Amabele Local Spatial Development Framework Plan has been undertaken in terms of the Corridor Programme led by ASPIRE (the Amathole District Municipality's Economic Development Agency). This programme focuses on the N6 and other movement corridors in the district around which ASPIRE clusters its various investment initiatives, either in localities that have demonstrated development potential or in identified development nodes along the various corridors. Amabele and the region around that village, located alongside the N6 some 30 kilometres north of East London in the Amahlathi Municipality, has been identified as one such development node having potential.

ASPIRE; ECDC, DBSA and Amahlathi Local Municipality allocated money for the preparation of a Local Spatial Development Framework Plan (LSDF) which is intended to co-ordinate public, community and private sector investment towards the revitalisation of the village and its hinterland. Based on present and future economic activities, the Amabele Development Plan proposes a new spatial layout (spatial development framework) for Amabele Station and its surrounding area, covering the blueberry operations, other agricultural project opportunities, urban and rural development proposals and associated tourism interventions. The Plan proposes an appropriate investment framework, budgets timeframes and an institutional model to manage the future investment implementation programme.

It is intended that this Amabele Local Spatial Development Framework Plan will become an approved policy plan underpinning the Amahlathi Municipality Spatial Development Framework and Integrated Development Plan.

2. OBJECTIVES OF PROJECT

The purpose of the LSDF is to develop a localised spatial development plan for the Amabele area (including a framework plan for the Amabele village itself). The objective is to have a spatial development plan that informs planning, economic and social infrastructure provision to support the Amabele Blueberry farming operations south of the Wiggleswade Dam, on the District Road (DR02779), as well as expected economic spin-offs for the area. Special emphasis was given to the development of the tourism sector as a complementary sector to the blueberry farming operations.

3. SCOPE OF WORK

3.1 Planning Process

As part of initiating the project, the Terms of Reference were finalised and the following activities undertaken:

- The Project Steering Committee (PSC) was established
- A detailed Inception Report was prepared, depicting the agreed methodology, phasing and timeframes.

The project consisted of the following four (4) phases:

3.1.1 Phase 1: Situation Analysis and Needs Assessment

This involved collection of all available information within the various sectors i.e.:

- Land Use and issues (including land ownership, current zoning, map of area showing erf numbers)
- Spatial planning impacting on current and future developments
- Economic activities and opportunities
- Bulk infrastructure provision
- Settlement and Housing
- Transport
- Water and Sanitation, waste management
- Specific features of the current spatial environment (natural elements and built environment)
- Social and economic linkages to Stutterheim and the surrounding area.

3.1.2 Phase 2: Engineering, Social, Economic and Environmental feasibility

This phase involved an analysis of the feasibility of the various proposed projects and development concepts, including:

- Analysis of the future development needs of the Blueberry operations and tourism initiatives.
- An Assessment of the projects and development concepts in terms of social, economic and environmental feasibility

3.1.3 Phase 3: Development and Evaluation of Alternative Scenarios

This phase involved the following:

- Creation of a Development Perspective;
- Preparation of Development Vision; and
- Formulation of Alternative Scenarios.

3.1.4 Phase 4: Implementation Framework

Formulation of a detailed Plan of Action, which will include the following:-

- Prioritised list of developmental interventions stating:
 - Spatial location
 - Cost & budget estimates
 - Timing & phasing
 - Sources of finance
- Institutional recommendations

3.2 Public Participation and Stakeholder Involvement

Consultation with various stakeholders and members of the general public was considered a vital aspect of the planning process. This was achieved through:

- Steering Committee meetings – Allowance was made for One Steering Committee Meeting for each phase of the project
- Workshops were held in identified phases;

- General community meetings were arranged for communication to the broader stakeholders within the area.

Details of meetings held and relevant attendance registers are contained in the appendices for reference.

4. BACKGROUND

Renewal of Amabele Village is linked to three key initiatives in the Amabele area. Firstly, the Amabele Train station is being upgraded by Department of Transport (DORT) as part of the Kei Rail Improvement Programme aiming at developing the Amabele Train Station as an important transport interchange and freight hub, not only for passenger cargo, but more specifically as a loading station for local goods being transported in and out of the Stutterheim area such as processed blueberries, cement and logs.

Secondly, simultaneous to the upgrade of the Amabele train station, the local value of Amabele is increasing due to a massive investment that is being undertaken to establish a blueberry farming hub at Thornhill Farm 15km outside of Amabele. A need arises to improve and restructure the Amabele Village as such that its services and infrastructure components respond to the needs of the huge staff creation component of the farm that will be constantly growing from the farming inception until its full operation.

The Amabele Village upgrade as stated above is an example of how different government institutions have joined forces and formed a partnership with private sector to follow an integrated development approach. The station upgrade, the blueberry farming operation and tourism development initiatives are inter-linked and will be feeding off each other to develop and restructure the features of the Amabele village and the entire area into a new agro-processing, tourism and passenger and freight logistic hub.

5. LOCALITY

The “Primary” Study Area agreed upon for the purpose of the planning study is around the “Amabele Blueberry Initiative”, which is situated on the Thornhill Farm, and includes the areas of the Amabele Village, the Station, Wriggleswade Dam and Kei Road (**see Plan 1 in the Appendices**).

The “Secondary Study Area” covers a 30km radius from the Amabele Station to include the towns of Cathcart, Keiskammahoek and Stutterheim (**see Plan 2 in the appendices**).

Both the Primary and Secondary Study Areas fall within the Amahlathi Local Municipality, which is one of eight Local Municipalities of the Amathole District Municipality within the Eastern Cape.

The Amahlathi Local Municipality is traversed by the N6, which originates from East London in the south and traverses through the towns of Stutterheim, Cathcart, Queenstown and Aliwal North, and which eventually intersects with the N1, which links traffic between the Metropolitan Cities of Johannesburg and Cape Town. The R63 and R30 are two Regional Roads connecting Stutterheim to King Williams Town / Bhisho in the west and Khomga and the Wild Coast to the north coast.

6. LEGAL AND POLICY CONTEXT

The legal and policy context within which the Amabele Local Spatial Development Framework Plan is reflected, involves numerous policy frameworks, regulations and Acts of Parliament. These are summarised below.

6.1 Planning

Over the years there have been a number of policy documents prepared on a provincial, district and local municipal level to assist institutions in directing limited public resources to areas, projects, etc. which have an immediate need, and in general the areas within jurisdiction of the Government Institutions.

The following provides a synopsis of the key outcomes of the various policies prepared which has been a direct or indirect impact on the “Amathole Berries” and the Local Municipal Area in which it operates. The analysis of the policies has been categorized into the following sectors:-

- Planning
- Tourism
- Environmental
- Economic

6.1.1 Amathole District Municipality Spatial Development Framework

The Spatial Development Framework is a tool developed by all municipalities in terms of the Municipal Systems Act, to spatially depict the desired land form of the municipality in relation to the Municipalities Integrated Development Plan.

Using the above Themes, the following objectives and strategies are proposed:

Theme	Objective	Strategy
Basic Needs	Ensure availability of a minimum acceptable level of infrastructure and services throughout the DM. Improved capacity in service delivery.	Identify and prioritise areas of greatest need. Systematically link services and services supply networks to optimise efficiency. Focus on involvement of all relevant stakeholders.
Spatial Fragmentation	To create an efficient and integrated settlement pattern in ADM.	Consolidate and densify settlements where appropriate. Promote the integration of sprawling settlements. Prioritise maintenance and upgrade of strategic link routes.
Linkages and Access	Well-structured road and rail network systems allowing for ease of movement. Efficient and effective links between identified nodes and relevant products and services.	Identify nodes and products (i.e. agric produce) that require linkage. Identify and prioritise areas where the need for improved access is greatest. Prioritise maintenance and upgrade of strategic link routes.

Land Use Management	An appropriate Land Use Management System in operation across the DM. Security of access to land for development.	Support and implement a programme to develop appropriate new Zoning Schemes for Urban and Rural areas, in line with the direction of new legislation. Support land reform and settlement upgrade initiatives by identifying zones of opportunity according to land needs
Environmental Management	Adhere to sound environmental practices in line with legislation. Protect environmentally sensitive areas.	Implement the principles of Integrated Environment Management.

The District Spatial Development Framework is comprised of a number of structuring elements that are derived from a variety of inputs, including:

- The Corridor Programme of Aspire;
- The proposals of the Land Reform and Settlement Plan (2005);
- A consideration of inputs provided by various Sector Plans compiled by the Amathole District Municipality, primarily the reviewed Water Services Development Plan (2007);
- Inputs provided by the Amathole District Integrated Environmental Management Plan and Integrated Coastal Management Plan as well as the spatial data in the Eastern Cape Biodiversity Conservation Plan.

The following structuring elements are followed:

- **ASPIRE's Corridor Approach**

In terms of the keynote Corridor Programme led by ASPIRE (the Amathole District Municipality's Economic Development Agency) the following are identified as the development corridors within which it is proposed that development and related investment initiatives would be focused:

- The N2 Corridor
- The N6 Corridor
- The R63 Corridor
- The R72 Corridor

These corridors form the spatial entities around which ASPIRE intends clustering its various investment initiatives, either in localities that have demonstrated development potential or in identified development nodes along the various corridors.

- **Key Development Nodes**

At a district level the following key development nodes are identified:

- **Primary Urban Node**

The Primary Urban Node of the Amathole District is identified as the East London Mdantsane urban complex, which is located within the Buffalo City Municipality. It is envisaged that this area would continue to function as the primary urban settlement in the district, where higher order facilities and the greatest range of urban-economic opportunities would be located. As such, it represents the area of greatest formal economic opportunity and investment and should be prioritised

accordingly. In addition, East London, within Buffalo City is identified as the **Gateway City** in terms of ASPIRE/ADM tourism development initiatives.

- **Administrative Node**

The urban complex of King Williams Town / Bhisho which falls within the R63 Development Corridor is also located within the Buffalo City Municipality and is the seat of the Eastern Cape Provincial Government. As such, it has significance over and above its relatively low standing within the urban hierarchy of the Amathole District.

- **Secondary Urban Nodes**

Three Secondary Urban Nodes are proposed. These are listed as:-

- Butterworth (Mnquma Municipality) which falls within the N2 Corridor;
- Stutterheim (Amahlathi Municipality) which falls within the N6 Corridor;
- Alice (Nkonkobe Municipality) which falls within the R63 Corridor.

These towns are identified as being of relative importance due to their present and historical functions as centres where major investment has occurred in infrastructure (e.g. Butterworth), or where significant successes and related impetus has been achieved in local economic development (**e.g. Stutterheim**), or, finally, where cultural and heritage factors are coincident with a growing importance as an administrative centre (e.g. Alice). As such, these towns are considered to have growth potential that is relatively significant within the Amathole district. Consequently, it is proposed that investment be focused in these areas, which would serve to enhance these opportunities.

- **Urban Service Centres**

Five Urban Service Centres are identified, which are seen as towns that provide a higher order level of service to their surrounding hinterland areas. It is also recognised that these towns exhibit trends of population influx and consequently, require investment in order to accommodate these pressures. The towns identified are:-

- Adelaide (Nxuba Municipality)
- Fort Beaufort (Nkonkobe Municipality)
- Peddie (Ngqushwa Municipality)
- Cathcart (Amahlathi Municipality)
- Dutywa (Mbhashe Municipality)

- **Special Development Areas**

These areas are identified and based on Sectoral Inputs, and are conceived as areas where the Amathole District Municipality and/or Local Municipalities would prioritise funding for spatial and development planning, and relevant project implementation actions. They include:

- **Land Reform and Settlement Zones**

The Zone approach was deemed most useful for the purposes of the ADM LRSP and, given the correlation between several land reform and /or spatial planning initiatives and the spatial extent of these zones; they are retained for purposes of the District SDF.

- **Generalised Areas of Need**

These are identified as broad areas where special circumstances of need prevail and, within the context of the Amathole district, the reviewed SDF identifies the areas of Mnquma and Mbhashe as being areas where issues related to water services provision (water and sanitation).

- **Tourism Development Zones**

These zones are identified and based on proposals contained in the Amathole District Regional Economic Development Strategy and the ADM IDP. They include the following identified areas:-

- ADM Tourism routes, comprising of The Amathole Mountain Escape, The **Friendly N6 Route**, The Sunshine Coast Route, The Wild Coast Route. Within this category, East London – as the Gateway City – is noted as a destination in its own right.
- ADM Heritage routes comprising of The Coastal Heritage Route, The Maqoma Route, The Phalo Route and the **Sandile Route**.

- **Agricultural Development Potential**

The broad spatial informants to agricultural development in the Amathole district include:

- Key Irrigation Schemes
- Key areas associated with agro-industries
- Areas defined as being suitable for dry land cropping
- The Upper Kat River Citrus Revitalisation

- **Environmental Informants / Conservation**

Environmental informants are spatially defined areas where various levels of environmental management are advocated in terms of the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2007). The ECBCP uses the concept of Biodiversity Land Management Classes (BLMCs) to spatially differentiate areas of different sensitivity and/or conservation-worthiness. Each BLMC sets out the desired ecological state that an area should be kept in to ensure biodiversity persistence.

6.1.2 Amahlathi Integrated Development Plan (Reviewed for 2009/2010)

The Integrated Development Plan (IDP) for the municipal area was reviewed in May 2009 and provides various objectives, strategies and projects for the period 2009/2013.

The Amahlathi Municipal area has a resident population whose main challenges are in countering the effects of endemic poverty and under-development. This translates into a need to focus great efforts on the expansion of local economic development in the area.

In this regard, focus areas include facilitating sectoral growth in tourism, local manufacturing, agriculture and forestry. Poverty relief and food security are also seen as important areas within this cluster, as is a strategic focus on the support of local enterprise development.

The key areas of need in this cluster remain housing, improvement in education infrastructure across the range of pre-school facilities to adult education, better

access to welfare support institutions and facilities for the aged, the disabled and the sick, and the provision of sports fields, community halls and minor works such as fencing.

The IDP states that it remains vitally important for the Amahlathi Municipality to follow a structured approach in focusing development and capital investment in the settlements that make up its area in order to counter further fragmentation in the settlement patterns both at a local and at a municipal-wide level.

Careful land use management and the conservation and appropriate use of existing natural and cultural heritage resources is of great importance for the area and can result in the enhancement of local economic development initiatives.

It is also important to ensure that the provision of infrastructure is carried out in a more sustainable manner than has occurred in the past.

Moreover, an important consideration for the municipality in this regard is the need to support land reform processes in its area of jurisdiction, most notably (but not exclusively) in the Keiskammahoek area, where land restitution processes are rapidly approaching settlement and in the Yellowwoods/Kei Road Zone, where detailed planning processes have identified the priority project actions required.

6.1.3 Amahlathi Spatial Development Framework

The components of the Spatial Development Framework set out below are based on the conceptual approach and guidance gained from the Amahlathi Municipality's IDP and key policy and planning documents provided by other spheres of Government: **(A copy of the SDF Plan is contained in the Appendices).**

- **Spatial Development Objectives & Strategies**

Key Spatial Development Objectives		Proposed Spatial Development Strategies
1.	To fulfil basic needs obligations and address spatial integration within available means.	<ul style="list-style-type: none"> • Ensure efficiency and sustainability of basic services, by promoting the integration of sprawling settlements in both urban and rural areas, and the consolidation of larger settlements at nodal points. • Consolidate and integrate spatial development by developing land in proximity to public transport routes and existing services. • Develop infill areas within fragmented settlement areas, where appropriate.
2.	To manage land development in line with a structured approach to ensure sustainability.	<ul style="list-style-type: none"> • Manage land development in line with land use management guidelines related to identified spatial structuring elements and special development areas within Amahlathi. • Support a land reform and settlement development programme by identifying zones of opportunity for land development.
3.	To adhere to environmental law and protect environmentally sensitive areas.	<ul style="list-style-type: none"> • Implement the principles of Integrated Environment Management (IEM).

4.	<p>To manage land development in line with the General Principles of the Development Facilitation Act and the provisions of the Land Use Planning Ordinance (15 of 1985).</p>	<ul style="list-style-type: none"> • Implement the provisions of the Section 8 Zoning Scheme Regulations in terms of the Land Use Planning Ordinance (15 of 1985). • Apply for funding for a programme to develop an appropriate new Zoning Scheme for Urban and Rural areas, in line with the direction of new legislation, when promulgated.
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- **Spatial Structuring Elements**

The Amahlathi Spatial Development Framework proposes four spatial structuring elements, as follows:

- Development Nodes
- Development Corridors
- Urban Edges
- Areas where Environmental Constraints apply.

The table below sets out the three classes of nodes that have been identified and/or are proposed for Amahlathi:

NODE TYPE	AREA/LOCALITY	DESCRIPTION
URBAN NODES		
Level 3 Primary Node	Stutterheim	<p>As the main Administrative, Service and Industrial Centre of Amahlathi Municipality as well as an important place or residence for approximately 60% of the Urban Municipal population, Stutterheim should be targeted for the following:-</p> <ul style="list-style-type: none"> • Investment in infrastructure to increase services capacity; • Development of public-funded housing areas; • Development of regional social goods and facilities, including educational institutions, and sports and recreational facilities; and • Land use management that focuses on the integration of disparate settlement elements in the town.
Level 2 Secondary Nodes	Keiskammahoek	<p>As a secondary Administrative Centre and Service Centre to a large number of surrounding peri-urban and rural settlements as well as an area with eco-tourism and agricultural potential, Keiskammahoek should be targeted for:-</p> <ul style="list-style-type: none"> • Investment in infrastructure to increase services capacity; • Consolidation of urban centre in the interests of efficiency and provision of additional facilities; and • Appropriate Land use management and, infrastructural support to develop the Agricultural sector in the area.

	Cathcart	As a service centre of Amahlathi Municipality as well as an area with tourism development potential, Cathcart should be targeted for:- <ul style="list-style-type: none"> • Investment in infrastructure to increase services capacity; • Appropriate development of new residential and public-funded housing to meet local demand; and • Land use management that focuses on the improvement of the aesthetic character of the town.
Level 1 Tertiary Node	Kei Road	As a minor service centre, Kei Road should be targeted for:- <ul style="list-style-type: none"> • Extension of public-funded housing area to meet local demand; as proposed in the Yellowwoods Kei Road Settlement Project; and • Investment in infrastructure.
RURAL NODES		
Rural Development Nodes	Frankfort	Proposed as a rural nodal settlement with prioritization of higher order facilities development.
<p>No other rural nodes are specifically proposed at present. The rural areas of Keiskammahoek sub-district (Ward No's 1, 2, 3, 10 and 11) and Tsomo sub-district (Ward No's 12 and 13) are, instead, designated as Special Development Areas due to their unique opportunities and/or special development needs.</p> <p>In the course of more detailed spatial planning in these areas, it is anticipated that consensus with local communities is important to identify nodal settlements.</p>		

The following corridors are identified within the municipality:-

TYPE	AREA/DESCRIPTION OF LOCALITY	FUNCTION
Mobility Routes – Municipal Level	N6: East London – Queenstown	These routes carry passing traffic and provide access between local areas in Amahlathi and centres further afield.
	R63: Komga – Kei Road – KWT	
Special Routes – Tourism Focus	Sandile Heritage Route	These routes relate to tourism destinations. In the case of the Sandile Heritage Route, a number of Heritage Sites are identified.
	R345: Cathcart – Hogsback	
Proposed Road Upgrades (Tarring)	R362: Stutterheim – Keiskammahoek	These are important link roads that connect the Primary Node of the Municipality to surrounding areas. The upgrade of these roads is essential for municipal communication and operations and for efficient and effective delivery of services, infrastructure, and socio-economic initiatives.
	Stutterheim – Tsomo (via Mgwali)	

- **Rural Development Areas – The Yellowwoods Kei Road Zone**

This Zone Plan was completed in 2001 and sets out clear spatial proposals for further settlement development (Model 2) as well as development of local

farming projects (Model 3). This process should be supported with LED programmes and the upgrading of infrastructure and facilities in the settlements, as well as road access within the areas themselves.

- **Land Reform Zone – The Keiskammahoek Land Restitution Zone**
As proposed in the Amathole District Municipality’s LR&SP, the Keiskammahoek Development Support Zone comprises a number of successful land claims. These processes are significant because of the financial resources that they provide to local rural areas. Further, this area boasts extensive eco tourism and forestry potential, which may require that appropriate land management systems and land reform is implemented in the area.
- **Priority Basic Needs Tsomo Area (Former Transkei)**
These are the areas of greatest need and are ‘worst-off’ settlement areas in terms of the poverty index and service delivery. These areas require priority basic needs intervention and strategic proposals to improve the level of well-being of communities in these areas (poverty alleviation programmes and basic infrastructure investment).

- The SDF indicates that the Amabele Village and associated Thornhill Farm are situated in close proximity to two development nodes:-
 - a) Level 3: Stutterheim
 - b) Level 1: Kei Road
- These nodes will be prioritized for investment in forms of Infrastructure as well as public funded housing and associated social facilities, which would be beneficial for the ‘Amabele Berries’ Project;
- Amabele is situated in close proximity to a National Mobility Route and Amabele Station. This in itself has benefits and potential in terms of transportation logistics to urban centres within SA to sea ports and airports for linkages to the rest of the world.
- There is inadequate Land Use Management in the rural areas which could lead to urban settlement and sprawl around Amabele. Large scale investments into Amabele will probably attract other investors and people seeking employment. This could encourage informal settlement and associated development problems.

6.2 Environmental

6.2.1 National Environmental Policy

- ***Strategic Framework for Sustainable Development in South Africa (2006)***

A key target of the Millennium Development Goals is to **integrate the principles of sustainable development into country policies and programmes**. This document seeks to address this void by initiating a broad framework for sustainable development in the country that can serve as a basis from which to develop and consolidate a national strategy and action plan.

Pathways to sustainable development

Five strategic priority areas for action and intervention have been identified to promote the achievement of sustainable development described in the national vision. These priority areas or “pathways” to achieving sustainable development are:

- *Enhancing systems for integrated planning and implementation;*
- *Sustaining our ecosystems and using resources sustainability;*
- *Investing in sustainable economic development and infrastructure*
- *Creating sustainable human settlements;*
- *Responding appropriately to emerging human development, economic and environmental challenges.*

The Strategic Framework for Sustainable Development in South Africa (2006) sets out a guiding framework for development within Amahlathi LM that should occur in a way that is environmentally sustainable.

- ***White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity (1997)***

The White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity (1997), describes South Africa's response to the United Nations Convention on Biological Diversity which entered into force in December 1993. As a party to the treaty, South Africa is obliged to ensure that the agreement is implemented in accordance with its objectives. The state is also required to:

- *Develop national strategies, plans or programmes, or adapt existing ones, to address the provisions of the Convention, and*
- *Integrate the conservation and sustainable use of biodiversity into sectoral and cross-sectoral plans, programmes and policies.*

The following inter-related principles are described to guide the application, assessment and further development of the biodiversity policy and strategy.

- *Intrinsic value*
- *Duty of care*
- *Sustainable use*
- *Fair and equitable distribution of benefits*
- *Full cost-benefit accounting*
- *Informed and transparent decision-making.*
- *Precautionary principle*
- *Accountability and transparency*
- *Subsidiary*
- *Participation*
- *Recognition and protection of traditional knowledge, practices and cultures.*
- *Coordination and cooperation*
- *Integration*
- *Global and international responsibilities*
- *Evaluation and review*

As part of South Africa's obligations to the United Nations Convention on Biological Biodiversity, all organs of state, including local government, should include the objectives and principles of the white paper into their policies and plans across sectors. The white paper sets out in chapter for the role of local government:

Local government is faced with particular difficulties in implementing this policy. In rural areas especially minimal capacity, infrastructure, or resources exist to enable many of the provisions of this policy to be

implemented effectively. According to local circumstances and capacity, some functions of local government will be to:

- *Ensure that biodiversity considerations are effectively integrated into local strategies, plans and programmes;*
 - *Institute and participate in public education, awareness and training programmes;*
 - *Develop management plans for local resources that are under pressure;*
 - *Ensure that biodiversity considerations are integrated into land-use planning procedures for rural and urban areas; and*
 - *Encourage and prepare municipal open space systems which play a positive role in conserving and using biological resources sustainably.*
- **National Biodiversity Strategy and Action Plan (NBSAP)(2005)**
South Africa initiated a process to develop a National Biodiversity Strategy and Action Plan in 2003. The goal of the NBSAP is to conserve and manage terrestrial and aquatic biodiversity to ensure sustainable and equitable benefits to the people of South Africa, now and in the future. In support of this goal, five key strategic objectives have been identified, each with a number of outcomes and activities.

6.2.2 National Environmental legislation

- **The Constitution**

South Africa's Constitution provides within its Bill of Rights that everyone has the right:

- to an environment that is not harmful to their health or well-being, and
- to have the environment protected for the benefit of present and future generations, through reasonable legislature and other measures that:
 - prevent pollution and ecological degradation;
 - promote conservation; and
 - secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The Constitution accords national and provincial government concurrent legislative competence in terms of most functions of relevance to biodiversity conservation. However, national parks, botanical gardens, and marine resources are an exclusively national competence.

In terms of the Constitution, it is also the role of central government to administer international treaties. Thus it is the responsibility of the Department of Environmental Affairs and Tourism to formulate general policy concerning the conservation and use of biodiversity, the implementation of which will be undertaken by different government institutions within central, provincial, and local spheres.

- **National Environmental Management Act (107 of 1998)**

Objectives of the Act:

To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.

As South Africa's Integrated Environmental Framework Legislation, Amahlathi LM should ensure that any development should take place in harmony with the principles set out in this Act.

- **National Environmental Management: Protected Areas Act (57 of 2003)**

The objectives of this Act are to provide, within the framework of national legislation, including the National Environmental Management Act, for the declaration and management of protected areas; to provide for co-operative governance in the declaration and management of protected areas; to effect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity; to provide for a representative network of protected areas on state land, private land and communal land; to promote sustainable utilisation of protected areas for the benefit of people, in a manner that would preserve the ecological character of such areas; and to promote participation of local communities in the management of protected areas, where appropriate.

The Act provides for the ongoing management of existing protected areas, and for the declaration of new protected areas. Amahlathi LM contains within its boundaries sensitive and ecologically valuable areas. Identify these areas and declaring them protected areas may contribute to the tourism potential of the district, as well as contribute to the national system of protected areas.

- **Conservation of Agricultural Resources Act (43 of 1983)**

The objectives of the Act:

Provide for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water resources, and by the protection of the vegetation and the combating of weeds and invader plants.

Amahlathi LM relies heavily on a commercial agricultural economy. Agricultural resources of may be threatened by existing and future degradation. The conservation of Agricultural Resources Act provides, where applicable, for the conservation of these resources.

- **National Heritage Resources Act**

The Heritage Resources Act 1999 (HRA) aims to register and protect heritage resources that are of National, Provincial and Local significance. The HRA facilitates the protection of heritage resources. This is relevant to the protection of Rock Art, historical and cultural places and artefacts in the area as well as places of cultural significance.

- **National Water Act (No 36 of 1998)**

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in an environmentally sustainable way. Water abstraction and modification of water courses, or the banks or beds of water courses will require consideration and authorisation from the Department of Water and Forestry.

- **Environmental Impact Assessment Regulations**

These provide guidelines on relevance of EIA regulations (2006) to land use planning in terms of authorisation of particular activities. The EIA regulations require Impact Identification and Assessment, Public Participation and specialist studies where necessary, for the application to carry out a listed activity. The relevance to the Amabele SDF will include listing possible activities which will trigger an EIA.

The following table provides a list of potential activities that would trigger an Environmental Impact Assessment:-

Basic Assessment	
Activity Number	Activity Description
1	The construction of facilities or infrastructure, including associated structures or infrastructure, for – (i) aquaculture production, including mariculture and algae farms, with a product throughput of 10 000 kilograms or more per year; (j) agri-industrial purposes, outside areas with an existing land use zoning for industrial purposes, that cover an area of 1 000 square metres or more; (k) any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including - (i) canals; (ii) channels; (iii) bridges; (iv) dams; and (v) weirs; (l) the off-stream storage of water, including dams and reservoirs, with a capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of the activity listed in item 6 of Government Notice No. R. 387 of 2006;
4	The dredging, excavation, infilling, removal or moving of soil, sand or rock exceeding 5 cubic metres from a river, tidal lagoon, tidal river, lake, in-stream dam, floodplain or wetland.
12	The transformation or removal of indigenous vegetation of 3 hectares or more or of any size where the transformation or removal would occur within a critically endangered or an endangered ecosystem listed in terms of section 52 of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
13	The abstraction of groundwater at a volume where any general authorisation issued in terms of the National Water Act, 1998 (Act No. 36 of 1998) will be exceeded.

16	The transformation of undeveloped, vacant or derelict land to – (a) establish infill development covering an area of 5 hectares or more, but less than 20 hectares; or residential, mixed, retail, commercial, industrial or institutional use where such development does not constitute infill and where the total area to be transformed is bigger than 1 hectare.
19	The development of a new facility or the transformation of an existing facility for the conducting of manufacturing processes, warehousing, bottling, packaging, or storage, which, including associated structures or infrastructure, occupies an area of 1 000 square metres or more outside an existing area zoned for industrial purposes.
21	The release of genetically modified organisms into the environment in instances where assessment is required by the Genetically Modified Organisms Act, 1997 (Act No. 15 of 1997) or the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).

Full Environmental Impact Assessment	
Activity Number	Activity Description
1	The construction of facilities or infrastructure, including associated structures or infrastructure, for - (a) any process or activity which requires a permit or license in terms of legislation governing the generation or release of emissions, pollution, effluent or waste and which is not identified in Government Notice No. R. 386 of 2006; (b) the recycling, re-use, handling, temporary storage or treatment of general waste with a throughput capacity of 50 tons or more daily average measured over a period of 30 days; (c) rail transportation, excluding railway lines and sidings in industrial areas and underground railway lines in mines, but including - (i) railway lines; (ii) stations; or (iii) shunting yards;
2	Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more.
6	The construction of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.
10	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).

6.2.3 Eastern Cape State of Environment Report (EC SoER)

The Eastern Cape State of Environment Report describes the Eastern Cape environment under pertinent themes based on environmental issues, namely:

- Atmosphere and climate;
- Biodiversity;

- Environmental management and governance;
- Freshwater;
- Human settlements;
- Land;
- Marine and coast; and
- Poverty

The EC SoER produced and number of maps, with particular reference to the Biodiversity and Transformation map. These maps have been used as environmental reference material that should guide future planning in the Amabele Spatial Development Framework. **(Refer to Plan 3A)**

- **Amahlathi Integrated Development Plan (IDP)**

The Amahlathi IDP has acknowledged the existence of natural resources such as:

- Indigenous Forests in the Toise area
- Indigenous Forests North West of Stutterheim
- Indigenous Forests in the Keiskammahoek area

The forests are noted as conservation-worthy, to be managed and used/developed sensitively and sustainably for potential eco-tourism.

In addition natural resources have been identified and include:

- Wartbury Falls in Toise area
- Numerous Rock paintings in the Cathcart area
- Agricultural potential in Keiskammahoek and Elukhanyisweni

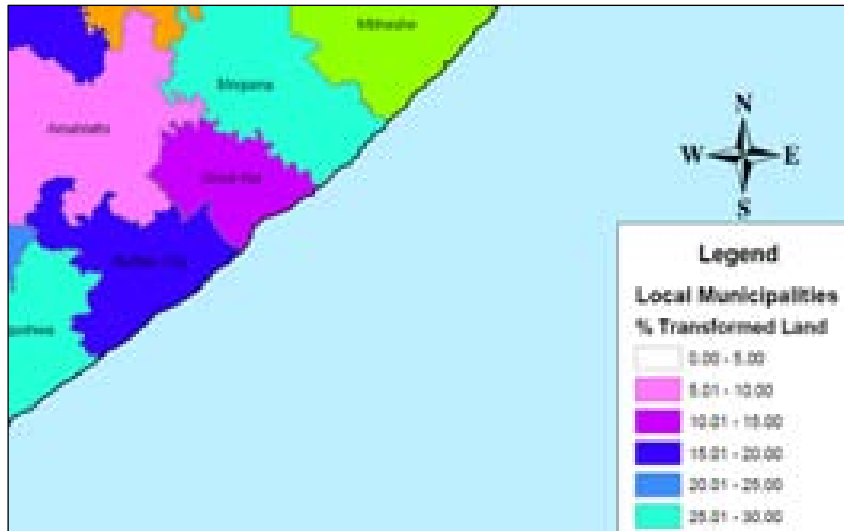


Figure 1: Transformation map (Eastern Cape State of Environment Report) Amahlathi Local Municipality has one of the least 'Transformed' land uses in the Province ranging between 5 – 10%.

- **Amahlathi Municipality State of Environment Report and Strategic Environmental Assessment**

The Amahlathi Strategic Environmental Assessment incorporates a situation analysis and state of environment report. The object of the report was to assess the environmental constraints and opportunities and determine appropriate land

use plan and programmes for the Amahlathi Local Municipality that would meet the criteria of ecological, social, economic and institutional sustainability.

Key environmental issues were summarised in the Amahlathi Municipality State of Environment Report.

- **Eastern Cape Biodiversity Conservation Plan (ECBCP)**

The ECBCP has at its core, a spatial representation of Critical Biodiversity Areas, and other areas in a near natural state. These form the basis for Biodiversity Land Management Classes, ranging from Natural to Transformed landscapes. Recommended land use objectives are defined for each Biodiversity Land Management Class. The ECBCP also defines biodiversity corridors, which are pathways of natural or near-natural landscapes for species to travel along between critical biodiversity areas.

Amahlathi LM falls within the planning domain of the ECBCP. The land management of the areas around Amabele (**see Plan 3B**) vary from 'Maintain as Natural', south of the Wiggleswade Dam, with some scattered functional landscapes (light blue) around Wiggleswade Dam and Plantations or Woodlots on either side of the N6 (brown), but the predominant recommended management with regards to land use options is given as 'Maintain near natural state' (Light green).

In addition, the ECBCP has determined the transformation of river systems and identified the level of future/further transformation each system can undergo before significant/irreversible damage is experienced within the water system. From the Map provided (**See Plan 3C**) it must be noted that river systems around Amabele can only withstand no more than 15% transformation of the river banks, and in more serious cases no more than 10% (dark orange).

- **Subtropical Thicket Ecosystem Programme (STEP)**

The aim of STEP was to assess regional biodiversity in the south-eastern Cape, with special emphasis on the indigenous vegetation type known as Thicket. It determined what biodiversity we will lose if we continue with unrestricted development and misuse of land.

This analysis resulted in the formulation of Mega Conservancy Networks, formed by corridors of land identified as requiring special consideration to ensure sustainability. Areas outside of the Network are also classified based on their conservation status, providing an indication of the need for protection to ensure the retention of biodiversity. Guidelines for appropriate development within the Network and outlying areas are provided.

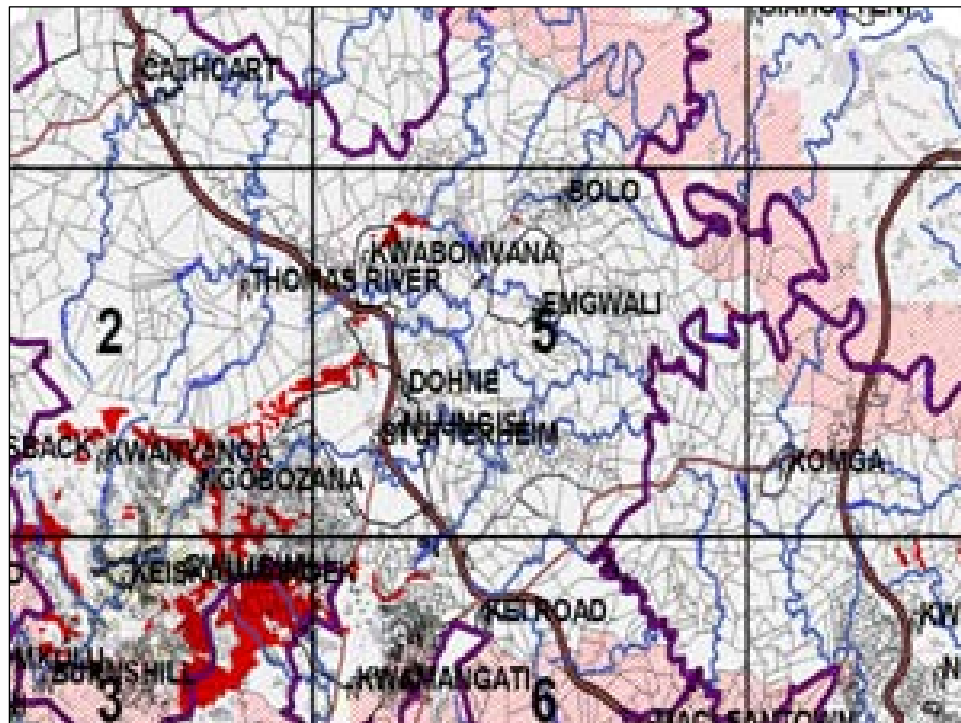
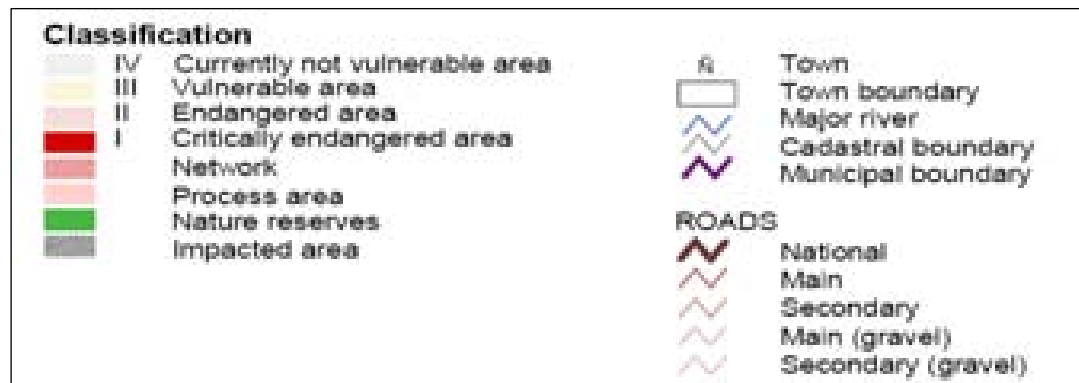


Figure 2: Step Analysis

STEP analysis of the current conservation status of land ranging from Cathcart-Kei Road in the north and south, and Keiskammahoek and Komga in the west and east, respectively. South African National Biodiversity Institute.



The SANBI vegetation map is the most comprehensive vegetation map in South Africa and incorporates accurate vegetation typing and their conservation values in order to identify key vegetation biomes that require protection from further developments, and to provide management options for different vegetation types. The SANBI map (see Plan 3D) derived for the study area (with Amabele as the focal point) shows that there are two vegetation types that meet at Amabele, namely: Bhisho Thornveld (coloured in Blue) and Amathole Montane Grassland. Amabele is positioned along the interface between these two vegetation types and may therefore consist of representative elements of both types.

Considering the vegetation ranging the extent of the 30km study site around Amabele it is evident that to the south-east of Kei Road is the start (head waters)

of the Nahoon River where the vegetation, Buffels Thicket, is considered vulnerable. In addition, Southern Mistbelt Forest and Buffels Thicket vegetation exists around Keiskammahoek area.

Eastern Cape State of Environmental Report

Some of the highest levels of Biodiversity are present in the study area primarily west of Stutterheim and South West towards Keiskammahoek (Figure 1). In addition this report highlighted that this area was one of the least physically transformed municipalities, which may explain why there exists such a good representation of species diversity in the area (Figure 2).

Amatole District Municipality State of Environment Report

The Amatole District Municipality State of Environment Report has highlighted the high plant species diversity in the district, particularly in the Amatola Mountain region, which can be considered, threatened. The SoER also states that the mosaic of different vegetation types contributes towards the high species diversity and that no single portion of the region can be “singled out as harbouring the majority of the species diversity”, but rather that it is spread throughout the district.

Amahlathi Integrated Development Plan (IDP)

Potential issues raised by the Amahlathi IDP for consideration in the long term planning of Biodiversity conservation include:

- High unemployment and the possibility of long-term employment through conservation initiatives.
- Due to a large contribution of private land to conservation (game farms), a stronger involvement of the private-sector is required in making conservation decisions.
- Human densities and lack of appropriate land use planning have resulted in negative impacts on the biodiversity (Thicket vegetation).
- The lack of government and organisation capacity to implement biodiversity strategies is adversely affecting biodiversity conservation planning and initiatives.

6.3 Economic Policy

The following policy documents of economic relevance are highlighted below:-

6.3.1 Amathole Regional Economic Development Strategy (AREDS)

AREDS argues that ‘high impact investment’ is central to growth, and lists five result areas:

- **Locality development** includes infrastructure, spatial development (including access and linkages), protection and development of the environmental assets, urban renewal, tourism facilities and even lifestyle facilities.
- **Sub-sectoral development** includes economic diversification, value chain development and business retention focused on the competitive advantage of the locality. For the AREDS urban development and development of the district outside East London have been linked under corridor developments to strengthen the integration of the economy and support value chain development across the district.
- **Public good investment** refers primarily to investment in land, the environment, economic assets, production facilities, machinery, equipment and other productive assets that are used by multiple stakeholders.

- **District venture capital fund** argues for access to investment funds that target the district, syndicate risk and that address the constraints of investors in the district.
- **Stimulate new sectors** building on the advantages of the district by stimulating a diversity of sectors to see which find champions and investors.

This AREDS locality-based approach is clearly being followed in the Amabele SDP which emphasizes three elements, namely:

- Economic linkages to the district;
- Economic linkages to the N6 corridor;
- The development of Amabele as a node on the N6 corridor.

6.3.2 Amahlathi Integrated Development Plan and Local economic Development

The Amahlathi IDP focuses on the sub-sectors with competitive advantage that were identified in the previous section stating that ‘focus areas include facilitating sectoral growth in tourism, local manufacturing, agriculture and forestry’.

6.3.3 Amathole District Municipality Land Reform and Settlement Framework (LRSF)

The Amathole District Municipality Land Reform and Settlement identifies three areas that are close to Amabele for densification and formalisation of settlement, being:

- **The Yellowwoods – Kei Road** area, which is already subject to a land settlement plan designed in 2001 through community consultation;
- **Mgwali village**, but it is also noted that ‘careful local planning is imperative in the area due to the prime commercial agricultural activities in the vicinity of this zone’.
- **Stutterheim** is also recommended for infill development, but it is also noted that ‘this area may be better suited to accommodate the settlement and land needs of communities originally earmarked for settlements within Mgwali’.

6.3.4 Amahlathi Spatial Development Framework

Amahlathi SDF sets out zones for land use planning in some detail, attaching a series of maps that also locate land and zones of potential as follows:

- The SDF identifies **8 102 ha** of ‘good’ and **26 396 ha** of ‘moderate’ **commercial forestry potential**, with a total of **34 498 ha**. Most of this land is close to existing forest plantations between Stutterheim and Keiskammahoek, but includes **land to the south-west of Amabele village** between the N6 and the Stutterheim-King Williams Town road;
- The SDF repeats the emphasis of the Amathole LRSF on the need to strongly safeguard agricultural land and natural resources against urban settlement, with an emphasis on urban settlement moving ‘inwards’ for infill development;
- The **R352 Keiskammahoek-Stutterheim-Tsomo** road is identified as a high priority for all-weather surfacing to promote socio-economic development. This road has been included as a priority in the provincial roads plan for many years. The provincial Department of Roads and Transport states that, as of late August 2008, a design tender for the Stutterheim-Kei River portion of this

road has just closed. They estimate that this portion of the road will therefore be tarred in 2010/11, availability of funds permitting;

- The SDF identifies **small areas of irrigable land** on the **Toise and Kubusie rivers** in the vicinity of Mgwali, an area that is very **close to the Thornhill Farm** site that will be the core farm for the blueberries project. Some of this land is also subject to land claims. This irrigable land has **potential to form part of the blueberries expansion programme**, and can be farmed by emerging black farmers providing blueberries as outgrowers to the core project. It is vital that this land is safeguarded against peri-urban development with the planned tarring of the road through Mgwali.

6.3.5 Amathole District Tourism Strategy

The tourism industry is a significant contributor to the South African economy. It is a main source of income in both the formal and informal economic sectors and can stimulate economic growth through GDP, job creation and poverty alleviation.

The Amathole district is linked to six major tourism regions in the province namely, Wild Coast, **Friendly N6**, Amathole, Sunshine Coast and country, Karoo heartland and Tsitsikama. A portion of these four regions lie in Amathole district. Tourism opportunities in the district lie in eco-tourism, culture, history and heritage. The district tourism sector is believed to contribute about 26% to the province. The ADM tourism situational analysis revealed that the geographical positioning of the district has a very appealing strength for domestic tourism both within and outside the Eastern Cape.

The ADM IDP Review proposes a more proactive approach towards tourism development in the region which can lead to job creation, economic growth and industry transformation which can be achieved through:

- Increased visitor numbers, spending and length of stay,
- Improved private sector investment in the tourism products, and small enterprise development,
- Responsible development of tourism that is commercially viable, environmentally conscious and culturally sensitive, and
- The creation of a safe and secure environment for tourists.

A strategic framework has been developed in order for the district municipality to start delivering and reaching its strategic objectives. These strategies include:

- a tourism spatial and support infrastructure strategy;
- tourism product development and investment strategy overview;
- SMME development and transformation strategy;
- a tourism marketing model;
- Institutional framework.

A heritage resource management strategy is in place 'to safeguard the available heritage resources in the district for present and future generations and to give direction to the district municipality and its local municipalities with regard to heritage resources management.' Identified heritage programmes include:

- Capacitating of local municipalities to enable them to deal with grade 111 heritage resources. A budget of R100 000 per annum is set aside for such activities.
- Grading, development of heritage sites and improvement of heritage infrastructure in identified sites.

- Promotion and marketing of heritage and control formulation of cultural villages, museum, gardens of remembrance and walls of fame.

A further significant initiative by the ADM which could benefit Amabele relates to the proposed Amathole Biosphere which is conceptually proposed to extend from Stutterheim area westwards along the Amathole mountains towards the Nkonkobe range.

6.3.6 Amahlathi Local Municipality Tourism Strategy

The Amahlathi local municipality IDP (2007/2008) tourism development objective is “to increase the number of tourists coming into the area by 10% in 2008”; highlighting heritage and craft objective of “preserving culture, history and uncover hidden talents through craft.” Both the local municipality IDP’s and spatial development framework (SDF) list a number of tourism projects for future tourism development and infrastructure programmes that will enhance tourism and to achieve the tourism objectives.

The spatial development framework adopted in 2006 identified six tourism development zones in Amahlathi (**Refer to Tourism Plan in Appendix**):

- **Zone 1:** this area includes Kologha forest and Amatola mountain range escarpment with eco and nature tourism potential. The fauna, flora and landscape of the area provides a number of tourism opportunities such as Amathole hiking trails, mountain bike, horse and walking trails, 4x4 trails, cape parrot conservation, canopy tours, Gubu dam for water sports, fishing, camping and picnic sites.
- **Zone 2:** Keiskammahoek and surrounding areas which have a huge potential for cultural, history and heritage potential. Many historical buildings and forts are located in the region e.g. St Matthews mission, Castle Eyre, Fort Eyre, Chief Ngqika’s grave at Ntabakandoda, etc.
- **Zone 3:** Elukhanyisweni and surrounding area which is suitable for cultural and historical tourism.
- **Zone 4:** South Eastern section of Amahlathi for ecotourism potential due to its eye-catching landscape and environmental elements which give the potential for game farming in the region. This tourism zone also includes a number of tourism destinations such as Wriggleswade dam for sport and recreational tourism, Wartburg falls, Rock painting at Cowsmead and Bulls Run PP and cultural village at Mgwali.
- **Zone 5:** Thomas river conservancy for eco and nature tourism potential. There are 31000 ha of available farmland for conservation and recreation. Tourism products include walking trails, horse trails, mountain biking trails, fishing, hunting, farm stay, bird watching and game viewing. The historical village of Thomas River has also been restored providing a restaurant and accommodation.
- **Zone 6:** Cathcart area for eco and cultural tourism. There are a number of historical buildings and cultural sites in surrounding Cathcart such as Old Railway shed, town hall, Elliot’s building, Standard Bank and the Kenya cottages with Windvogel post and the Goshen Bushmen painting on the outskirts. Eco-tourism opportunities include walks, mountain bike trails and to establish a municipal nature reserve.

- **Amahlathi IDP Tourism Projects 2007-2012**

There are a number of tourism projects being implemented in the Amahlathi municipality together with road infrastructure programmes that will have a positive contribution to tourism development of the local municipality by providing access to the available products in the area.

- **Government Departments' Tourism Initiatives**

There are some programmes which are government initiatives which add value to the tourism programmes in the local municipality area. Some programmes are not tourism specific programmes; nonetheless, they have a direct and indirect role in tourism development of the area:

- **Tyelela Meander Projects**

The Tyelela Meander Project has drawn together a wide range of proposed tourism-based activities in the Stutterheim region. All these projects are funded by Thina Sinako and are as indicated below:

Signage Project (Amahlathi)	Boating at Wriggleswade Dam (Wriggleswade Dam)
Marketing Strategy (Amahlathi)	Hornbill Fairy Trail (Kolugha Forest)
Mountain Bike Hire & Guiding (Gubu Dam)	Boardwalk in Kologha Forest (Kolugha Forest)
Canoeing & Floating Camp (Gubu Dam)	Purely Embroidery (Stutterheim)
Archery : Training & Recreation (Forest Way)	Hillside Horse Trails (Koluga Forest)
Climbing Wall (Forest Way)	Art Academy (Koluga Forest)
Bouldering Site (Kolugha Forest)	Eco Ride Tours (spread throughout Amahlathi Municipality)
Rock Bolting (Kolugha Forest)	Mgwali Cultural Village (Mgwali)
Clearance of Forest Paths (Kolugha Forest)	Engine Museum (Stutterheim)
Bauer Art Workshop (Kolugha Forest)	

- The 'Thornhill Farm' and Amabele Village are situated in close proximity and adjacent to respectively, the branded "Friendly N6" Tourism Route with the Local and District Municipality;
- The Amabele Village and 'Thornhill Farm' falls within an area identified by the Local Municipality as future Eco-tourism potential due to its eye-catching landscape and environmental elements;
- Wriggleswade Dam, en route to the Thornhill Farm has the potential to be developed into a vibrant sport and recreational tourism location, if developed accordingly;
- Thomas River Conservancy which is also in close proximity to the 'Thornhill Farm' is an established conservancy and eco-tourism product, which has harnessed the natural potential of the area;
- Cathcart, Amathole Mountain Range, Komgha Forest and the Sandile Route have products (existing and proposed) which provide an opportunity for the tourism developments to be integrated into an established and growing tourism network in the area.

The Amahlathi Tourism Strategy gives a very strong emphasis to natural resource based tourism in the area. Its proposed vision for **Amahlathi** is to be the '**Best and most authentic Eco-Adventure Tourism Destination in South Africa**'. It also argues that 'the icon offering is most likely to be the mountain, forest & wetland combination in Stutterheim'. This therefore further reinforces the need for

the protection of natural resources in the area, with the establishment of new protected areas, and with the promotion of natural resource based enterprises from this base.

6.3.7 Eastern Cape Rail-Based Tourism

ECDC has funded a pre-feasibility study into Rail-Based Tourism in the province which identifies rail corridors with high tourism potential. It includes an assessment of the tourism potential of the rail link between Mthatha and East London, recommending that ‘the viability of the Amabele–Mthatha further recommends investigating the ‘feasibility of the manufacturing and production of light-weight diesel-powered rail cars for use on rural branch lines’. These cars could potentially be used as transport to take workers from Amabele and Kei Road villages to the blueberry farm.

7. SITUATION ANALYSIS

7.1 Demographic Socio-economic and Physical Characteristics

7.1.1 Population

Of the estimated total population of 140 000 people in the Amahlathi municipal area, some 80% live in rural areas, mostly villages. The average household size is 4.9 persons per household. There are some 34,899 households.

The distribution of people residing in the municipal area varies widely according to the land use and position of settlements. The highest densities are to be found in the eastern sector of the rural areas around the town of Tsomo. A further settlement concentration is to be found in the Keiskammahoek area.

The Integrated Development Plan (2007/08 – 2011/2012) highlights considerable concern that the official population estimates are believed to be lower than the Municipal estimates. The population in Amahlathi is expected to continue to change significantly over the next 5 to 10 years as a result of the HIV and Aids pandemic. According to the IDP, there is expected to be a decrease in productivity and a high turnover of trained and experienced members of the labour force. The HIV and Aids pandemic will also influence consumer patterns, the level

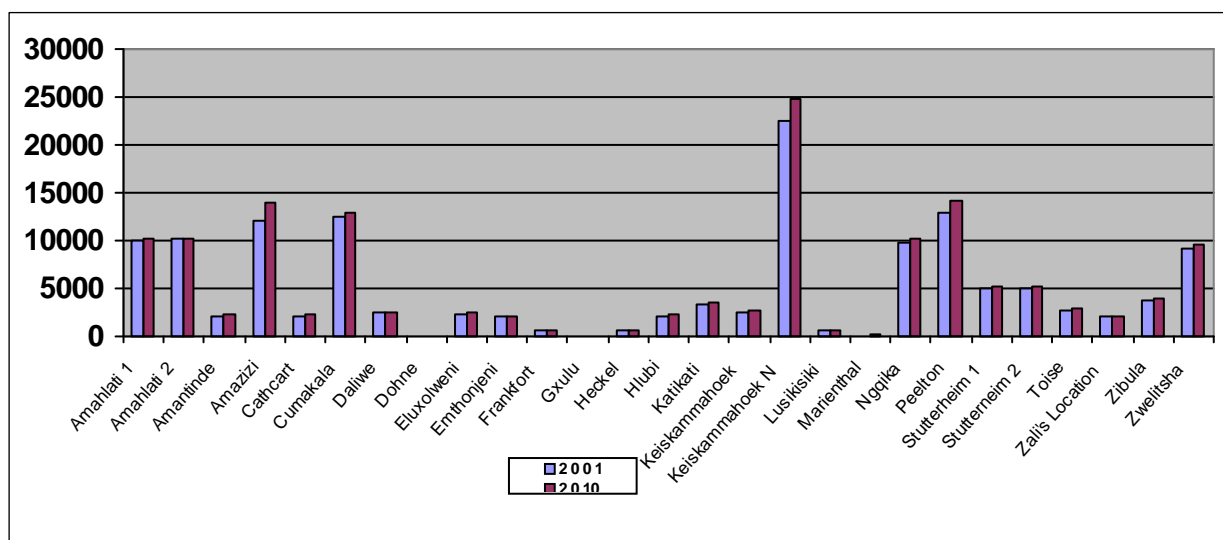


Figure 3: Population

of disposable income and demand for housing, old age homes, orphanages and frail care facilities.

The town of Stutterheim is attracting more people to live there due to the pleasant climate and the lower cost of living compared to the city. A number of elderly and middle income people retire to the town. It is also a popular town for people who commute to the city each day. In the rural areas, there are a number of agricultural programmes, reinstatement of land ownership, survey of villages, assistance with ploughing of fields and formal tenure programmes. These are resulting in a change in population distribution and the construction of more rural homes in certain areas.

Amabele Village has a very small population, estimated at some 250 people. The adjacent four villages falling under the description Ndakana, are understood to house some 8000 people.

The population of Amahlathi Municipality exhibits the socio-economic characteristics of large scale and widespread poverty. The population has a typical age and gender distribution of the province with over 50% under the age of 20 years.

- **Population Growth**

The HIV/Aids epidemic is projected to reduce the current population growth rate from 1.5% to 0.95% by 2010.

- **Age Structure**

50% of the population are children (under 20years). In some wards this figure is as high as 60%. The high number of children and youth has implications for the kinds of facilities that are required, including education facilities, sports facilities, day care facilities, etc.

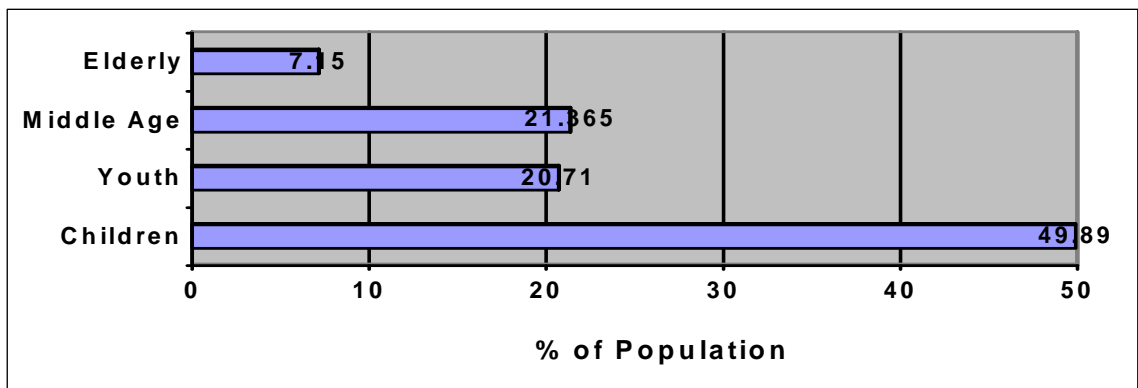


Figure 4: Age Distribution of Amahlathi LM (Source: Census 2001)

- **Gender Disparity**

47% of the population is male and 53% female. This is in line with the historical phenomenon of male worker migrancy or commuterism. 40% of households are headed by women.

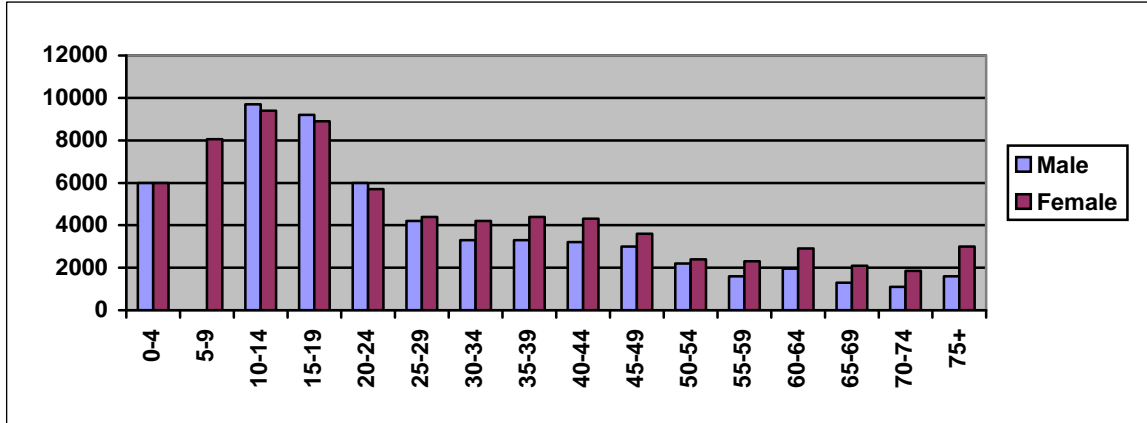


Figure 5: Population by Age and Gender - Amahlathi Municipality (Source: Census 2001)

7.1.2 Socio-Economic Attributes

- **Education and Literacy**

16% of the population is illiterate. Only 27.32% of the population has secondary education or higher.

- **Employment**

Only 17% of the potentially economically active population are employed (SSA, 2001 Census), although only 23% of the population are actively seeking employment. This suggests a relatively low participation rate in the local economy.

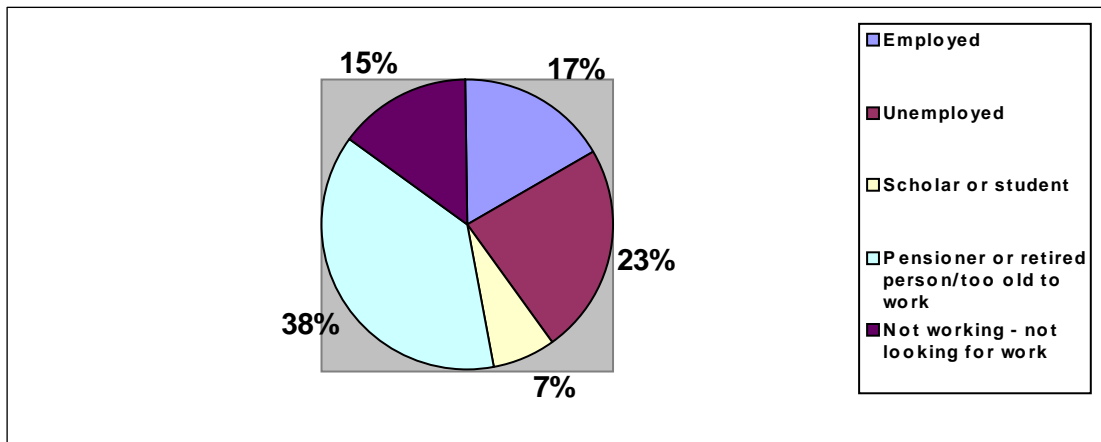


Figure 6: Employment Status of Potential Workforce - Amahlathi Municipality (Source: Census 2001)

- **Levels of Dependency**

The number of people dependent on economically active individuals is approximately 9 people dependent on each economically active individual.

Economically Dependent		Economically Independent	Economic Dependency Ratio
Age Dependent	Unemployed and not actively looking for work	Employed	
58127	66860	14033	8.907

Figure 7: Economic Dependency Ratio - Amahlathi Municipality (Source: Census 2001)

- **Income**

Income levels are very low. Over 86% of households earn less than R1 600 per month. The residents of these households should be regarded as living below the Household Subsistence Level. Alleviation of large scale poverty is therefore a key priority area.

- **Key Economic Sectors**

The most notable economic sectors are the Community, Social and Personal Services sector (26%) and the Agriculture, Hunting, Forestry and Fishing sector (23%). Unfortunately, the data available does not distinguish Tourism as a separate sector.

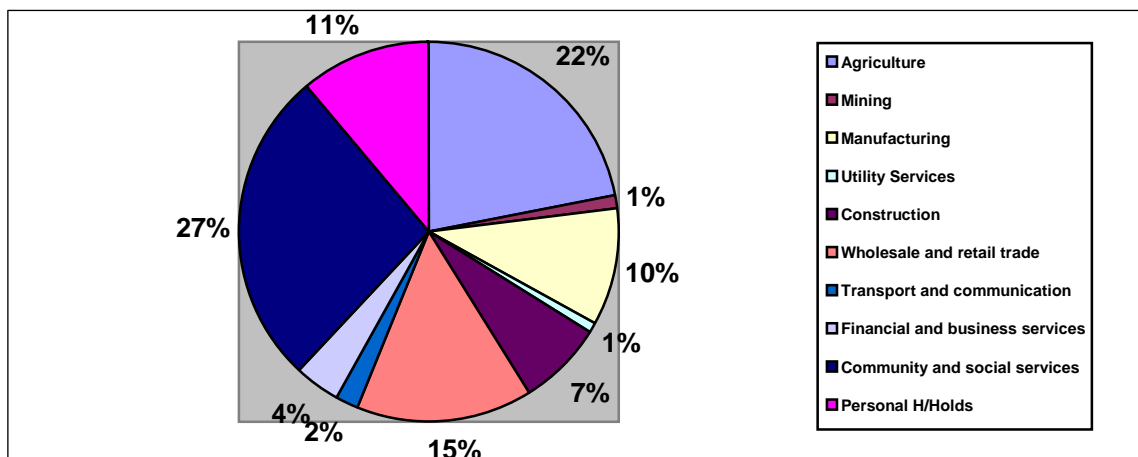


Figure 8: Employment per Economic Sector – Amahlathi LM (Source: Census, 2001)

Key economic opportunities lie in the Tourism, Forestry and Agriculture industries. These include: eco-tourism; forestry and timber; game farms (hunting); agri-villages aimed at assisting farm workers; small manufacturing processes (especially where focused on processing local produce).

7.1.3 Land Ownership

At the overall municipal scale, over 66% of the land is held in private ownership, with the state being the next largest land owner in the area (6.81%) followed by Amathole District Municipality (0.37%). A land ownership map may be referred to in the appendices.

The ownership of 100 685 hectares (23.5%) is unaccounted for. Most of these properties fall within the former Transkei or Ciskei regions and most, it is assumed, would be deemed to be state owned land.

Consequently, this lack of ownership information most probably relates to so-called unregistered state land, much of which may be seen as land defacto belonging to traditional African communities. However, the lack of clarity and information in this regard is seen to create difficulties in the planning and development process.

A large portion of the farms within the Municipal Area, predominantly to the north-west and the eastern portion are privately owned. The Thornhill Farm is privately owned for the Amathole Berries Project.

7.1.4 Amabele Land ownership

At a Local Municipal scale, over 64% of the land is held in private ownership, Government (State Owned) makes up 2%, Private Companies (Businesses) make up 6%, Transnet make up 5 % and of the research which was completed with the deeds office 23% of properties have not been registered (Refer to plan 4 in the appendices).

The ownership of 100 685 hectares (23.5%) is not registered in the Deeds Office. Most of these properties fall within the former Transkei or Ciskei regions and is registered with the South African Development Trust (as such the land is accordingly State owned).

A large portion of the farms within the Municipal Area, predominantly to the north-west and the eastern portion are privately owned. The Thornhill Farm is privately owned by the Amathole Berries Project.

The Amabele Village / Station is under the ownership of Transnet / Propnet and the homes were initially built for the purposes of employees living in close proximity to their place of employment, Amabele Station.

During Phase 1 of the *ALSDF*, a property search was completed for the Amabele Village, Wriggleswade Dam and Kei Road to determine the extent of land ownership within the primary study area.

The pie chart below provides an analysis of the different land owners within the Amabele area.

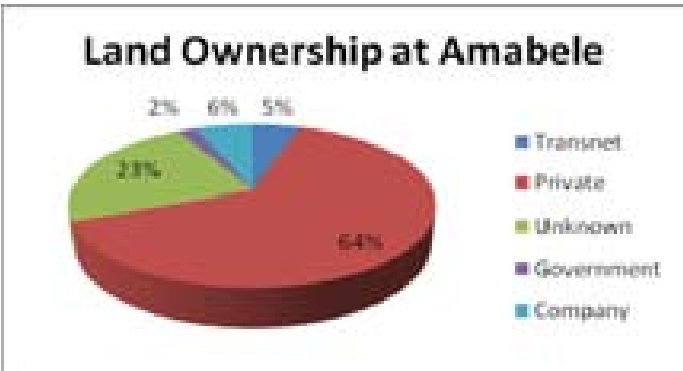


Figure 9: Land Ownership at Amabele

There are large tracts of vacant land to the North, between Amabele Village and the N6 which is suitable for expansion of the village to accommodate growth. Amabele itself has sufficient land for expansion and to allow for different land uses to work in synergy with each other.

7.1.5 Wiggleswade Dam

A Land Investigation Study completed for the Wiggleswade Dam area (**Plan no. 5**), depicts, close up, the land owned by the Department of Water Affairs (DWA), which is under control and management of the Amathole Water Board. There are many stakeholders who have an interest in the Wiggleswade Dam and who also play various roles and have different responsibilities. The following is a synopsis and analysis of the various stakeholders:-

Institution	Role
Department of Water Affairs	Land Owners
Amatola Water Board	Manage & Operates the release of water
Kubusi Irrigation Board	Managing authority overseeing Water Allocations
Stutterheim Aquatic Club	Manage the surface of dam and land to the DWA boundary
Private Farmers	Use water for Irrigation purposes

Figure 10: Wiggleswade stakeholders

The Department of Water Affairs (*DWA*) has indicated that they are the owners of the dam. DWA is also responsible for the management of the land around the dam, which is state land and under the custodianship of the Department of Public Works. DWA's **National Water Resource Infrastructure Management (NWRIM)** department indicated that for any proposed development to take place, a **Resource Management Plan (RMP)** will have to be generated. A *RMP* is generated to depict what can be done on the dam and how it will be managed. DWA will be responsible to procure the relevant professionals for the RMP and will manage the generation of the plan. As a result of previous plans created, *Private Public Partnership's (PPP's)* will be promoted and a special purpose vehicle will be established to manage/run this process.

The Stutterheim Aquatic Club (SAC) has a short term lease on the Wiggleswade Dam and manages the surface of the dam and the land surrounding the dam. Of the 25 year lease 24 years of the lease has lapsed and the SAC have indicated that they have been given a verbal agreement that the lease will be extended for another five years. DWA has indicated that they will strongly advise against the renewal of the lease until a Resource Management Plan (RMP) is generated and will allow the lease to be renewed on a year to year basis until then. However should the lease not be renewed, DWA will retain ownership of all structures established. DWA has indicated that they will not permit any development on the Dam until a RMP is generated.

7.1.6 Ndakana

The Ndakana community residing on Farm 570 to the west of the Amabele Village is situated on land owned by the South African Development Trust and part of the previous Ciskei Government.

The Department of Land Affairs (DLA) is currently busy with an **Area Based Plan**, which looks at all land parcels within all Local Municipalities and then determines their optimal land use potential. DLA will then approach various Provincial Departments to take ownership of the land as the land will have potential in a specific sector, which is the primary focus of that particular Department e.g. if the

land has forestry potential, then the land should be under the control of Department of Forestry.

The Department of Housing are currently funding the formalisation of a portion of the Ndakana settlement for 342 households in terms of the Amahlathi Housing Sector Plan.

7.2 Land Use

7.2.1 General Amahlathi area

Amahlathi Local municipality is the largest local municipality in the District with a land area of 4,555 square kilometres. Amahlathi has a relatively small population for the size of land, therefore a relatively low population density. The region is rich in nature and natural features such as waterfalls, dams and forests, provide the perfect environment for eco –adventure tourism activities.

An overall view of broad land uses in the Amahlathi area indicates the following:-

- The majority of the land surface of the municipal area is comprised of:
 - Unimproved grassland (54%)
 - Thicket and Bushland (26%)
- The abovementioned land covers (grassland, thicket and bushland) indicate the potential for livestock and game farming in the agricultural economy of the area.
- Approximately 8.97% of the surface area comprises forest, or forest plantations.
- Land upon which urban development and/or human settlements have been developed comprises only 1.15% of the total land area, which is indicative of a low-density settlement pattern. This emphasises the opportunity presented now by ensuring that future development is undertaken in an environmentally friendly manner, so securing the greatest asset of the area for future generations.
- Finally, of concern is the fact that, whilst only some 5.7% of the total land area is classified as degraded/eroded, the majority of this area falls within the rural settlement areas of the former Transkei and Ciskei.

This is indicative of:

- An imbalance between the resident population and the available land resource; and/or
- Inefficient land management practices in regard to agricultural activities. In this instance, it is likely that overstocking and overgrazing is largely responsible for the condition of the land.

In terms of looking at the Primary Study Area, a number of Land Use Studies were completed for Amabele Village / Station, Kei Road and Wriggleswade Dam. These are discussed below and depicted on the following photo pages.

7.2.2 Amabele Village / Station

Amabele is accessed from the National Road (N6) which leads traffic from East London to Stutterheim and further north. At the centre of the Village is a railway line which is currently being upgraded by Spoornet – this is an initiative by the Department of Transport to introduce alternative means of transport. Amabele Village is completely surrounded by agricultural land to the east, south and

northerly direction. The agricultural parcels of land are generally privately owned and are the main source of employment in the area. (See Plan No. 4).

Amabele consists of predominantly residential land uses to the north and south easterly direction of the railway station. Some of the 25 odd houses have also mixed use activities in operation relating to wood products, spaza shops and vehicle maintenance. An office building is situated directly opposite the station and there are various infrastructure installations, including a telecommunications tower, high water tower and water storage tank.

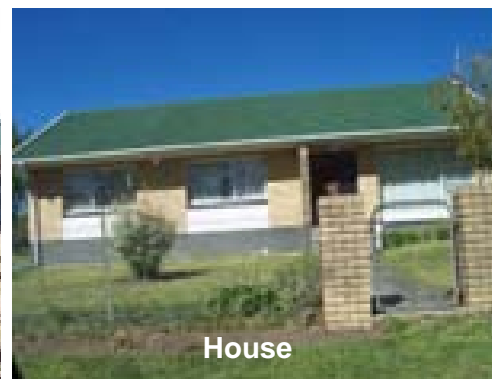
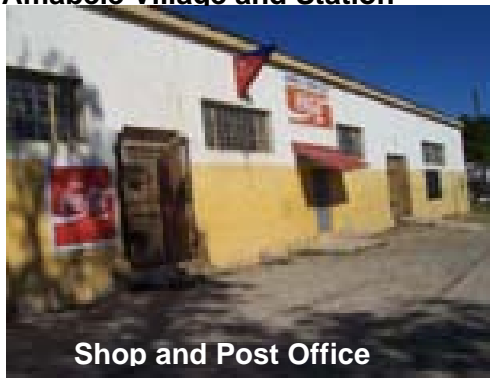
A Pole Treatment Plant is located in close proximity to the station in the westerly direction, and a sawmill is located to the east of the railway line. These mills process timber from plantations situated in the hinterland. Wood and poles are transported from the Treatment Plant to other areas for processing and manufacturing of furniture, timber construction and other wood products.

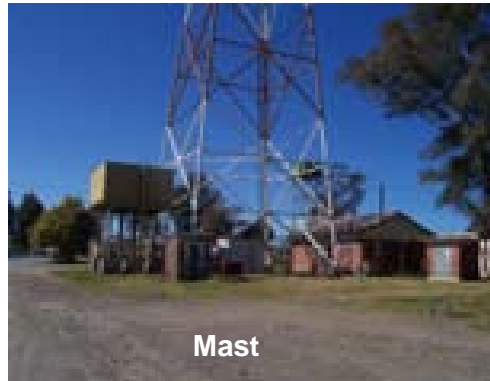
Toward the N6, to south-west of Amabele Station, is a mushrooming informal settlement and a number of vandalized old buildings. There are limited business land uses in the area, as there is only one shop which is in need of upgrading.

The community of Amabele Village has access to medical care through a clinic, situated in a westerly direction, adjacent to the access road leading to the Village. The clinic is in urgent need of upgrading. In between the land uses at Amabele Village are pieces of vacant land which are suitable for further development.

The families residing on the far eastern side of the station find it difficult to cross over the rail to shops, visit the clinic and go to work. Accidents with pedestrians, pets, livestock and trains are a problem.

Amabele Village and Station





7.2.3 Ndakana Village

There are four villages called Fresh Water, Stanhope, New Jersey and Nkuleleko Villages, falling under the area described as Ndakana. These are rural settlements having a low development density with large properties and small underdeveloped residential homes. The Amahlathi Housing Sector Plan indicates that there are some 1300 residential sites in these villages.

7.2.4 Kei Road

Kei Road, situated closer to East London, is a bit larger than Amabele and the majority of the sites are utilised for residential purposes. The community of Kei Road has access to the following uses:-

- 5 Business sites (shops);
- 3 Church sites;
- 2 Schools;
- 21 Sports facilities for recreation; and
- 5 Community Facilities.

The above land uses are clustered mainly along the main road, in close proximity to the R63 intersection that leads traffic into and out of Kei Road. The majority of sporting facilities are situated in the residential area and towards the north-east of Kei Road, adjacent to educational land uses (**See Plan No. 7**). Kei Road predominantly consists of Residential land uses.

7.2.5 Wiggleswade Dam

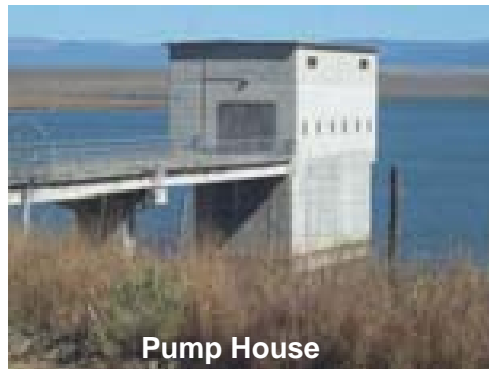
Wiggleswade Dam is a growing tourist destination. Along the dam there are number of land uses related to tourism, such as camping facilities, chalets, fishing sites, viewing sites and other recreational facilities. The land adjacent to

Wriggleswade Dam is however; predominantly agricultural land mainly under government ownership and some by private owners (**See Plan No. 8**) In order to cater for the tourism growth in the area, the existing facilities will need to be upgraded and additional facilities would need to be created / established.

Wriggleswade Dam



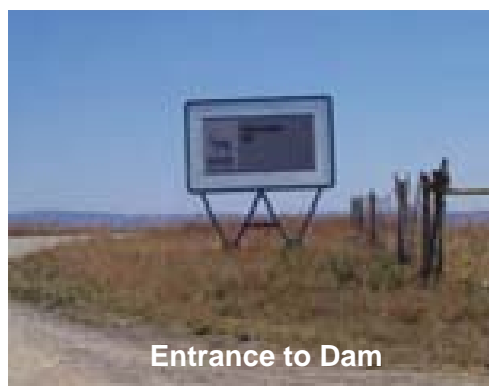
View of Amathole Clubhouse



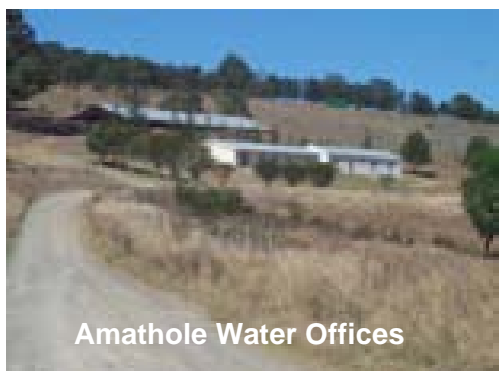
Pump House



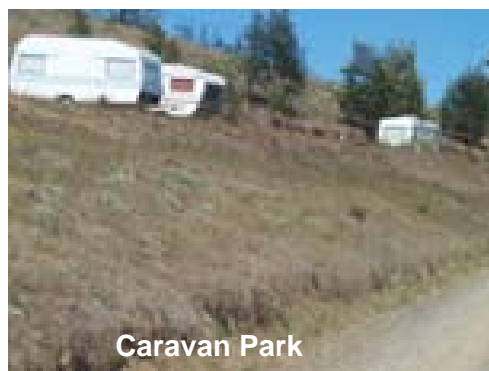
Entrance to Wriggleswade Dam



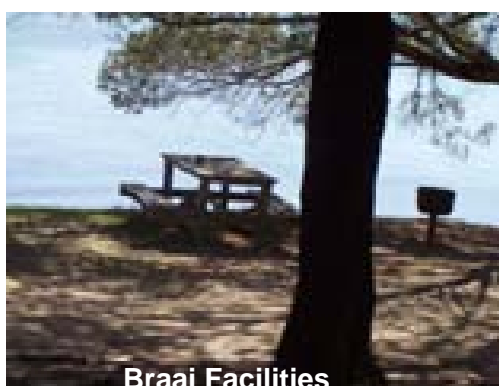
Entrance to Dam



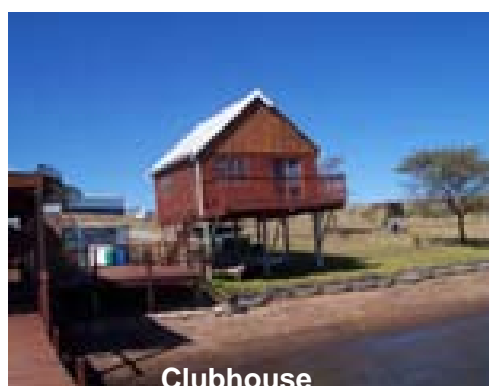
Amathole Water Offices



Caravan Park



Braai Facilities



Clubhouse

7.2.6 Land Claims

According to the Department of Land Affairs data, there are farms identified for land reform in the district. However, according to correspondence with the Regional Land Claims Commissioner, properties situated immediately adjacent to Amabele do not appear to be under claim. However, individual project initiatives need to validate such information before embarking on development.

7.3 Tourism Analysis

In terms of analysing Tourism in the area, the different tourism routes which traverse the area were assessed. Consultation with the Eastern Cape Tourism Board (ECTB) provided detail in terms of the existing product owners in existence in the area, as well as the nature of tourism statistics provided by the Department of Economic Affairs and Tourism.

7.3.1 Tourism Characteristics

- **Accommodation products:-**

According to the ADM Tourism Master Plan situational analysis, there are 350 established accommodation product owners in the district, of which there are 40 established accommodation outlets in Amahlathi. This would mean that Amahlathi offers almost 10% of the available accommodation in the Amathole District. Amahlathi is the 3rd biggest contributor in the district compared to Buffalo city (176) and Nkonkobe (71). Based on these projections 32.5% of these accommodations are located in Stutterheim with only 5% in Keiskammahoek with the rest being shared between Cathcart and Thomas River.

Most of the available accommodation is in the form of B & B's (43%), guest houses, farm stays, hotels, backpackers, lodges, etc which are mostly 3 star rated. There is a lack of hotels and there are no 4-5 star facilities, which results in the majority of the accommodation being lower priced accommodations due to lack of good quality services. Although cheaper accommodation is an advantage for the area, lack of high quality accommodation results in loss of share of the sophisticated upper class market. Black owned businesses and establishments are under represented. There are few community based initiatives which have started at Chata, Zingcuka, Mgwali and Keiskammahoek which aim to address these issues.

- **Outdoor, adventure and sport products**

Reports show that the district has 15 types of outdoor, sport and adventure products with a total number of 322. These include hiking trails, birding, horse riding, fishing, boating, etc. The first three dominating activities in the district are hiking trails, birding and horse riding. With 39 different products Amahlathi offers 12% of the total number of products in the district compared to Great Kei (84) with 26% and Buffalo City (81) with 25%.

- **Culture, history and heritage products**

Amathole region has 247 culture, history and heritage products with 3 main areas of location being Nkonkobe 32% (78), Buffalo City 19% (48) and Amahlathi with 17% (43). In Amahlathi these products comprise 25 crafters, of which 60% (15) of them are located in Stutterheim. Almost 80% of the cultural, historical and heritage products relate to monuments, followed by culture and tradition, and museums. It is argued that although there are a large number of these products in

the district, accessibility is a serious challenge due to poor road infrastructure and poor signage in some areas. However, signage is currently being improved.

- **Food & beverage, specialized shopping and entertainment**

There are 284 identified food beverage, specialized shopping and entertainment products in the district. Only 7% (21) products are found in Amahlathi with 58% (164) products in Buffalo City and 9% (26) in Great Kei. Reports show that the majority of these products are food and beverage (50%) followed by specialized shopping (37%) and entertainment (13%). This shows a weak product development in comparison to Buffalo City which is made up of many shopping complexes, restaurants and hotels compared to the municipalities that are made up of small town with limited resources.

- **Origin of tourists, reasons for visit and length of stay**

From the interviews and questionnaires it was highlighted that most people who visit the area are not tourists per se, but mainly come for business reasons, specific functions such as tournaments, weddings, etc, researchers and people who pass by to Johannesburg or East London. Although there are not many tourists in the area, holiday makers particularly families or young couples, do come for weekends and Easter holidays, education tourists and foreign tourists. A large number of foreign tourists in the area originate from Germany, Belgium, England, Australia and Zimbabwe. The foreign tourists are mainly holiday makers who stay on average 1-3 days although some stay for a week. Domestic tourists who stay overnight originate from Eastern Cape mainly Port Elizabeth, Gauteng and other provinces. Although East Londoners visit the area, most of them do not stay overnight. Domestic holiday makers stay 1-2 days on average, although some stay a week and those who stay for a day are mainly staying over night as a stop over between their tourism destinations, compared to the Eastern Cape in general, the Amahlathi area also gets large numbers of domestic tourists who visit friends and families, followed by leisure visits and business visits with few health and religious visits.

7.3.2 Tourism Attractions

The Amahlathi area is blessed by an abundant natural beauty of its surrounding dams, hills, indigenous forests, farmland and forestry areas. Stutterheim is perfect for hiking, mountain biking, boating, fishing, bird watching and camping. The Wriggleswade Dam in particular is popular for boating, fishing and swimming.

The Amahlathi region boasts:

- The combination of mountains, natural forests and wetland;
- N6 National Road that traverses the Municipality;
- The history of the “frontier wars”;
- The unique habitat of five rare and endangered species creatively named as the “Invisible Five”;
- An abundance of natural and man made water bodies.

Amahlathi key areas of Tourism focus:

- Indigenous forests in the Toise area including the Amathole hiking trail;
- Wartburg Falls in the Toise area;
- Rock art sites around Cathcart and Lujilo;
- Craft Mania 3 day event.

Other tourism products and attractions available include:

- **Amathole Heritage Route**

The Amathole region has significant heritage attractions linked to the various layers of history relating to the San, Khoi, Xhosa, English, Afrikaans and German settlers and the liberation struggle in more recent times. A significant part of this history relates to the 100 years “Frontier Wars” which involved a number of historical incidents, confrontations and battles in the Amathole region. As a consequence of this, there are a large number of sites, buildings and monuments which bear witness to the struggle engaged between the people of the region, resulting in a uniquely rich heritage tourism offering. The Amathole District Municipality (ADM) Heritage Initiative Business Plan proposed four heritage tourism routes comprising 4 routes and incorporating 8 Local Municipalities.

The four routes were the Maqoma Route, Phalo Route, Makana Route and the Sandile Route, which includes the towns of King Williams Town, Stutterheim, Cathcart, Keiskammahoek, Dimbaza, and Middledrift.

The following Tourism/Heritage sites are within an easy drive from these towns:

- *King Williams Town*
 - Cattle Killing Mass Graves
 - Lumphondweni Village
 - Bhisho Massacre Memorial
 - Mnqesha Great Place
 - Steve Biko Garden of Remembrance
 - Main Visitor Information Centre which has an interactive Digital Atlas of the completed 4 routes and a 20m tapestry made by the local community depicting the heritage of the route.
 - Bethel Mission
 - Dohne Family grave
- *Stutterheim*
 - Gangers Fortified Cottage
- *Keiskammahoek*
 - Boma Pass
 - Main Visitor Information Centre where there is an interactive Digital Atlas of the completed 4 routes
 - Burnshill Massacre
 - St. Matthews Mission
 - Amathole Hiking Trail
 - Castle Eyre
- *Middledrift*
 - Chief Kama’s grave
 - Anne Shaw Mission
 - Jabavu House
 - Fort White
- *Frankfort*
 - German graves

The entire Sandile route is signposted and brochures are available from the Visitor Information Centres.

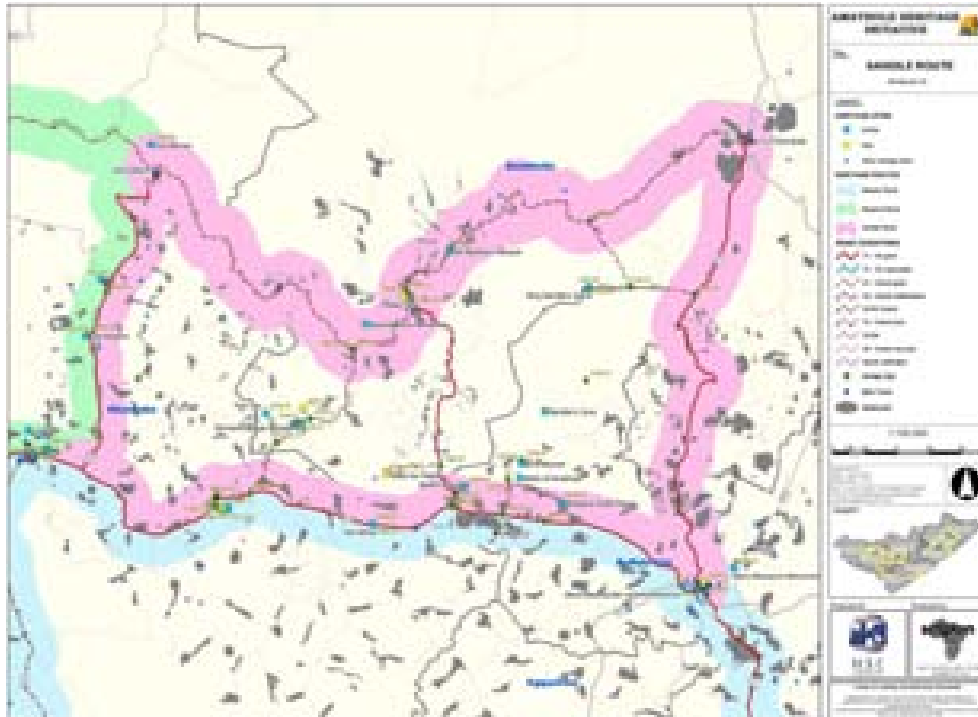


Figure 11: Amathole Sandile Heritage Route

- **The Friendly N6 Route**

The Friendly N6 Route traverses the Amahlathi Municipality of the Eastern Cape and is the preferred route northwards to Bloemfontein from East London. It proceeds through Stutterheim, Cathcart, Queenstown and finally Aliwal North. The route within the Amathole District Municipality's jurisdiction ends at Cathcart and there is certainly enough to contain several days of sight seeing.

- **Things to do in Stutterheim:**

- ***Sandile's Grave***

Sandile was the warrior Chief of the Rharhabe clan, who was killed in June 1878 during the Ninth Frontier War.

- ***Bethel Mission***

The mission was built in 1865 on the site of the first Berlin mission station in the Eastern Cape.

It was founded in 1837 by the Reverend Jacob Ludwig Dohne of the Berlin Missionary Society. During the Seventh Frontier War, the mission station was sacked. Reverend Albert Kropf rebuilt the mission. In 1850 the mission was burnt down and Reverend Kropf rebuilt the mission for the second time.

- ***Amathola Mountains***

The mountains are covered with lush indigenous forest and flower-rich mountain grassland. The Amathola Hiking trail was voted the best in South Africa by the Getaway Magazine in 2004.

- ***Kologha Forest Trails***
The forest trails are a special experience and at the picnic site, clear streams tumble over waterfalls in the depths of the forest which is carpeted with ferns and flowers. One of the hikes available is the Amathola Trail. The waterfall walk starts as a gentle climb to the second waterfall and then becomes fairly steep.
- ***Mountain Biking***
The forest roads are perfect for mountain biking.
- ***Birding***
Bird watching in the area is extraordinary. Some of the bird species in the area are the Cape Parrot, Robin, Orange Thrush and Cape Black Cap.
- ***Fishing***
The Gubu Dam is stocked with trout for fly-fishing. Wiggleswade Dam is home to the bass.
- ***Boating***
Wiggleswade Dam also hosts swimming, sailing and boating activities.
- ***The Rock Art Museum***
Local San Bushmen paintings can be seen. The Rock Art Museum is situated on the N6 close to Stutterheim.
- ***The Engine Museum***
The museum will give you the taste of yesteryear.
- ***Mgwali Xhosa Cultural Village***
Demonstrations of traditional cooking, crafts and the Xhosa way of life are on offer, as well as a museum depicting Xhosa traditions.

7.3.3 Tourism Market Characteristics

Various statistics on tourism trends and markets are contained in the appendices. The characteristics of tourism demand can however be summarised as follows. On the provincial level, the Eastern Cape received 516,758 international tourist arrivals in 2004. The Eastern Cape's market share of international bed nights equated to 6% in 2005. The Eastern Cape experienced a minor drop in international visitors to the province. This is concerning due to the fact that in 2005 international arrivals to South Africa reached a record high and therefore most provinces ideally should have experienced an increase. However, it must be acknowledged that the Eastern Cape only received around 7.6 per cent share of total international arrivals.

Foreign tourist arrivals were dominated by the holiday/ leisure purposes. This is positive as market is the most lucrative of all travel the travel markets due to the average spend per trip being generally higher with an average spend per trip of R24,368.

The Eastern Cape's top international holiday generating markets are:

- United Kingdom
- Germany

- Netherlands
- USA
- Zimbabwe
- France

The “Wanderlust” segment is made up of younger singles or couples between the ages of 25 and 40 and generally does not have children. They are young urban professionals earning higher incomes, and they already have considerable travel experience. Their desired experience centers on nature, culture and adventure with a strong liking for “urban vibe”.

The ADM’s adventure and outdoor activities would have particular appeal to this market, but some of the urban centres would need to increase their appeal from the perspective of dining, entertainment and fun things to do.

Narrowing down the Amathole region, it was measured by SAT that only 23 per cent of all arrivals to the Eastern Cape actually visit the East London area. The following table analysis 2004 vs 2005 of visitation levels to both cities.

	Total to Eastern Cape	Port Elizabeth		East London	
2004	516.761	418.282	81%	119.236	23%
2005	502.361	389.885	78%	112.705	29%

Comparing this to other provinces, as the second largest urban centre in the province, the proportion of international visitors to the Eastern Cape that visit East London and the hinterland, is greater than that which visits Pietermaritzburg In KZN but less than that which visit Mossel Bay, George and Knysna in the Western Cape.

In tourism the specific regional constraints relate to the low expenditure by the bulk of tourists, the cost of transport into the district, the lack of packaging, variable quality and poor service, the lack of organisation of the sector, poor environmental management, lack of management of conflict between resource use needs of communities and the tourist industry, and perceptions of crime. Opportunities in tourism lie in package tours, eco-tourism, city / beach / bush combinations in a malaria-free environment, cultural and heritage tourism and linking to packages for 2010 visitors. The trend to low cost flights is an opportunity as it reduces the cost of travelling to the district. However, it is true to say that a great deal of development work and marketing will be required in the Amahlathi area to attract tourists at sufficient volumes to support growing tourism products.

It is felt that the following tourism opportunities exist in the area including Amabele and the Wriggleswade dam:

- Beautiful natural environment, the largest dam in the region and accessible forests;
- Increasing tourism infrastructure in the private sector such as tourism initiatives, accommodation and improving activities;
- Affordable accommodation;
- Highly informed & skilled people in different fields like crafts, art, etc.;
- Close proximity to other tourism destinations such as Hogsback and East London which makes it easy to attract the passing tourists to these destinations;
- Available range of products to cater for different markets needs although still needs further development and packaging;
- Location of major towns such as Stutterheim and Cathcart on the national route which makes access easy;
- Existing transport infrastructure such as airport, railway and road which makes it easy to reach;
- Being located on the Sandile route which provides an opportunity for the area to attract the tourists who visit Stutterheim; and
- Agriculture tourism potential due to existing farms in the area and the Blue Berry project (in future).

7.4 Economic Characteristics

The economic status of Amahlathi local municipality is discussed below in terms of value added, formal employment and land use¹.

7.4.1 Value Added

Value added, or regional GDP (GDP-R), for Amahlathi local municipality is set out in the table below at two-digit SIC sector level for 2004, with the distribution between the main economic sub-sectors also set out in the following figure.

Table 1: Amahlathi local municipality value added 2004

Two-digit SIC sector	GDP-R (R'000)	Distribution
93 Health and social work	90,820	17.5%
92 Education	83,301	16.0%
91 Public administration	54,989	10.6%
11 Agriculture and hunting	50,356	9.7%
84 Real estate activities	38,553	7.4%
12 Forestry and logging	37,466	7.2%
62 Retail trade	26,183	5.0%
25-29 Other mining and quarrying	17,794	3.4%
30 Food & beverages	15,035	2.9%
61 Wholesale and trade	14,215	2.7%
All other sub-sectors	89,964	17.3%
Total Industries	519,079	100.0%

The distribution between the sub-sectors reveals the strong dependence of the Amahlathi local economy on government, with education, health and public

administration providing 44% of all value added. This relatively high proportion is common to the Eastern Cape. The distribution also however reveals the competitive advantage of Amahlathi through three potential value chains that together account for 30% of value added.

- Agriculture (10%) linked to the value adding potential of food & beverages (3%);
- Forestry (7%) linked to the value adding potential of wood products (1%) and furniture (2%);
- Retail and wholesale trade (8%) probably includes some tourism and some of the sub-sector can be linked to the value adding potential of hotels and restaurants (1%).

The analysis however also reveals the need to move up the value chain. Most value added is presently generated in the primary sectors of agriculture and forestry and there is potential to increase value added by linking to processing industries.

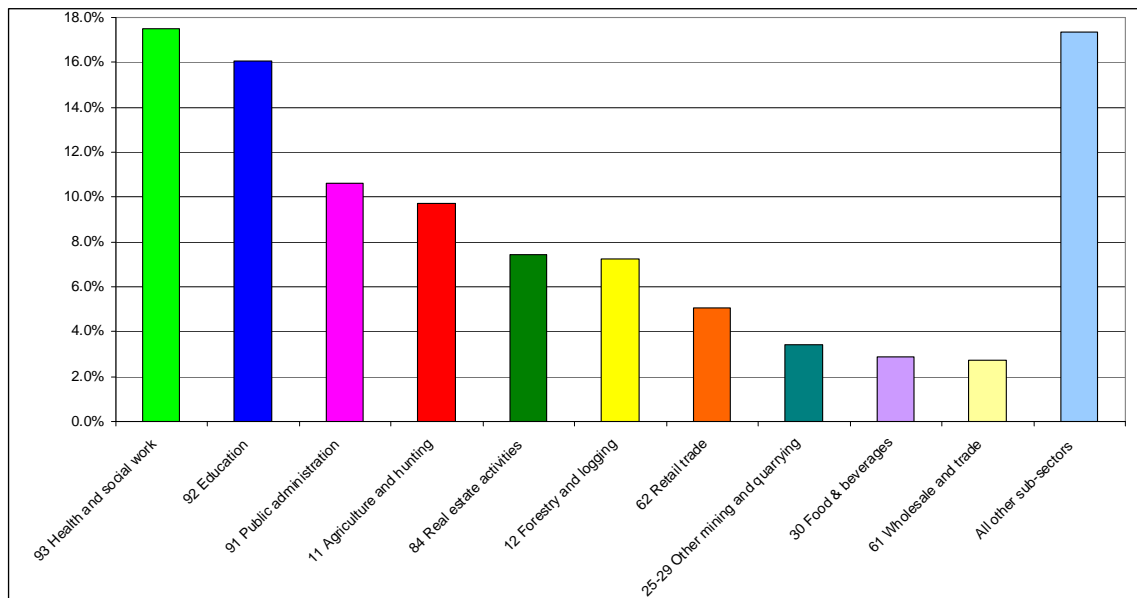


Figure 12: Distribution of Amahlathi Local Municipality Value Added 2004

7.4.2 Formal employment

Formal employment, defined as employment in registered enterprises, was also examined to see if the same picture emerged.

¹ The Global Insight Regional Economic Focus 2004 database has been used by kind permission from ECSECC. There are some doubts about the accuracy of this data, especially in terms of values and trends of value and trends. For a discussion of its reliability see 'Data Reliability and Metadata Report: Competitive Advantage Assessment and Training Support Project, 2003' from the ThinaSinako LED support programme at www.thinasinako.co.za. There are however very limited sources of data available at local municipality level. Given that the data is benchmarked against national census data available from Stats SA it gives a reasonably accurate picture of the distribution between economic sectors.

Table 2: Amahlathi local municipality formal employment 2004

Two-digit SIC sector	Numbers	Distribution
11 Agriculture and hunting	1,897	21.9%
92 Education	1,309	15.1%
12 Forestry and logging	951	11.0%
93 Health and social work	890	10.3%
91 Public administration	802	9.2%
62 Retail trade	215	2.5%
32 Wood and wood products	125	1.4%
50 Construction	121	1.4%
85-88 Other business activities	115	1.3%
94-99 Other service activities	115	1.3%
All other sub-sectors	653	7.5%
Total formal employment	8,672	100.0%

Looking at the same clusters through the distribution of formal employment reveals that government (education, health and public administration) accounts for 35%, less than its share of value added. Agriculture however accounts for a far higher employment share (22%) than of value added, demonstrating its labour intensive nature. Food and beverages however provides only 1% of formal employment. Like agriculture, forestry also accounts for a higher share of formal employment (11%) than of value added, linked to wood products (1%) and furniture (1%). Wholesale and retail (3%), linked to hotels and restaurants (1%), however provide far lower shares of formal employment. Nevertheless, the three clusters identified as having competitive advantage in Amahlathi provide 39% of all formal employment in the area.

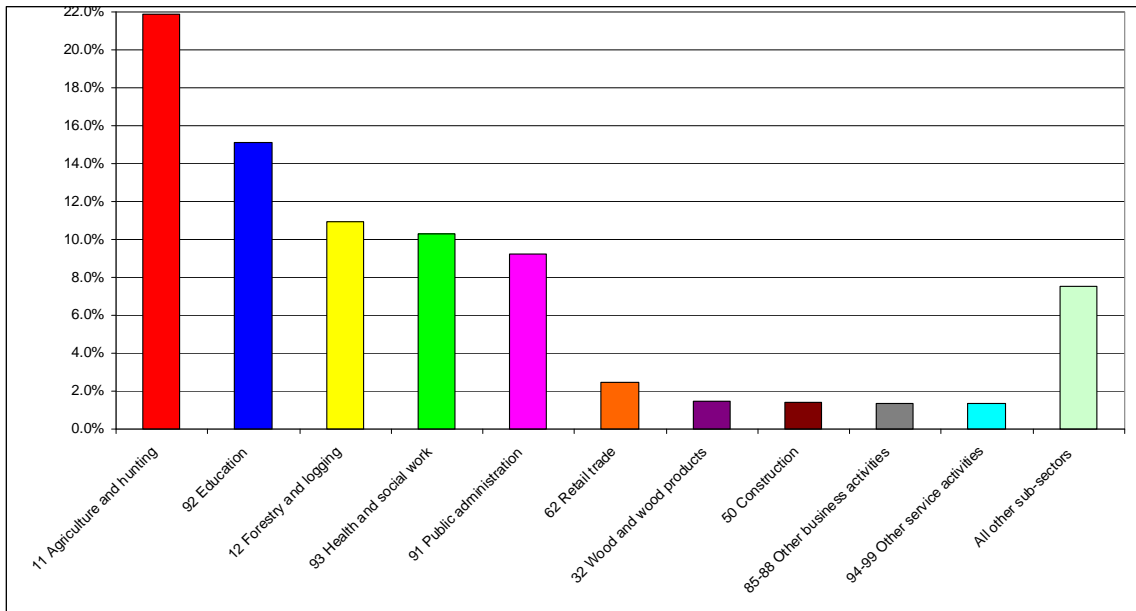


Figure 13: Distribution of Amahlathi Local Municipality Formal Employment 2004

The analysis therefore reveals the potential competitive advantage of Amahlathi through the top three value adding and employment chains as being:

- Agriculture and agro-processing linked to food products;
- Forestry linked to wood products and furniture;
- Tourism, hospitality and catering.

The conclusion that can be drawn from this analysis of value added and employment is that the primary sectors of agriculture and forestry are vital providers of formal employment in Amahlathi. There is however insufficient value added activity within the local area, but there is significant potential for the growth of natural resource based enterprises from the existing strong base.

7.4.3 Land Use from an Economic Perspective

Land use was analysed to see if it reflected this identification of natural resource based industries as areas of competitive advantage². The picture that is revealed is that nearly 85% of land area is covered by 'unimproved land', rangeland, grasslands, thicket or bush. While this constitutes a strong base for environmental preservation, it does however also reveal very limited land use for commercial agriculture. Just under 7 300 ha (1,6%) are under commercial irrigation, and 4 450 ha (1,0%) are used for commercial dry land agriculture. These are very small areas of land. The land use picture does however show significant land areas allocated to commercial forestry plantations (21 570 ha), natural forest and woodland (17 500 ha).

Table 3: Amahlathi local municipality land use 2004

Type of land use	Square km	Distribution
Unimproved grassland (rangeland)	2,507.8	53.9%
Thicket & bushland (etc)	1,398.0	30.1%
Forest plantations	215.7	4.6%
Forest	163.7	3.5%
Degraded grassland	109.3	2.4%
Commercial irrigated	72.9	1.6%
Commercial dry land	44.5	1.0%
Subsistence dry land	46.7	1.0%
Urban and residential	37.6	0.8%
Degraded thicket & bushland	26.2	0.6%
Forest and Woodland	11.4	0.2%
Improved grassland	8.1	0.2%
Waterbodies	8.1	0.2%

There is evidently a balance to be achieved in Amahlathi between the protection and sustainable utilisation of natural resources. The potential utilisation of natural resources needs to be investigated further. There are three main areas for investigation that link to the identified clusters of competitive advantage:

- Is it possible to increase the area of protected reserves, which is currently only 3.7% of the land area?

² The data from the Global Insight REF database gives different values to those used elsewhere in the agriculture situation analysis, which is likely to be more accurate. The same broad distribution in land use however emerges.

- Surely it is possible to increase the area under commercial forestry, which is currently only 4.6% of the land area?
- Is it possible to increase the area of irrigated land, which is currently only 1.2% of the land area?

It needs to be noted that all three of these areas for further investigation are labour intensive sub-sectors have high employment creation potential for Amahlathi.

ECONOMIC OPPORTUNITIES

- **Amabele-Wriggleswade**

The Amabele-Wriggleswade area has potential for further development of water sports. Agro-forestry could potentially be developed on the Wriggleswade lake perimeter that could protect the catchment, enhance the environment and provide economic returns (nuts, fruit, etc). The surrounding farmers have expressed interest in leasing back the land surrounding the lake that is owned by DWA.

- **Blueberry Project Linkages**

With the proposed tarring of the Amabele-Thornhill road and the R352 Stutterheim-Kei road through Mgwali there is a need for improved gravel road linkages between these two roads to access the land around Thornhill. Low impact, environmentally sensitive gravel roads will be important to develop the blueberry farming potential out towards the Kei River, which has been proposed as an expansion area.

As a result, there is a need to safeguard the identified irrigable land at Mgwali as well as potential irrigable land on the Toise and Kubusie rivers against alternative uses, and especially against unplanned, peri-urban expansion. The farms on the Toise and Kubusie rivers that are subject to land claims should be investigated and potentially targeted as expansion farms for the blueberry project for emerging black farmers.

- **Tourism**

Upgraded gravel roads from both the Mgwali and Thornhill areas can provide links to farms close to the Kei River where high San rock paintings can be viewed. These rock paintings will however require careful treatment and environmental protection.

There is potential for passenger and tourism train services from the refurbished Amabele station that requires further investigation, as recommended by the rail-based tourism study. Amabele village can become a tourism hub to service these attractions, with attractively designed small business and craft centres adjacent to the station.

- **Amabele Village Development**

There is potential to develop carefully zoned village settlements at Ndakana and Amabele. The existing villages immediately to the south-west of Amabele, between the N6 and the Stutterheim-King Williams Town road, are still small. Unplanned peri-urban spread could however develop rapidly if this area is not carefully planned. This area has also been identified for forest potential. Integrated village and agro-forestry settlement planning should therefore be investigated.

7.5 Agricultural Situation

The area under investigation is diverse in terms of its natural resources ranging from high mountain areas to low flatlands, rainfall varying from 450mm to 1400 mm, mild winter climates to harsh cool winters with cool to warm summers and generally poor soils with small outcrops of medium potential soils. Numerous differing microclimates exist throughout the area. This gives rise in general to an area of mainly livestock production of sheep and cattle with limited diversification into arable farming practices.

The high lying areas of high rainfall have opportunities for expanded forestry production. There are three catchments, namely; the Middle Kei Catchment having the lowest potential, with the Amathole Catchment having the highest potential. The Lower Kei Catchment and the Amathole Catchment are utilizing the least of the potential water resources available.

Opportunities do exist in particular for improving the availability of water that is being seriously eroded by alien plants. Where irrigation water is available and soils of medium potential exist intensive cropping should be carried out. Where water is available but the soils are limiting the opportunity is there for non soil operations such as hydroponics.

The opportunities also exist for the establishment of pastures to use for milk or fat lamb production.

7.5.1 Topography

The topography varies from mountains of the Amathole Range with steep slopes to rolling with some areas being undulating. The altitude varies from 600m to 1600m above sea level.

7.5.2 Geology

The geology is derived from the Karoo sequence and Beaufort group. The Stutterheim Keiskammahoek areas are characterized by Adelaide Escourt Formations made up of Mudstone and Sandstone and the Cathcart area of Tarkastad Formation made up of Mudstone and Sandstone. The main soils derived from the sandstones and mudstones are structure-less soils with high water tables.

Dolerite intrusions occur throughout the area. These intrusions will give rise to medium potential soils.

7.5.3 Soils

The soils are derived mainly from the decomposition of geological outcrops and are affected in most instances by the rainfall. The Karoo Sequence Beaufort Group give rise to weakly developed soils of the Glenrosa, Mispah, Swartland, Kroonstad and Cartref soil forms. The Cathcart area has more duplex type of soils with the Escourt and Kroonstad soil forms being more common. The dolerite outcrops give rise to the medium potential soils that are better drained of mainly the Oakleaf form. The soils are poorly leached and highly erodable, particularly the sub soils of the Beaufort Groups.

7.5.4 Soil Use

98% of the area is comprised of natural vegetation with remaining 2% being made up of rain fed and irrigated lands. It is estimated that some 2, 900 ha are under some form of irrigation or have rights to irrigate. A further 3, 500 to 4, 000 hectares are cultivated relying on rain.

7.5.5 Climate

• General:

The climate of this area is temperate. This is characterised by warm wet summers and relatively mild winters with warm days and cool nights. Frost occurs throughout the area. Snow does occur generally on the high mountain peaks during the late winter and early spring. Occasional snow has occurred throughout the area.

- **Rainfall**

The rainfall is impacted on greatly by the Amathole Mountains where high rainfall occurs declining very dramatically in the rain shadow areas of Cathcart and Keiskammahoek. This gives rise to very varied rainfall is indicated on **Plan 9 in the appendices**.

The rainfall of the area is fairly consistent and reliable with a summer rainfall where 70% and less fall during the months of October to March. The rain is characterized by berg winds followed by cold fronts during the Autumn/Winter/Spring bringing cold misty rain. Summer is characterized by thundershowers. The most reliable rain occurs during the months of February March. Hail is limited and occurs on average of one storm per year. The mean annual evaporation ranges from 1 400mm to 1 600mm per annum.

- **Temperature**

Temperature is indicated on **Plan 10 in the appendices** indicating different temperature zones.

The temperature of the area is generally warm to cool. The mean minimum temperature varies from 12 to 13 °C to 8 to 9 °C in the Cathcart Area. The maximum temperatures vary more with low lying areas in Keiskammahoek, King Williams Town and along the Kei River having temperatures of 26 to 27°C. Cathcart has a cooler maximum temperature of 19 to 20 °C

- **Wind**

The winds are generally North Westerly and South Westerly.

7.5.6 Water Resources

- **Catchments**

The area is made up of a number of catchments namely (as per map below):

- Middle (Cathcart) and Lower Kei (Stutterheim) Catchments;
- Amathole Catchments; and
- Keiskamma Catchment.

- **Middle Kei Catchment**

The Big Thomas, Little Thomas and the Thorn Rivers are the main rivers that drain these areas via the Thomas River into The Great Kei River. Limited water storage takes place in this area with the Sam Meyer Dam on the Thorn River and number of smaller irrigation dams and weirs on all the tributaries.

- **Lower Kei Catchment**

The Isidenge, Ndakana, Little Kubusi, Cumukala, Toise, Gqcolonqe, Mgwali all drain into the Kubusi River and eventually the Great Kei River. The Gubu and Wriggleswade Dams are found on the Gubu and Kubusi River respectively.

The Wriggleswade Dam transfers water from the Kei Catchment via tunnels and canals into the Buffalo River of the Amathole Catchment.

Numerous small irrigation dams and weirs are found throughout the area that is used for irrigation purposes.

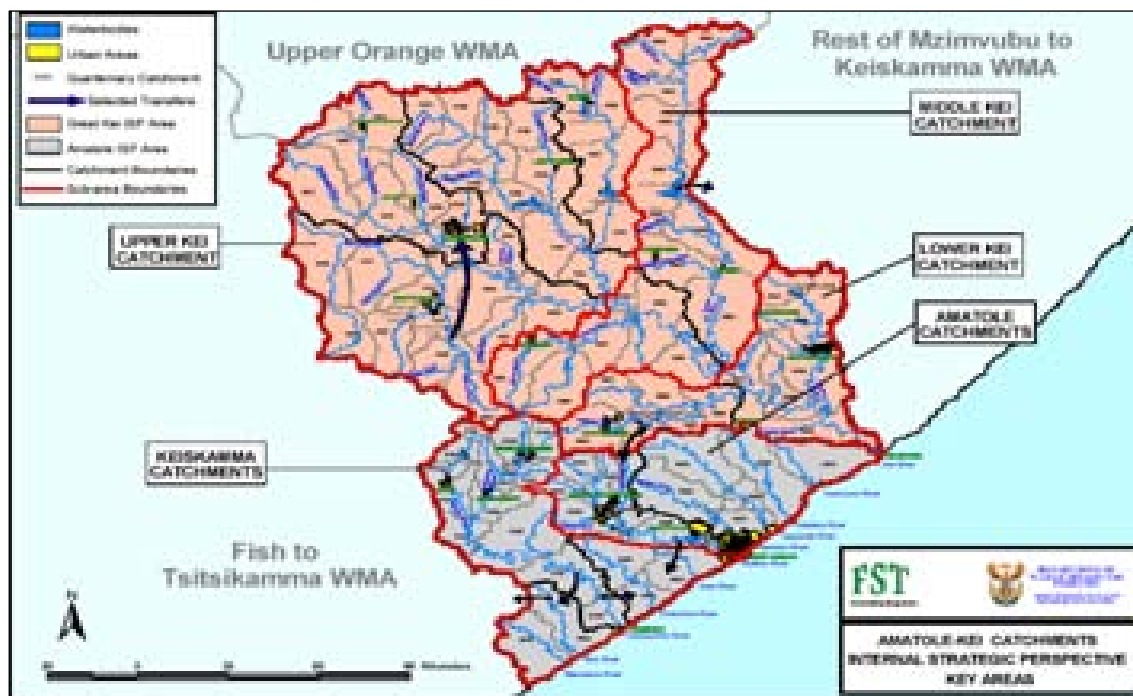


Figure 14: Amatole-Kei Catchments Key Areas

- **Amathole Catchment**

Numerous streams and Rivers flow from the Pirie Forest into the Buffalo River. There are two Dams namely the Maden and Rooikrans Dams.

The Buffalo, Nahoon, Gqunube all have their sources in the lower reaches of the Amathole Mountain Range.

This catchment forms a minor part of the study area.

- **Keiskamma Catchment**

Numerous streams and rivers flow from the Amathole Mountain Range to flow into the Keiskamma River to name but a few, Gwiligwili, Cata, Mnyameni and Wolf.

Three dams are found in the area namely the Cata, Mnyameni and Sandile Dams. These dams have all been developed for the supply of both domestic and irrigation water.

- **Underground water**

Underground water of any potential is either linked to the Amathole Mountain Range and dolerite dykes. At the foot of the mountain in the Stutterheim area large reservoirs of underground water have been found. The mudstone and sandstone formations have poor underground water resources.

- **Irrigation Existing**

Formal irrigation exists via the Kubusi Irrigation Board via a Water Users Association. Irrigation is on private farms and is a private scheme in the Stutterheim Area. Two state irrigation schemes exist in Keiskammahoek namely the Keiskammahoek Irrigation Scheme and the Zanyokwe Irrigation Scheme.

Numerous other irrigation takes place from private dams and minor rivers not been effected by the Kubusi Scheme. Irrigation takes place on a small scale along the Thomas and Thorn Rivers and their tributaries and small irrigation dams. Very limited irrigation takes place from underground water.

Irrigation Schemes	Existing Irrigation (ha)	Potential Expansion (ha)
Keiskammahoek	770	230
Zanyokwe	471	150
Kubusie Irrigation Board	1060	0
Thomas and Thorn River	300	0
Horseshoe Irrigation	48	0
Other (Dams & Streams)	300	200

7.5.7 Vegetation

The natural vegetation according to Acocks can be separated into a number of vegetation types namely:

- Dohne Sourveld;
- Valley Bushveld; and
- False Thornveld of Eastern Cape.

- **Dohne Sourveld**

This vegetation type lies at altitudes of 600 to 1350 meters above sea level with rainfall averages of 650-1000mm. The succession to forest is stronger in this vegetation type with numerous forests still in existence particularly along the mountains and on southern slopes.

The forests have more climbers and richer in species than the other forests. The forests are dominated by the species *Podocarpus falcatus* and *P. latifolius* with *Canthium cliatum* and *Trichocladus ellipticus* in the undergrowth. The grass component is a dense sour rangeland being dominated by the species *Themeda triandra* in pristine condition.

A great deal of variation occurs within this vegetation type namely the Cathcart Dry Sourveld that occurs at the lower extreme of the rainfall with acid soils. Mismanagement of this Cathcart Dry Sourveld particularly with selective overgrazing encourages *Elionurus muticus* encroachment. Overgrazing of the lower altitude sourveld brings in *Senecio retorsus*. At higher altitudes overgrazing causes *Helichrysum argyrophyllum* to invade.

The Dohne Sourveld has a high carrying capacity and is resilient to mismanagement. The climax of the grass component is kept in check with grass fires.

This vegetation type makes up the largest proportion of the area.

- **Valley Bushveld**

This bushveld is found in the valleys of the numerous rivers draining into the Indian Ocean. These valleys are hot and receive lower rainfall. The variation of the bushveld found mainly along the Kei River is more open and has a higher proportion of grass, fewer succulents and more species of a tropical nature. The central Keiskamma area is a very much degraded Valley Bushveld.

- **False Thornveld Of Eastern Cape**

This vegetation type ranges from Eastern Province Grassveld intermingled with dwarf *Acacia Karoo* and dense clumpy bushveld indistinguishable from the upper margins of Valley Bushveld. The vegetation type has encroached from mismanagement of the Eastern Province Thornveld. The vegetation type is found in between the Valley Bushveld and the High Mountain Sourveld in the Keiskammahoek area. It is also found on the Northern and Eastern boundaries of the study area in differing levels of Eastern province Thornveld or False Thornveld of the Eastern Cape.

- **Alien Vegetation**

Alien vegetation occurs throughout the area, particularly along watercourses. A number of species of alien vegetation exist in the area with the following of concern:

- *Acacia mearnsii* (black wattle);
- *Acacia dealbata* (Silver Wattle);
- *Pinus sp*;
- American bramble;
- Water hyacinth;
- *Eucalyptus sp* (Gum);
- *Solanum mauritianum* (Bugweed).

Of greatest concern are the infestations of wattle in all the catchment areas spreading along all the main watercourses. These invaders extract large amounts of water from the soil reducing the flow of water along these watercourses particularly during periods of below average rainfall.

7.5.8 Existing Agricultural Situation

- **Farmers**

Numerous types of farmers and farms exist throughout the district, namely:

- Established commercial farmers (mainly extensive livestock farmers);
- Emerging Commercial with mainly extensive livestock;
- Government irrigation schemes with small land parcels with various land right options (Inefficient use of land with institutional and social issues);
- LRAD Farms (with limited farming experience and 'a hand out mentality'); and
- Communal land mainly in form of natural grazing (Badly overgrazed areas due to limited control and responsibility).

- **Agricultural Enterprises**

Limited resources, mainly due to poor soils and, topography limitations and low rainfall, make this area an extensive livestock area with farmers being primarily sheep, cattle (beef) and goat farmers. The above has been further limited by the high input and fuel costs.

Irrigated lands or dry lands are utilized for the production of high quality winter feed for producing animals or for the production of cereals mainly for own use. Areas of intensive irrigation exist mainly on smaller farm units where mainly vegetable production takes place (mainly cabbage).

The western half of the Stutterheim area has been divided into smaller farm units where part time farmers exist. This area is highly inefficient in land use. The

Keiskammahoek area is mainly subsistence farming which is inefficient and a large amount of land degradation takes place.

Other enterprises that do exist are very much on a limited scale:

- Dairy production (including cheese and yoghurt);
- Broiler poultry production (large scale operator producing 70, 000 birds per week);
- Kiwi fruit;
- Vegetables (mainly cabbage)
- Apples (cider and juices);
- Other

7.5.9 Amabele/Ndakana to Thornhill

The area from Thornhill Farm including the Wiggleswade Dam stretching to Amabele and the surrounding Ndakana area needs special mention in terms of the Amabele Spatial Development Framework. The area can easily be divided into the two land ownership scenarios of Privately owned land and State owned land (Ndakana and Wiggleswade Dam (DWAF))

7.5.10 Natural resources – Thornhill / Ndakana

• **Geology & Soils**

Geological dykes stretch from Ndakana through to the tip of the Wiggleswade dam (along the Little Kubusi) giving rise to medium potential Oakleaf soils with medium rooting depths. The remainder of the soils are derived from the sandstone and mudstone giving rise to low potential soils. These soils are structure less soils either lying on rock or having poorly permeable layers.

• **Climate**

The area stretches from a high rainfall area around the Amabele area of approximately 800mm being situated in a mist belt to rainfall of 650 mm at Thornhill, decreasing as one travels away from Thornhill.

The eastern portion of the study area (being at the lower level of altitude) has a slightly warmer climate, although frosts do occur during winter. This is particularly so as one moves towards Thornhill Farm.

• **Water Resources**

Water use is limited to above and below the Wiggleswade Dam where landowners have land rights. The Ndakana area has numerous streams and medium size dams that are suitable for small-scale irrigation.

• **Constraints**

The major agricultural constraints include the following:

Soils limit farmers to the use of natural vegetation for grazing purposes and use of cultivated areas for shallow rooted pastures. Old lands limit natural vegetation production.

Wiggleswade Dam has excluded many farmers from utilizing lands with water rights, as well as accessing lands having slightly better alluvial soils.

Black Wattle is a major limitation in this area particularly in the catchment of the Little Kubusi, not only limiting water flow, but also taking large tracts of land out of production. This is particularly the case in relation to Ndakana.

The community of Ndakana has constraints in terms of lack of skills and experience and, lack of capital to undertake farming operations. Included is the 'curse' of the commonage areas which is a major problem.

- **Irrigation Potential**

The Keiskammahoek government schemes (Keiskammahoek and Zanoekwe) are not being used to their full potential and are the only areas having any opportunity for expansion. The remaining areas are very limited in terms of opportunities for expansion other than the construction of storage dams. The most limiting factor in all the areas is the alien vegetation (mainly wattle) draining the areas of water.

Overall Agricultural Opportunities

Dryland cropping in the higher rainfall Stutterheim area could see the production of maize, sorghum, beans (including soya) and pumpkins. An area of potential development is Ndakana with large amounts of water and medium potential soils.

Irrigated crops such as vegetables (cabbages, carrots, potatoes, butternuts etc) could be grown on the medium potential soils. Deciduous fruit could be considered on the high potential soils in correct microclimates such as apples, peaches, nectarines, citrus (lower Kubusi) and berries.

Other opportunities that exist could include:

- Pastures for fat lamb and dairy production;
- Flower, nursery, essential oils, herb production;
- Intensive livestock production (broilers, layers, pigs);
- Niche markets (chrysanthemum –pyrethrum)
- Timber;
- Charcoal.

Improvement and expansion of the livestock industry could be obtained through improved natural resource utilization and improved markets.

7.6 Environmental Analysis

7.6.1 Land Use from an Environmental Perspective

The area around Amabele Village is primarily agricultural in nature. Further afield, around Stutterheim and Keiskammahoek, large areas are allocated to Plantation Forestry and have been planted with mainly with *Eucalyptus* and *Pinus* species. There are a number of privately owned game farms to the north-east of Amabele Village and Blueberry farming below the Wriggleswade Dam

7.6.2 Vegetation types

The vegetation types within the 30km radius extending around Amabele Village have been identified as:

- Bhishe Thornveld
- Amathole Montane Grassland
- Eastern Valley Bushveld
- Buffels Thicket
- Southern Mistbelt Forest
- Tsono Grassland

The presence of such diverse vegetation biomes in the study area is extraordinary. Different elements of each particular vegetation type can contribute to a diverse set of activities and land uses.

7.6.3 Sensitive environments

Sensitive areas that have been identified thus far include:

- High biodiversity areas such as Keiskammahoek.
- Water sheds and river systems in and around Amabele Village and Stutterheim. It is important to note that many of the rivers that begin in the study area (Buffalo, Nahoon, Gonubie).

7.6.4 Environmental Opportunities and Limitations

• Constraints

The desktop study of the area within an approximate 30-50km radius of Amabele Village has identified the following limitations:

- Sensitive areas of high biodiversity
- The banks of major water courses and the catchment tributaries that maintain them.
- EIA regulations and relevant legislation relating to environmental protection.

These areas are to be developed in a limited, eco-friendly, sustainable manner, which may result in rejecting inappropriate development.

The **Amahlathi Municipality SEA** identified a number of environmental constraints/ limitations, the following of which are relevant to the current project:

• Water

- The sustainable yield of groundwater in the LM is unknown.
- The quality of groundwater in the southern area of the LM is reported to be poor.
- High sediment load in rivers.
- The poor sanitary and waste removal services available to most households in the municipality.

• Flora and Fauna

- No development, except when there is minimal impact in indigenous forests, wetlands and conservation worthy areas.
- No development in areas that may lead to the loss of a site of vegetation significance.

• Historical and cultural resources

- Many of the cultural sites are in a deteriorated condition and will require substantial funding to restore them.
- No development in areas that may lead to the loss of a site of cultural or historical significance.

• Socio-economic

- Extensive and increasing poverty
- Lack of economic opportunities
- Lack of access to capital and markets
- Low education and skills levels
- Social inequalities in access to the factors of production
- Present macro-economic policies
- Unfavourable terms of trade for local agriculture and industry.

Environmental Opportunities

A diverse set of vegetation biomes are reflective of a diverse geology, climate and topography in and around Amabele. These factors also allow a diverse set of land uses, which, when integrated with agriculture and tourism can be utilised as significant natural resources.

The following are also viewed as Environmental opportunities, which may feed into sustainable living, zero waste policy, tourism and economic stimulation due to optimal utilisation of natural resources:

- Agriculture – livestock and crop farming
- Eco-tourism (Figure 7a)
- Alien invasive management (Figure 7b)
- Rehabilitation of River banks
- Biodiversity conservation (Figure 7c)
- Sustainable utilisation of water resources (Figure 7d)
- Fresh water aquaculture
- Forest, Wetland and Grassland rehabilitation & conservation (Figure 7c)
- Renewable energy: wind, solar and biogas generation
- Biofuel production
- Carbon credits

In addition to the above mentioned environmental opportunities, the Subtropical Thicket Ecosystem Programme (STEP) has provided a management strategy associated with various land conservation priorities and the recommended land use options. The land around Amabele Village is categorised as NOT VULNERABLE and is therefore not restricted and can incorporate a wide range of activities.

The opportunities identified in the Amahlathi SEA detail the following:

- **Water**
 - Development of ecotourism ventures adjacent to rivers, dams and wetlands.
 - Implementation of Land Care projects to rehabilitate degraded areas.
 - Rehabilitation projects could be valuable community development projects
 - Implementation of Working for Water projects to rehabilitate areas invaded by exotic plant species, including riparian vegetation.
 - Implementation of Working for Wetlands projects to rehabilitate wetlands.
- **Flora and Fauna**
 - Initiation of ecotourism development to recognize the sustainable use of areas of vegetation and faunal importance.
 - Establishment of conservation/ educational trails to see the natural vegetation and important faunal areas.
 - Rehabilitation of natural vegetation in areas invaded by alien plant species.
 - Protect areas of high biodiversity e.g. Amatole Complex and areas identified by STEP
- **Historical and Cultural resources**
 - Establishment of ecotourism ventures linking areas of conservation and cultural importance.
 - Protection and restoration of sites of cultural significance.
 - Creation of sites with apartheid and post-apartheid significance.
- **Socio-economic**
 - Land reform initiatives
 - Local economic development programmes
 - Growth of game farming and tourism
 - Privatisation of state forests and their commercial
 - Declining population numbers linked to urbanisation

Investments in basic infrastructure and services

7.7 Infrastructure

7.7.1 Municipal Level Analysis

The Amahlathi Municipal area has numerous local areas where significant backlogs exist in the provision of basic services such as water, sanitation, electricity and solid waste disposal.

In addition, much of the road network in the area continues to require urgent maintenance and/or re-construction, whilst there are some areas where new access roads and bridges need to be constructed simply to afford residents ease of mobility. Addressing these infrastructure needs is accepted as one of the key focus areas for the Amahlathi Municipality.

Although, available statistics are not up-to-date, the information provides clues as to the key needs of the Amahlathi Municipal area. In summary, the following is noted:-

- **Water**

The towns of Stutterheim, Cathcart, Kei Road and Keiskammahoek are adequately supplied with potable water. A number of the rural areas do not have access to potable water. The statistics below illustrates the condition of water supply throughout the Amahlathi municipality. There is a need to provide treated water to a large portion of the population.

Highest percentage of people reliant on natural sources of water:

- Ward 13 – 87.74%
- Ward 1 – 76.85%

Highest percentage of people with access to piped water or a public tap:

- Ward 19 – 99.20%
- Ward 15 – 97.82%

Keiskammahoek could run into problems in future and needs additional water storage capacity. Upgrading of water treatment works and storage is also needed in the three towns. The Cathcart works needs attention in terms of the quality of water. It is expected that new water sources are going to be needed for the urban areas in the foreseeable future.

- **Sanitation**

The towns of Stutterheim and Cathcart have waterborne sewerage systems. The municipality has completed the installation of a bulk sewer line to the Kologha network; to the existing smallholdings and the low-income township in the area. The provision of this sewer line will also open up parcels of land for future development for both high and low density housing.

Bulk sewerage treatment works and outfall sewers are needed in Keiskammahoek and the Cathcart sewerage treatment works need upgrading. According to the Amathole District Municipality (the Water Services Authority) the existing capacity will soon be depleted if developments continue at the present pace.

Presently the provision of sanitation with the municipal area is reflected in the statistics below. Only 14.17 percent of households have access to flush toilets majority of which are located within the urban areas. The majority of houses

(65.86%) in the municipal area have access to pit latrines. The majority of these pit latrines are not to DWA standards.

Highest percentage of people with no access to sanitation facilities:

- Ward 13 – 78.30%
- Ward 14 – 63.34%

Highest percentage of people with access to flush or chemical toilets:

- Ward 4 – 76.97%
- Ward 15 – 60.13%

• **Streets and Stormwater**

The urban areas have well established road networks and storm water management systems. However there is a need for the maintenance and upgrading of the network in some areas.

The rural areas have a network of gravel roads giving access to villages and settlements these roads are in need of urgent attention, especially in the Tsomo rural areas and Keiskammahoek area. There is little or no storm water management within the rural areas. There are certain key road links and low level bridges which need attention. The municipality feels that the link between Keiskammahoek and Stutterheim and also, the link to Tsomo are critical economic links. If these could be tarred, significant economic benefits could flow.

• **Electricity**

The provision of electricity is undertaken by Eskom in the rural areas while the municipality is responsible for the provision of electricity in the towns and surrounding areas. At present only 23.07% of households have access to electricity. The remaining 76.93% use Gas, Paraffin and candles for cooking and a source of light.

Highest percentage of people reliant on candles for lighting:

- Ward 13 – 25.06%
- Ward 14 – 31.12%

Highest percentage of people with access to electricity for lighting:

- Ward 20 – 87.39%
- Ward 4 – 86.66%

• **Solid Waste**

The urban areas have access to refuse removal services while the rural areas have very limited access to refuse removal and disposal. The urban areas have formal solid waste disposal sites located within the vicinity of the towns. The rural areas have no facilities or use informal dumping sites. At present only 18.7% of households have access to refuse removal.

• **Cemetery**

Presently the towns of Stutterheim and Cathcart have formal cemetery sites. The majority of rural settlements do not have sites allocated for cemetery use and communities either bury their dead on individual sites or on informal cemetery sites located on the edge of the settlements. The municipality has applied for various areas for cemetery purposes but it is taking a long time for these rural sites to be approved. The proposed Cathcart site has been turned down and an

alternative site investigated. The other towns do have commonage available which would have to be investigated at the appropriate time.

- **Rail**

The Kei Rail project is linking the Amabele junction with Mthatha and it is hoped this will increase economic and employment opportunities for the area in future.

- **Safety and Security**

There are 9 police stations and 3 Magistrates Courts within the Amahlathi Municipal area. However, as the telecommunications infrastructure, conditions of roads, and coverage by these facilities is poor, access to these services is inadequate for many communities.

- **Health**

There are 20 medical facilities ranging from mobile clinics to 3 hospitals: Cathcart Hospital, Gida Short Stay Hospital and Stutterheim Hospital. Access to healthcare is restricted, due to the low number of facilities, the high cost of traveling to the existing facilities and primary infrastructure shortcomings (i.e. roads, stormwater and bridges).

- **Education**

There are 174 schools within the Amahlathi Municipal area. School buildings are in a poor condition and a backlog exists regarding the provision of classrooms and education equipment. This remains a priority, given that 50% of the population are children. Only 27.32% of the population has a secondary education or higher. 16% of the population is illiterate.

- **Housing**

The key focus remains to address the housing shortage within the Municipality. Most households live in traditional dwellings (53%). Only 29% of households live in formal structures. About 6% live in backyard accommodation or in informal settlements. The Amahlathi Municipality, in partnership with the Department of Housing and Local Government, is the principal agency responsible for the planning and provision of housing to the low-income sector. 2001 Department of Housing data suggests that some 3 537 houses are currently under construction or have recently been completed.

7.7.2 Amabele Analysis

- **Water Supply**

Regional

Generally, water is supplied to the rural villages by the Amathole District Municipality who are, in turn supplied by Amatole Water. 58 % have access to reticulated water through public standpipes (46%), on site (14%) and in dwellings (8%). 26% of households rely on natural sources (rivers, springs and dams) for water supply.

Amabele

Presently, the Amabele village is supplied with water from Amatola Water from the Kubusie River. Water is pumped into the village, treated, stored in a small ground level reservoir, and pumped into a prefabricated elevated tank for reticulation purposes. The end user is Spoornet who are responsible for treatment, storage

and reticulation. Over recent years the Annual Average Daily Demand for water is for the order of 100 kl/day.

Wriggleswade Dam and prospects for abstraction

Under the “Reconciliation Strategy for the Amatole Bulk Water Supply System”, it was noted that provision should be made for 701 ha of “run of river” irrigation between Gubu and Wriggleswade with an annual average quantity of 5,26 million m³/annum. Downstream of Wriggleswade provision is to be made to irrigate 400 ha, with an average annual quantity of 3,00 million m³/annum. Actual irrigation allocations are determined by DWA, Amatola Water and the Department of Agriculture in consultation with the irrigation boards and Water User Associations.

- **Sanitation**

Regional

18% have no access to sanitation while 62% use pit latrines and 20% use flushing systems (in urban areas).

Amabele

There is a small wastewater treatment facility serving the central portion of the village. Outlying properties rely on septic tanks and soakaways and all effluent is disposed of on these individual properties.

- **Electricity**

67% have access to electricity while 26% rely on paraffin for lighting and the rest candles.

- **Telecommunication**

16% have no access to some form of communication including cell phones.

- **Waste Management**

Refuse removal is only available in urban areas. 18% have no removal services at all while 62% have their own dumps. 1% dumps on communal sites, which are unlicensed.

There are 3 solid waste sites in reasonable proximity to the study area:

- Komga site is 30 km away and has recently been upgraded with a view to licensing.
- Stutterheim site is 30 km away but is unlicensed.
- King William’s Town site is 45 km away and is licensed.

- **Transport**

The Rail Business in South Africa

The freight network in South Africa belongs to Transnet, a company 100% owned by the state. The management and maintenance of the network are done by Transnet Freight Rail (TFR), a division of Transnet that is responsible for the freight rail business. TFR owns all the freight rolling stock and locomotives and operates the freight trains. TFR operates their freight trains on the PRASA (previously SARCC) lines and the PRASA operates the passenger trains on the Transnet lines under a mutual agreement.

The intercity rail passenger service, Shosholoz Meyl, is also own and operated by TFR but is in a process of being transferred to PRASA. The suburban service between East London station and Berlin is operated by the SARCC under an

agreement with Transnet for the use of the rail line. The yard at Blaney is used for the staging of the suburban train sets over night.

There are numerous private sidings that take off the main network. The usage of the sidings has diminished considerably over the last decade. Most of the general freight went to road transport.

The Eastern Cape Provincial Administration (ECP) leased from Transnet the line from Amabele (north of Blaney on the East London - Springfontein line) to Mthatha. The ECP repaired and upgraded the line. A passenger service is currently running on the line. The intentions are to introduce a freight service on this line as well.

The Eastern Cape Provincial Administration embarked on a strategy “Back to Rail” with the focus on revitalising the rail facilities and promoting rail passenger and freight services within the province as well as between the province and other provinces.

a) *Rail gauge and axle load*

The gauge of the national rail network is 1 067 mm (3’ 6”).

b) *Traction*

Diesel traction is used on the branch lines, shunting yards and non-electrified lines and most of the private sidings. The Springfontein – East London line is electrified with 25 kV AC, the future electrification of choice

Transnet experience currently a shortage of locomotives. A significant portion of their R80bn planned investment over the next 5 years is earmarked for the procurement of additional locomotives. The locomotives are allocated to the different depots and lines based on the demand and contracts with customers.

c) *The Rail Network around East London*

The main line to East London is the 25 kV AC line between Springfontein and East London with an allowable axle load of 20 ton and a ruling grade of 1:50. This line is connected to the Port of East London with a non-electrified line from the main station as well as a line from Chiselhurst station down a valley to the port. This section was electrified with 25 kV AC electrification which was decommissioned and some of the equipment was removed. The ruling grade on this line is 1:50. The line is in a good condition and is maintained in accordance with the Transnet strategy for their main lines.

The main stations on the line from Amabele via East London Station to the port, with the kilometre distance at the centre of each station, are:

Station	Distance	
Amabele	0.0 km	25kV AC
Blaney	27.0 km	25kV AC
Berlin	33.4 km	25kV AC
Fort Jackson	46.2 km	25kV AC
Mount Ruth	52.0 km	25kV AC
Mdantsane	54.4 km	25kV AC
Arnoldton	59.6 km	25kV AC
Wilsonia	61.6 km	25kV AC
Dawn	62.8 km	25kV AC
Cambridge	68.2 km	25kV AC

Vincent	69.6 km	25kV AC
Chiselhurst	70.7 km	25kV AC
Factory	71.2 km	25kV AC
Panmure	72.4 km	25kV AC
Southernwood	72.9 km	25kV AC
Commercial Road	74.3 km	25kV AC
East London	74.6 km	25kV AC
East Bank	76.5 km	Diesel
Port Rex	80.2 km	Diesel
Terminus (West Bank)	82.8 km	Diesel

The distances from Amabele of the direct line to the port are as follows. This line takes of the main line at Chiselhurst, where there is an exchange yard.

Station	Distance	
Chiselhurst	70.7 km	Diesel
Port Rex	77.2 km	Diesel
East Bank	80.9 km	Diesel
The line crosses the Buffalo River from Port Rex on the lower deck of the old steel bridge to Terminus on the West Bank		

PRASA uses the line between Blaney and East London fairly intensively for the scheduled suburban passenger services in the morning and afternoon peaks. Freight trains must fit in with this scheduled suburban service. There is ample spare capacity outside the suburban peaks.

d) *Traffic on the lines around East London*

The line between East London Station and Blaney is mainly used for the suburban service during the morning and afternoon peaks. This requires that the movement of freight must be scheduled to be outside the suburban peaks.

The main freight commodity transported on the main line is export maize to the Port of East London and grain to private sidings. Limited container traffic is transported from time to time. The long term plans of Transnet indicate that the Port of East London will be developed into one of the container hubs of the country.

e) *Current Business Strategy of Transnet*

Transnet is, as a private company, responsible to generate profits and to secure capital for its own requirements. Transnet is currently the only freight operator on the rail network and provide all the rolling stock and locomotives. The intention is to do only viable business.

The business focuses on freight where rail has an advantage over road. This mainly includes freight where the heavier axle loads on rail could be effectively used as well as freight where the loading and off-loading processes of rail wagons are not more complicated, expensive and time consuming than for road vehicles. They also focus on customers who can make use of unit trains which will not require intensive shunting and consolidation of trains.

Road Transport

Road transport is more convenient, especially for smaller and specialist products. It could be used as an alternative for the transportation of all the

products. Alternatively, road transport could be used solely for any or all the products or in combination with rail transport.

The maximum allowable axle load on the South African roads is 9 000 kg. The maximum total weight of a combination vehicle is 56 tonnes and the maximum length 22m.

Kei Rail

The Kei Rail is intended to provide daily service, which will be linked with the Shosholozza Meyl Service between Johannesburg and East London. This will provide a passenger service for the people of Komga, Butterworth, Dutywa and Mthatha. A single Kei Rail train is able to transport 464 passengers in comfort between Mthatha and East London. It is also intended in the future to introduce a workers and scholars train between Butterworth and Mthatha every morning and afternoon.

The Department of Roads and Transport has gone out on tender for expression of interest for companies that will design, manufacture and supply the new high speed coaches for this line and other strategic lines in the province. The National Freight Logistics Strategy released in 2005 projected that the Port Elizabeth Corridor would carry 39% more freight than it did in 2003 by the year 2020 and the East London corridor would carry 31% more. In both instances more than 90% would be carried by road and between 6% and 9% by rail.

There is a partnership with Dutch Railway Organisation and the University of Delft in the Netherlands focusing on station management.

Department of Roads and Transport (DORT) Plans for Amabele Station

DORT's plans for the upgrading of the station are underway and clearly the station will require upgrading to handle the bulk timber freight and the anticipated passenger services between Mthatha and East London. Inter modal facilities will have to be provided at the station to accommodate taxis and buses for passengers' onward journeys.

The blueberry farming operation at Thornhill is of such a scale that special arrangements will have to be made in addition to those required for the above. For example, if rail is the preferred means of transporting workers from Amabele to the farm, the station will have an additional 10,000 passenger movements per day, occurring first thing in the morning and at the end of the day. Similarly, if the fruit processing operation is to be located near the station, a site will have to be made available for this, together with off and on-loading facilities.

Road

The National Route N6 passes by the Amabele Station so road access to the Station is excellent. The district road DR02779 is the shortest route to Thornhill and closely follows the railway line to Ross Siding. The road has an all-weather gravel surface, is 5 – 6 m wide with unlined side drains. It is also the main road to Wriggleswade Dam.

With regards to the National Route N6 between Stutterheim and East London, the distance from Stutterheim to East London is 73 km. The road comprises a two-lane single carriageway with paved shoulders and a good distribution of climbing lanes. The road is well maintained and is currently in an excellent condition. The N6 is connected to the R72 to Port Elizabeth by the North East

Expressway, a two lane each way arterial road from Abbotsford to Fitzpatrick Road. Heavy vehicles use this route to travel from the N2 between Mthatha to East London to get to the East London harbour and the R72 to Port Elizabeth. This is also the route to the East London Airport.

There are two significant intersections off the N6, the DR02779 to Wriggleswade and Thornhill and the access road to the Amabele Station. With increased traffic using these intersections, both will require upgrading. Consideration should be given to combining them into a single intersection thus saving on passing lanes and tapers.

According to the Stutterheim Aquatic Club a total of 2 445 adults, 593 Juniors and 332 boats paid for entry to the Wriggleswade dam club premises over the period 1 March 2008 to 29 February 2009. In addition there are 150 members of whom it is estimated 75 travel out to the dam each week. The engineers estimated this generates a traffic flow of approximately 5734 cars, 664 car and boat trailers, 664 car and caravans and 1500 bakkies per annum. This is equal to some 23 vehicles per day. Increased traffic on the DR02779 resulting from the transport of 3000 to 5000 workers to Thornhill Farm each day (during harvest seasons) and the transport of agricultural products, growing medium, fertilizers and equipment will impact on the existing level crossing and consideration should be given to a road over rail bridge.

8. OPPORTUNITIES AND CONSTRAINTS

The following are the opportunities and constraints identified in the study of the existing situation.

8.1 Opportunities

- Amathole Berries Project is seen to be the single most catalytic development in the area which could trigger a number of agro-processing and agro-tourism enterprises.
- Renewal of Amabele Station, linked to the Kei Rail project will provide an opportunity for the village to invest in upgrading its urban landscape and commence a revival in its economy.
- Train based transportation of goods and passengers are seen to provide a focus for Amabele village and reinstate its role as a rail service centre once more.
- Tourism Opportunities could be developed with linkages to Heritage attractions, Train based tourism experiences, Water based tourism, Leisure tourism and Game/eco tourism.
- Opportunities for development at Wriggleswade Dam exist however; these will need to be examined in greater detail through the auspices of a Resource Management Plan prepared with the oversight of DWAF.
- Land is secured for Amabele Berries Project, water is available at lower Kubusie, there is a suitable climate, available Labour and investment capital from the IDC, ECDC and the Private sector.
- The development area is not in the environmentally sensitive 'Step Corridor'; The 'Step Corridor' depicts environmentally sensitive areas which discourages

development altogether in some instances, and limits the type of development in other areas.

- There is vacant land in and around Amabele village, with old buildings having potential to be re-used for another purpose and the basic infrastructure to initiate redevelopment.
- There are possibilities of creating a number of economic spin-offs from the berry farming operations, extensions to the forestry area and dry land cropping at Ndakana, irrigation crops (using the good soils and disused dams).

8.2 Constraints

- Endemic poverty in the area is a major constraint to development efforts requiring integrated planning and development. Such poverty and underdevelopment is placing demands on limited resources.
- The IDP proposes Kei Road as a minor service area and Amabele is not mentioned. Accordingly, the Amabele LSDF is out of line of the IDP and SDF. A review of the IDP will be required to achieve alignment between plans and development programmes.
- There are many tourism project ideas and it is necessary to package them to make them into an attraction and create a critical mass which is more of a destination for visitors to explore and enjoy. Tourism is constrained due to the inaccessibility of attractions owing to poor roads and signage in places.
- The existing lack of institutional capacity and poor cohesion between stakeholder institutions is holding back development.
- The investment of infrastructure, transport facilities, agro-processing plant and buildings will create employment opportunities in and around Amabele village. These investments will create expectations and could lead to the danger of peri-urban development on adjacent land or on land suitable for farming, crop production, forestry and grazing. Growing informal settlement and old buildings in the Amabele village itself are a constraint to development.
- Access to land and water in an around Wiggleswade Dam is constrained by the need for a Resource Management Plan and the requirement there be environmentally sensitive development which does not impact on the water quality of the catchment.
- Current zoning and land ownership at Amabele and Kei Road does not promote new development taking place. Coupled to this is the understanding that a number of properties around the village are subjected to unresolved land claims, which will seriously delay development;

9. FEASIBILITY STUDIES

9.1 Tourism Feasibility

9.1.1 Tourism Market Analysis

After analysing the tourism statistics which are available (See section 8.4), certain assumptions, conclusions and recommendations can be made.

Based on the analysis of national and provincial data it is possible to summarise the profile of foreign and domestic tourists to the Eastern Cape as follows:

	Foreign	Domestic
Origin	UK Germany Zimbabwe Australia	Eastern Cape Western Cape Gauteng KwaZulu-Natal
Purpose of Visit	Holiday	VFR
Activity preference	Nature/Wildlife Historical Sites Museum/Art Gallery Cultural Village Adventure Activity	Social Shopping Night Life Beach Natural Attractions Cultural Attractions
Number of Visitors to/in South Africa (annual – 2003)	6,5 million	49,3 million
Number of Visitors to the Eastern Cape (annual - 2003)	501 000 (7,7% of SA)	7,5 million (15.2% of SA)

A recent article in Finance Week indicated that tourism in Africa is currently showing fastest global growth. In addition, while international tourism grows at an average of 6.7% a year, ecotourism or natural environment tourism, on the other hand, is growing by a constant 10%-30%. It is also interesting to note that at least 40% of international tourists call themselves nature tourists.

SA has been singled out as among the most rapidly growing tourist markets. Tourism has in any event been the world's most rapidly growing economic sector over the past 30 years, and SA is placed among the 25 leading tourist destinations.

9.1.2 Tourism Products

The types of eco-tourism that would be feasible or could be further promoted in the Amabele area could include:

- Bird watching (already well established)
- Game lodges and resorts
- Horse trails
- Fly-fishing (already established but could be further promoted)
- Lodges
- Hunting

Rail Tourism linked to the Eastern Cape's Kei Rail Link is generating momentum. There is already in existence tour operators who take tourists on rail trips from Amabele to Butterworth on the train and then from Butterworth to East London on a coach. However, there is an opportunity for tourists to stop at Amabele en route to their destination and participate in some of the proposed Blueberry initiatives proposed for the Amabele Village area. With the agreement of the Department of Roads and Transport (DORT) having indicated an interest in possibly funding a railway siding to Thornhill farm, a direct rail tourist link could be created.

Due to the existing and proposed tourism products in the Amahlati municipal area there is an opportunity to create a critical mass for rail tourism. The linkage with the Thomas River Conservancy is an existing tourism product that can be linked into the rail tourism network.

There is believed to be considerable feasibility for the development of leisure tourism and eco tourism products linked to water based tourism activities on the Wiggleswade Dam. These products could be linked to the Blueberry Farming initiative and the revitalisation/upgrade of the Amabele Station, creating a unique offering in the area. Coupled with the existing eEscape tourism routes, heritage tourism initiatives and cultural products around Stutterheim, these could act as catalysts for development around the Dam.

9.2 Amathole Blueberry Project Feasibility

In order to determine the feasibility of the Amabele Spatial Development Framework, a summary of the Blueberry Vision and spin-offs need to be highlighted as follows:-

9.2.1 Blueberry Vision

Amathole Berries, focusing initially on blueberry production, processing and marketing, is the development that is central to the Amabele LSDP. From its various presentations and documents, Amathole Berries venture has the vision:

“To be a major Southern Hemisphere producer of Fresh & Processed Berries, meeting international quality standards, while creating wealth in a safe, sustainable manner for all participants in the value chain”

Blueberries are a high value crop but with a high initial investment in plant material and irrigation. It is projected that it will take four years to breakeven. Blueberry farming is however labour intensive, requiring 3 permanent staff and 26 seasonal staff per hectare.

The proposed business will consist of three elements briefly described below, supported by a packing and processing facility.

- **200ha Core Farm at Thornhill**

Thornhill Farm will form the core of the blueberry venture with up to 200ha of high density blueberry orchards and harvesting 5000 tons a year at peak production in 2023.

The farm will employ up to 25 managers, 140 supervisors and 435 semi-skilled permanent staff, together with 4,000 seasonal employees will be required at Thornhill, which will only produce fresh blueberries. A total investment of R45 million will be needed.

- **300Ha Single Outgrower at Keiskammahoek**

A single 300Ha community-based blueberry plantation will be developed at Keiskammahoek, using a similar high density, in field farming system. 6,000 tonnes of blueberries will be produced at peak in 2018. Up to 23 managers, 581 supervisors and semi-skilled permanent staff, together with 11,000 seasonal employees will be required at Keiskammahoek, which will only produce blueberries for processing. A total investment of R98 million will be needed.

Management will be supported by technical skills training from the Thornhill farm.

- **250 Emerging Farmer Outgrowers of +-1Ha Each**

A network of 250 emerging and commercial farmer outgrowers will be established, with technical support and training overseen by Amathole Berries. Each farm will be between 1Ha-5Ha in size, with emerging farmers drawn from the Small Farmer database of the Department of Agriculture and from other interested commercial farmers. The first two sites are in process with a further five applications pending for 2009. These 250 emerging farmers will be contract growers providing

blueberries for processing. They have the potential to provide 500 permanent jobs and 1,500 seasonal jobs.

Amathole Berries propose linking with the Fort Cox intern training program. They will also provide access to non-experiential training via a job credit scheme for all employees and subsidised training for community members.

9.2.2 Blueberry Linked Businesses

Amathole Berries are planning for a packshed and processing facility that will be developed at Amabele, as well as a siding to load fresh and processed product onto rail. Packed blueberries will be rail freighted from Amabele Station to East London. Export fruit will be transported via a mixture of sea and air freight. Airfreight fruit will be trans-shipped to OR Tambo International airport in Johannesburg by rail and then flown to the EU. Sea freight will be packed in containers at Amabele and railed direct to vessel in the East London Port. Fruit transported to local markets will be via train with the local Rail freight depots serving as a local hub. The processing facility will cover a wide range of products, including juice, vinegars, jams, concentrates, purees, IQF (Individual Quick Frozen) and freeze-dry products, which will also be rail freighted.

A number of downstream businesses have been proposed to link with the packshed and the processing facility, including:-

- A 'Blueberry Coffee Shop' and other tourism businesses at Amabele;
- Pick-your-own berries, farm tourism, guest houses, and hikes and meanders can potentially be developed from Amabele linking to Wriggleswade Dam, other tourism routes, attractions and facilities;
- Large volumes of organic compost and bark chips will be needed for the blueberry plants;
- Bees will be needed for pollination of the blueberry plants each year, with an opportunity to develop a 'core apiary' with individual outgrowers with hives in nearby forests;
- Stemming from this there are further opportunities to develop honey, mead and wine businesses.

Additional detail on the feasibility of spin off businesses is contained in Section 10.3 below.

9.2.3 The Blueberry Market

The various presentations and documents of Amathole Berries present the international blueberry market as dynamic and rapidly growing. The total cultivated hectares planted in 2005 were 36,080ha, but this increased by 25% to an estimated 44,455ha cultivated hectares planted in 2008. More than 130 thousand tonnes of blueberries were produced in 2004, mostly from North America but with new producers developing worldwide as set out in the table below. South Africa is a small producer in world terms. Production is seasonal, with the Northern Hemisphere season lasting from April to September and the Southern Hemisphere season from October to April.

World Blueberry Production 2004	
ZONE	PRODUCTION (TONNES)
North America (USA & Canada)	103,495
Europe (Poland, France & Eastern-bloc)	11,320
South America (Chile, Argentina)	10,720
Oceania (Australia & New Zealand)	2,900
Asia	1,015
South Africa	352
World Total (2004)	130,102

In 2000 65% of all blueberries produced were consumed in a processed form, but by 2005 only 44% were processed, with the balance consumed as fresh fruit. The main markets for processed blueberries are for Individual Quick Frozen (IQF) packs, freeze dried blueberries for baking and cereals, juice concentrates and dairy bases used for yoghurt, preserved blueberries for canning and jams, with other markets for wine, fruit vinegar and cosmetics.

Some of the main features in international trade are:

- *United States imports of blueberries have increased from 18,000 tonnes in 1998 to 49,000 tonnes in 2005, a 172% increase;*
- *Driscolls, the second largest berry marketing company in the USA, estimates that consumption of blueberries will grow by 400% over the next five years;*
- *Japan currently imports between 10,000 and 14,000 tonnes of blueberries annually;*
- *The EU does not export any blueberries. Imports are counter-seasonal and are currently just over 2,500 tonnes, primarily from Chile and South Africa. Importers in the United Kingdom have seen consumption outstrip supply and estimate they will need to import 249% more blueberries by 2008 to meet demand;*
- *Chile exports 65% of their production to the USA, 35% to the EU with 4% for local consumption. All the fruit exported is fresh;*
- *Australia & New Zealand export 300 tonnes of fresh fruit to the Far East. They do not import significant volumes of fruit;*

Blueberries have significant health benefits being very low in fat and sodium, and high in vitamins A and C and in antioxidant. With their strong antioxidant properties, blueberries are claimed to reduce aging, to reduce bad cholesterol, and to ease eye fatigue and improve eyesight and memory. Blueberries also contain Polyphenols, which fight Alzheimer's disease and heart disease.

South Africa is a rapidly growing producer from a small base. Southern hemisphere production grew by 219% from 2004 to 2006, with South Africa contributing 10%. The IDC, which is a shareholder in Amathole Berries, is promoting berry production as a suitable crop for both the Eastern and Southern Cape. The main international market for South Africa is the UK, which is a relatively sophisticated market with high quality requirements. South Africa's main competitors in this market are Chile and Argentina. South African blueberries fetch a high price ranging from R40 to R100 per kg, depending on quality and end market, with top quality fresh blueberries fetching the highest price.

9.2.4 Impact on employment

One of the key questions relates to the duration of seasonal employment. The number of months for which seasonal workers will be employed needs to be determined. The Thornhill Core Farm and the 250 emerging farmers, if in the Amabele area, will in total require up to 5,000 seasonal workers based on the data from Amathola Berries. However, estimates for the number of months that these labourers will be required vary from a low of four weeks to a high of nine months, depending on the varieties planted and the harvesting window.

It is vital to choose the varieties planted to maximise the employment potential and the length of seasonal employment to give higher quality jobs. It will be both more cost effective and socially beneficial to maximise the length of seasonal employment towards the upper estimate of nine months of the year. If seasonal workers are employed for around nine months of the year they will effectively become semi-permanent employees and are far more likely to want to settle in the immediate area. If seasonal workers however are only employed for four to eight weeks of the year, they are far more likely to work as migrants from their long term base. Unskilled migrant labourers can only afford low quality accommodation. It is vital therefore to maximize the demand for semi-permanent labourers that will settle in the area and minimise the requirement for migrancy and long distance transport of workers.

With the number of semi-permanent seasonal workers known it will be possible to plan for well designed settlement in the Amabele, Ndakana and Kei Road, the closest villages to Thornhill.

Employees can also be transported from Komga, East London, Stutterheim and the surrounding areas, travelling safely by rail or bus to work. If however seasonal workers only migrate for short periods then this will increase pressure on the area for peri-urban sprawl for migrants.

9.2.5 Potential for a 'Berry Corridor'

Amathole Berries cite potential for a wide variety of berries to be grown in the Eastern Cape. Blueberries can be grown in all the various climatic zones present in the Eastern Cape Province. The potential exists to harvest from August to April for up to 9 months of the year. Raspberries are ideally suited to the colder and more remote areas of the province, such as Molteno, Barkley-East, Tarkastad, and Aliwal North, for the production of processing fruit. Raspberries can be certified organic to increase market premiums and penetration. Blackcurrants are also ideally suited to colder more remote areas for the production of processing fruit. They must be certified organic to be sold for high premium brands such as 'Ribena', 'Fortris', and Nestlé baby foods. Strawberries are ideally suited to more neutral, temperate climates, such as East London, the Wild Coast, Dimbaza, and Somerset East, and can be produced all-year-round for the fresh market.

Amathole Berries has a longer term vision for the Eastern Cape to utilise its natural resources and develop its potential to be a world class berry production region. In the longer term they want to be involved in the production of fresh blackcurrants, straw-, rasp-, black- and blue-berries for processing. They want to partner with the Eastern Cape provincial government to underwrite small farmer participation in producing all berry types. Amathole Berries will provide transfer of

skills and knowledge to contract growers to ensure production of the highest quality fruit.

This has given rise to the idea of a 'berry corridor' in which a range of berries will be grown. Once it reaches significant scale in the longer term, the corridor would become an attractive feature in itself. Links could be developed to agro-tourism through special events, farm stays, tourism routes and trails. It is important therefore to investigate the potential for berry production in the rest of Amahlathi.

One of the main constraints on berry production is water availability. There is water potential for berries on about 1,500ha in the Stutterheim area and 800ha in the Cathcart area. Most soils in the area from Stutterheim to Cathcart are poor so any production must be hydroponics. The Kliplaat River has a dam and strong flow and has expansion potential for berry production, with two farmers interested. There is also some expansion potential from the Thomas and Thorn rivers between Stutterheim and Cathcart.

There is however more expansion potential close to the Amathola range from Stutterheim to Keiskammahoek. As shown in the agriculture section there is both higher rainfall and more irrigable land available. The Amathola Mountains are also an existing tourism attraction and already have a network of tourism facilities and businesses. Accordingly, it is believed the 'Berry Corridor' has its highest potential in the Stutterheim to Keiskammahoek area, linked to the Amathole Biosphere and current and potential nature-based tourism businesses.

From an overall economic feasibility perspective, the production of berries prove to be feasible firstly from the proven fact that the South African berry production grew by 219% over a period of two years and that the United Kingdom (The worlds largest consumer of blueberries) estimate that they will have to increase their imports by 249%. Secondly, the suitable climatic conditions in the Eastern Cape and the ability to harvest berries up to nine months of the year proves that the there is potential to meet an existing market demand.

9.3 Spin-off Business Enterprises

There are a number of spin-off businesses that can be established at Amabele and its surrounds, which could support the Blueberry initiative i.e.:-

- Bees;
- Black Wattle;
- Vermiculture;

9.3.1 Bees

Through the various consultative processes held, the need for Bees for the pollination of the berries has been raised and various ideas in this regard have been provided.

The requirement for bees is based on a ratio of one hive per one thousand plants. If the berries are grown in bags they will be planted at 27 000 plants per ha, in the ground this will drop substantially to between 10 and 15 thousand plants per Ha. Another consideration to take into account is that of varieties as different varieties flower at different times. The table below gives an indication of the number of hives which will be required for the different operations.

Bee Hive Requirements				
Farming Operation	Hectares	Plants per ha	No. of varieties	No. of hives
Thornhill farm	200	27000	5	800-1200
Small scale outgrowers	250	27000	4	1563
Keiskammahoek area.	300	12000	4	900
Total	750			3263-4463

As can be seen from the table the total number of hives required is over 3000. The bee keepers who own these hives will not only have an opportunity to produce honey but will also be leasing the hives to the blue berry farmers for part of the year. The table below gives an estimate of potential income from the bee keeping operation assuming a total of 3200 hives.

INCOME	Cost	Quant.\ha	Value\hive\yr	Per Farm
Honey	R 10.00	200	R 2,000.00	
Lease of hives	R 150.00	1	R 150.00	
			R 2,150.00	R 6,880,000
PRODUCTION COSTS	Cost	Quant.\ha	Value\hive\yr	Per Farm
Transport	R 3.00	200	R 600.00	R 1,920,000
Hive maint	R 150.00	1	R 150.00	R 480,000
Prot clothing	R 300.00	0.01	R 3.00	R 9,600
Labour	R 1,200.00	0.03	R 36.00	R 115,200
Other	R 30.00	1	R 30.00	R 96,000
TOTAL			R 819.00	R 2,620,800
	MARGIN		R 1,331.00	R 4,259,200

The numbers shown must be read with caution as no capital costs and repayments of borrowed funds are shown. To set up a bee industry of this size will cost in the region of R2 000 000.00, what is however clear is that an opportunity exists for a bee industry to be established. Due to the size of the operation and the wide distribution of hives which will be required it would be sensible to run a central unit where the packaging and marketing is done. SMME's could be set up with a smaller number of hives per individual all delivering to the central unit.

Bees are one of the linked businesses to the blueberry venture. Bees are essential pollinators for the blueberry plants to produce fruit, and will need to be brought to all blueberry plants in the area during August to December, with each blueberry variety needing around three weeks for pollination. Large numbers of hives will be needed in total, with a hive needed for each 1,000 plants.

Alternative food sources will be needed for the bees from December to May each year, most probably by foraging in the many nearby small forests. The large

number of hives required at a set time each year therefore requires in a 'core apiary' that will keep a large number of hives that will be reliably available. This core apiary could however also develop opportunities for individual outgrowers, possibly employees of Amathole Berries, with hives in local forests. There will need to be significant training of both staff and outgrowers in beekeeping and the safe handling of bees.

The large number of bees that will be needed in the Amabele area will provide the further business opportunity for honey production. There is a world shortage of honey, which has high demand as an organic product. Hives can be leased out to individual growers, who would be able to develop an income from selling honey. Similarly, there will need to be training in beekeeping and related safety issues.

There are then further opportunities for local businesses in honey processing, mead (iQilika) and wine. These are specialist businesses requiring significant training and skills, but which will provide further employment in the area.

Bees will be a necessity for the pollination of the berry plants. An opportunity is available for SMME's to be established with surrounding communities and entrepreneurs. Integration between the main blueberry industry and surrounding communities will need to be achieved.

9.3.2 Wattle

Black Wattle originates from South-eastern Australia and is restricted to areas with an average rainfall of 500-1500mm and an altitude range of 880mm. It was originally introduced to South Africa (Kwa-Zulu Natal) in the 1850's for shelterbelts and firewood. In Kwa-Zulu Natal it is extensively cultivated for its bark (tannin), wood (pulp) and secondary industries such as charcoal.

Unfortunately the original introduction of wattle was without the numerous natural enemies that kept its spread in check from its country of origin. Wattle grows exceptionally well in the higher rainfall areas of the country or along natural watercourses. Wattle is a prolific seed bearer with the seeds having a lifespan of over 50 years and is extremely fast growing.

When wattle trees are not correctly managed and controlled, they soon become an environmental hazard by taking over indigenous vegetation (both grasslands and indigenous bush) and clog up water courses impeding water flow.

Wattle seed remains viable for 50 years or more. If one considers that the soil under a large tree can contain up to 20 000 seeds per square meter then the potential for spread and the problems of control cannot be over-estimated. The survival techniques, which the wattle tree has developed, have made it one of the most threatening weeds in South Africa.

Wattle trees are aggressive invader plants and will suck water and nutrients from the soil rapidly and efficiently thus preventing any other vegetation growing beneath them. This results not only in a decrease in grazing material and biodiversity but also creates an environment for soil erosion to take place. The knock on effect of this is again damage to watercourses and silting up of water storage facilities. The major impact is that it extracts large amounts of water and reduces water flow.

Today there is a huge conflict of interest with the commercial farmers of Kwa-Zulu Natal and the rest of South Africa where in Kwa-Zulu Natal a Multi Million Rand industry has been created and is expanding.

This Multi Million Rand Industry is based on large tracts of plantations that supply either tannin extraction factories or chipping plants.

The conflict of interest has created many initiatives such as the Working for Water Programme, Silicon Smelters Charcoal Production and an initiative by the Wattle Growers Association to reduce the pressure from other parts of the Country by accepting wattle timber into their industries with negotiated subsidized rail transport rates and better prices for wattle from the Eastern Cape.

The above created an industry for the many Jungle Thickets and certain entrepreneurs and farmers of the Eastern Cape.

Although the creation of an industry did in certain instances create an opportunity to clear the alien parts with a nominal income from this, many landowners have not reinvested the profits into the eradication of the infestations. This has actually worsened the situation by allowing the then jungle thickets to regenerate into possibly unusable/less usable wattle timber.

The Amathole Catchment has the potential to harvest vast quantities of water but is limited by the Wriggleswade Dam System that transfer's water via the Yellowwoods River to the Buffalo River. This is exasperated by the large infestations of alien vegetation mainly in the high rainfall upper reaches of the area flowing along all the rivers and streams.

The estimated area of wattle in the Little Kubusi Catchment (minor portion of the entire Kubusi Catchment) is some 1, 200 hectares. From an agricultural point of view, wattle could prove feasible in supplying growing Medium and Plant Nutrients for the berry production.

The requirements of the Blueberry operation is organic and thus will require naturally provided growing medium and plant nutrients.

The following will be required:

- Growing medium for the plants;
- Plant nutrient supply;

The approach is two-fold where either the blueberries will be potted or grown in the soil. Both will require a composted medium. The growing medium is bark that will be composted that has been sourced from Rance Timbers and other sources through their timber mills.

The bark undergoes a process of composting with the use of chicken manure obtained from ANCA poultry farms and other poultry farms in the area.

The plant material is planted in 20 litre bags with 27,000 plants per hectare (500, 000 m³ /ha excluding replacements). The bags will require some refilling during their production cycle of an estimated 8 to 10 years. Open field planting will require 660m³/ha greater quantity of composted bark material.

It is proposed that plant nutrients are provided via vermiculture by the production of worm castings and worm tea. This will require the development of a commercial operation.

From an environmental point of view, the Amabele area shows a high infestation of non-indigenous, alien invasive tree species such as the highly invasive Black Wattle (*Acacia mearnsii*) and other less invasive species such as pine and eucalyptus. Black wattle is particularly aggressive and it is commonly accepted that these species have the following negative environmental impacts:

- Displace indigenous biota.
- Responsible for significant increase in soil water consumption.
- Reduction of high yield agricultural land used for grazing.
- Reduction in the quality of the soil for future utilisation.
- Increase in soil erosion and loss of top soil, due to lack of undergrowth of grasses and herbs.

The clearing of Black Wattle is a very labour intensive activity where frequent follow-up activities are required to effectively eradicate infested areas due to the coppicing and difficulty in eliminating seed banks.

Before looking at the different options available regarding wattle, the stakeholders need to consider co-ordinating a programme that would take into account the total wattle industry in the region as well as this would involve the entire Amahlathi local municipal area. As one of the major constraints to developing the industry is one of volume this may assist in alleviating this issue. Much of the land, which has wattle plantations on, is privately owned so liaison with the owners would be required. This may well have its own problems but could also be assisted with skills development and private /public partnerships could be developed.

A very important consideration is that the creation of an industry must be seen as a means to the eradication of the wattle and not the long-term creation of an industry. This will require the creation of a programme that includes a number of stakeholders into the development of a well planned programme for the eradication and control of wattle.

Opportunities that exist include:-

- **Pulp Wood**

The pulp wood industry is based in KwaZulu Natal, which has transport cost implications in terms of accessing markets. The transporting of logs to this industry is expensive and makes it difficult for profits to be realized. The wattle is generally of a “jungle” nature and thus not suitable for commercial harvesting. The pulp wood industry only accepts logs of a diameter larger than 4cm and only 10% of a load can be made up of these small diameter logs. They also require the logs to be stripped of bark and the small trees do not strip easily. Thus harvesting can only extract a proportion of the trees. Potential for chipping and transporting the chipped product needs to be investigated.

- **Bark**

The bark price is influenced by moisture content and it is important to ensure that harvested bark is transported immediately to Dalton in Natal to achieve maximum prices. The price for bark is generally low and this affects the feasibility of this option.

- **Charcoal**

The domestic use charcoal market in South Africa is a difficult market to penetrate, as the competition is strong and brand names are already established.

Many individuals have tried this market with limited success, as large volumes need to be sold to realize good profits. As the public is the end consumer in this market quality of product and continuity of supply are key to success.

Due to the difficulties associated with marketing of charcoal the option of linking in with one of the large charcoal companies needs to be investigated. The idea here would be to supply in bulk to a wholesaler who would then repack and retail the product under their brand name. There are a number of wholesalers who buy in bulk and resell; the prices they offer are approx R750/ton. As mentioned earlier they are supplying the consumer markets, which are fickle, and quality control is of utmost important.

Carbo Natal which is a company involved in making charcoal for the export market has been contacted. They are based in Greytown in KwaZulu Natal, which is again a long way away, and transport to them is expensive. The volume of timber available in the Keiskammahoek area is insufficient and of too poor a quality to attract them here to open a manufacturing plant.

Other options to investigate include companies such as Silicon smelters who utilize charcoal as a raw material in manufacturing of other products. Silicon smelters are already active in the Eastern Cape. The advantage of marketing through them is that they have people in the area that can assist with training and operating procedures. They would also take the total volume of production as and when it is produced. Again here quality is important; there pricing structure is on a sliding scale with maximum being paid for charcoal, which has less than 3 % fines. As the percentage of fines increase in the charcoal the price paid decreases. With the margins on charcoal being low it is important to ensure minimum fines so that maximum price is achieved.

- **Firewood**

The value of firewood is very low and the cost of cutting it and transporting it will be more than its value, it is therefore not a viable enterprise. Firewood can however be collected by the community after the main enterprise is completed. The communities will then be utilizing a “waste product”.

- **Chipboard**

PG Bison has developed a chipboard operation in Ugie and it would be important to investigate the opportunities for transporting wattle chips.

- **Building materials**

Although the rural populations of South Africa have traditionally used wattle for building purposes this is a small market. It is also a diminishing market as people move to more permanent brick structures with corrugated iron roofs.

Farmers and communities use wattle poles for droppers in fences, these require treating with creosote.

- **Compressed Charcoal/coal**

An industry at present is being developed that will make use of any organic material for the production of compressed charcoal as a replacement for coal. This opens up an opportunity for the use of bi-products such as thinning. The price being offered is low and thus would only assist with bi-products.

- **Compost Production**

Wattle or any other biomass can be chipped and composted. The composted would be packaged and marketed to either farmers or for garden use. This product could be utilized for overworked lands. The key to the success of this would be in

the marketing of the product. Included is the option of using this as a food for the vermiculture farm.

NOTE: Chipping equipment for large material requires expensive equipment. Simple operated equipment can use smaller sizes.

- **Value Added Products**

Wattle poles, timber and bark can be used to make furniture and other decorative and functional items. These products are generally aimed at the top end of the market where certain designs are required. It is very much a niche market that is difficult to penetrate and requires specific skills. Should individuals in the community have the skills to manufacture these products and can penetrate the markets they can be fairly lucrative. This is however a small industry and should rather be seen as an opportunity for SMME development within the main industry.

From the Economic, Agricultural and Environmental Feasibility on wattle depicted above, it can be stated that the eradication of Wattle and the opportunities for by-products prove to be feasible at this stage of this study, with greatest opportunities being offered to eradicate wattle and linking that programme to the ready market of berry producers needing growing medium for their plants.

9.3.3 Vermiculture

Earthworms of a particular variety break down organic material via the process of speeding up the composting process. The worm castings contain 5 times more nitrogen, 7 times more phosphorus and 11 times more potassium as compared to soil (generalization).

The use of vermiculture, worm castings and worm tea has very positive implications in terms of a fertiliser. This is despite the nutrient levels of these products being low, as can be seen from the table below and other plant nutrients will be required.

Nutrient	Worm castings	Liquid Worm Tea
Nitrogen	.26%	.06%
Potassium	.13%	.04%
Calcium	1.2%	.01%
Sodium	.09%	.05%
Zinc	.004%	.0005%
Iron	.18%	.001%
Magnesium	.07%	.003%
Copper	.002%	
PH	Neutral	Neutral

The nutrient content differs from types of composted material utilised as worm feed.

Other benefits include:-

- *Soil conditioner and plant growth stimulant*
- *Restores soil bacteria*
- *High water holding capacity*
- *Promotes the release of locked nutrients*
- *Aids in recovery of nematode damaged plants*

- *Contains Mycorrhizae and Exomycorrhizae that aids with uptake and use of nutrients*

Due to the limited information available a number of assumptions have been made utilising the available literature. The worm will eat approximately 4 times its size a day and the wormery will produce approximately 75% in the form of worm tea. It is estimated that a kg per plant of worm castings with an estimated requirement of 25 tons per hectare per year or 18, 750 tons for the operation once it is in full production (750 hectares).

An estimated 30 litres of worm tea would be required per hectare per year. An excess of worm tea would thus be produced as the production would be 70,000 litres with an estimated requirement of 25, 000 litres. The worm tea would also be used in both composting process growing medium and nutrient supply to worms.

It is assumed that worm tea is applied at the following stages:

- *Early spring growth;*
- *Pre-bloom;*
- *First fruit set; and*
- *Every 3 weeks before harvest.*

The quality of the final product is dependant on the organic matter that is supplied. The worms have a preference of food material with a carbon to nitrogen ratio of 30:1. Organic materials vary in their carbon to nitrogen ratio. Management will be required in terms of the food mix supplied. This will also have to be monitored in terms of the end product.

Advantages:-

- *Organic product – healthier end product, less harmful to environment;*
- *Carbon credits;*
- *Employment creation;*

Limitations:-

- *Sourcing of organic material;*
- *Material is bulky and costs of transport could be high;*
- *Low levels of nutrients would require supplementation for optimum production;*
- *New technology;*
- *Capital requirements;*
- *Dependant on worm feed could be smell and attract unwanted insects and rodents;*
- *Temperatures required for active worm production 12 to 21⁰C for optimum production;*

The sustainability of this operation will not only be limited to the development of the Blueberry operation and thereafter could supply other potential markets.

These potential markets include:

- *Home gardens; and*
- *Commercial farmers (all crops) - Supply positive micro-organisms for promotion of root growth and other benefits;*
- *Garden Nurseries.*

Sources of Organic Material (Any Organic Material)

- Sawmills (wood by-products – sawdust, bark, off cuts)
- Abattoir waste
- Refuse (dependant on LM)

- Alien Vegetation (chipped)
- Chicken litter

The organic material will depend on its size and density and it would be an advantage to initiate some form of composting and shredding to assist the worms with their further production

The development of the vermiculture operations could be developed similarly to the out growers of the Blueberry operation where a central unit will undertake the production with outsourcing smaller producers. The central unit will provide support and marketing.

The productions via vermiculture or “vermiculture farms” vary from a fully automated unit to a simple home garden operation.

The quantification of this industry in terms of costing is very limited as limited information is available. Some assumptions have been made to estimate these costs and they are as follows:

- *A mixture of wattle chips and other organic material will be used;*
- *Limited labour requirements;*
- *A trenching system will be used;*
- *A loss of 25% of organic material can be expected; and*
- *The worm operation will be at the site of wattle chipping and finished product will be transported to farms.*

The cost estimate for production and delivery of a ton of worm castings and tea to farm is estimated at R500.00. An estimated 10 people will be employed to run the operation. A similar set up is already in existence in Stutterheim, currently being operated by Mr. Charles Frost. Linkages with Mr Frost and the Amahlathi Municipality will have to be established to build on the existing strengths of the area.

Amathole Berries will farm organically, requiring high volumes of compost. An organic fertiliser production business will therefore be needed to service Amathole Berries and their contract growers. Large quantities of organic waste are needed for composting with the main local source being municipal organic waste and Afval. There is a need to determine the composting production system and the berry requirements for compost. Indicative production figures show that 1 kg/plot/year of worm casts will be needed, requiring 30 lts/ha/year of worm tea and a 1 in 4 ratio of casts to tea.

Labour requirements for composting are limited, but vermiculture is a small business opportunity. The siting of the composting facility or the resiting of the municipal organic refuse dump is an environmental issue. A service contract will also need to be established between the composting business and the Amahlathi Municipality.

Vermiculture is needed for the sustainability/success of the Blueberry Farm. This can be seen as an opportunity for a SMME or joint venture between the municipality and the community.

9.4 Other Agricultural Business Opportunities

Other than the feasibilities completed above, the following agricultural feasibilities have been looked at:-

9.4.1 Cropping

Apart from the above-mentioned opportunities that exist from an agricultural perspective, the following agricultural opportunities can be established in the secondary study area and would contribute to the sustainability of the Municipality as a whole. The farms from Thornhill to Amabele and around Wriggleswade dam are established commercial farms concentrating on livestock production. These farms are privately owned. The Ndakana area adjacent to Amabele has the best opportunities for cropping of both rainfed and irrigated crops.

The crops traditionally grown in the area are maize under rainfed conditions and vegetables under irrigated conditions. The vegetables are at this stage grown on a very small scale in gardens while maize is grown on a more commercial scale. Most of this maize is grown under the Massive food scheme of the department of agriculture. The land is communal land which necessitates the formation of communal farming entities such as co-operatives.

There is also an area of state land which was run by the ex Ciskei agricultural arm ULIMOCOR which is now not being utilised. This is medium potential land which has a borehole on it. This borehole was utilised in the past for irrigation purposes but is now standing open. This borehole will need to be inspected to determine whether it can be resurrected or not.

There are also two dams and a borehole in the Ndakana area which are not being utilised. These natural resources need to be developed for irrigation purposes to benefit the community. The gross margin tables below give an indication of the margins which can be achieved growing maize under rainfed conditions and cabbage under irrigation.

Gross Margin Determination for Maize						
GROSS MARGIN BUDGET		Maize 20 Hectares planted				
INCOME						
		UNIT	COST	QUANTITY	PER HA	PER FARM
Maize Grain		each	1800	6	R10,800.00	R216,000.00
Total					R10,800.00	R216,000.00
ALLOCATABLE COSTS						
Seed		Packet	R1,200.00	0.5	R 600.00	R12,000.00
Fertiliser	MAP (32%)	tons	R13,800.00	0.3	R4,140.00	R82,800.00
	LAN (28%)	tons	R6,200.00	0.2	R1,240.00	R24,800.00
	Gypsum	tons	R1,800.00	0	R0.00	R0.00
Chemicals	Bladbuff	l	R32.50	0.125	R4.06	R31.25
	Karate	kg	R95.00	0.7	R66.50	R1,330.00
	Pre-E Herb	l	R90.00	2.5	R225.00	R4,500.00
	Seed treatment	Gm	R1.00	10	R10.00	R200.00
	Glyphosate	l	R50.00	4	R200.00	R4,000.00
	Amistar	l	R756.00	0	R0.00	R0.00
	Insurance	Tons	R140.00	4	R560.00	R11,200.00
Contracting costs		Ha	R1,650.00	1	R1,650.00	R33,000.00
Total Allocatable Costs					R8,695.56	R173,911.25
Margin above Costs					R2,104.44	R42,088.75

GROSS MARGIN BUDGET AUTUMN CABBAGE PRODUCTION: 5 Ha					
INCOME		Cost	Quantity/Ha	Value/Ha	Per Farm
CABBAGES SOLD		R2.00	20 000	R40,000.00	R200,000.00
PRODUCTION COSTS					
CABBAGE PLANTS		R0.20	30 000	R6,000.00	R30,000.00
FERTILISER	MAP	R14,000.00	0.95	R13,300.00	R66,500.00
	KCL	R12,000.00	0.12	R1,440.00	R7,200.00
	LAN	R6,200.00	0.33	R2,046.00	R10,230.00
CHEMICALS					R0.00
	Roundup	R80.00	4	R320.00	R1,600.00
	Carbosan	R22.00	2	R44.00	R220.00
	Butisan	R231.00	1.5	R346.50	R1,732.50
	Midofos	R43.00	3.2	R137.60	R688.00
	Nu Film P	R76.50	3	R229.50	R1,147.50
	Mobonspray	R29.00	3	R87.00	R435.00
IRRIGATION		R36.00	35	R1,260.00	R6,300.00
CONTRACT CULTIVATION		R1,910.00	1	R1,910.00	R9,550.00
BAGS		R0.00	0	R0.00	R0.00
TOTAL				R27,120.60	R135,603.00
MARGIN				R12,879.40	R64,397.00

The cost of irrigation infrastructure is approximately R35 000 per ha. Before any irrigation development is done a separate business plan for the different schemes should be carried out.

9.4.2. Forestry

The area has limited potential for forestry expansion due to the licensing requirements of Department of Forestry and the demand for grazing in the communal farming areas.

The land situated at the top of the escarpment between Ndakana and Amabele used to be forested with pine. It is considered feasible to motivate to reintroduce pine forests in this area.

9.4.3 Livestock

The current use of the land for agriculture is largely for livestock farming of both sheep and cattle. This is a well organised industry and has the structures in place to ensure its continuous success. Most of this type of farming is done by commercial farmers on privately owned land.

Many farmers are running livestock on communal and state owned land, their contribution to the livestock and wool industry is however limited. From a livestock point of view the aim of government and communities must be to produce better and therefore contribute more to the industry as a whole.

Economic Feasibility: Opportunities for Agriculture

It is clear that the area most suited for agricultural expansion is the Ndakana area. The land here is communal and state land and has a number of settlements on it. For successful agricultural development to take place these settlements would require extensive facilitation and training.

The traditional enterprises offer feasible options for development if done efficiently, maize in particular has shrinking margins due to the sharp increase in input costs over the past year. Opportunities in high value crops including forest, vegetables, berries and bamboo need to be investigated further.

The eradication of the wattle is a must and a new industry needs to be created around this. Unfortunately much of the wattle is of a jungle nature and has a low commercial value in the current timber industry. The vermicasting offers an alternate use for this low value wattle and we believe should be explored further. As this is a new concept much of the initial work will be on a trial and error basis although educated assumptions can be made.

Economic Feasibility: Final Observations

The estimated financial returns and employment generation for Thornhill Farm and for the directly linked blueberry packing and processing businesses are substantial. By comparison, the financial returns and employment creation for the Amabele and Ndakana based agricultural enterprises are expected to be far lower.

It is accordingly recommended that opportunities for blueberry outgrower production to also be located in the farming areas around Ndakana be investigated further. This could be achieved through a Community-Public-Private Partnership (CPPP) farm that will be able to give greater benefits than just employment to the overwhelmingly poor Ndakana community members. If successful, this initiative could also be able to minimise transport costs and maximise access for potential agro-tourism enterprises.

9.5 Environmental Feasibility

The Amahlathi Strategic Environmental Assessment identified the following opportunities and constraints relating to the ALM. Some of the environmental opportunities that are potential relevant to the Amabele area is summarised in the table below:

Opportunity	Spatial Planning Implications
LAND DEGRADATION AND SOIL EROSION	
Land Care funding can be obtained to rehabilitate eroded areas.	Identify threatened areas for rehabilitation with the aid of the Land Care. <i>Soil conservation</i>
LAND USE	
Land is available for agriculture and conservation projects	Map potential agriculture and conservation opportunities. <i>Ensure good management practices for agricultural and conservation areas are initiated</i>
WATER	
Development of ecotourism ventures adjacent to rivers and wetlands.	Designate rivers and wetlands suitable for ecotourism ventures and other developments that result in minimal disturbance of the habitats. <i>Wetland and river protection</i>
Implementation of Working for Water projects	Identify invaded areas for rehabilitation with

Opportunity	Spatial Planning Implications
to rehabilitate areas invaded by exotic plant species, including riparian vegetation.	the aid of the Working for Water Programme. <i>Wetland and river protection</i>
Implementation of Working for Wetlands projects to rehabilitate wetlands.	Identify threatened areas for rehabilitation with the aid of the Working for Wetlands Programme. <i>Protection of wetlands</i>
FLORA and FAUNA	
Initiation of ecotourism development to recognize the sustainable use of areas of vegetation importance.	Exclude developments, except those with minimal impact on the sensitive vegetation (e.g. indigenous forests, wetlands, montane grasslands and rocky outcrops). <i>Protection of areas of high biodiversity</i>
Establishment of conservation/educational trails to see the natural vegetation and scenery.	Careful planning of the routing of trails will be necessary i.e. through indigenous forests. <i>Protection of areas of high biodiversity</i>
Rehabilitation of natural vegetation in areas invaded by alien plant species.	Identify invaded areas for rehabilitation with the aid of the Working for Water Programme. <i>Protection of areas of high biodiversity and important water catchments</i>
Protect areas of high biodiversity e.g. Amatole Complex and areas identified by STEP	Limit land uses that reduce biodiversity <i>Protection of areas of high biodiversity</i>
Potential to rehabilitate indigenous forests for carbon credits	Map all indigenous forests that could be cleared and rehabilitated for carbon credits. <i>Protection of areas of high conservation value and economic opportunity to gain carbon credits</i>
FAUNA	
Initiation of ecotourism development to recognize the protection of habitats for Species of Special Concern e.g. Cape Parrot, Hogsback Frog, etc	Exclude developments, except those with minimal impact on the sensitive faunal habitats (e.g. indigenous forests, wetlands, thicket, montane grasslands and rocky outcrops). Do not allow servitudes to be routed through sensitive vegetation unless with a minimal impact. <i>Protection of areas of high biodiversity</i>
HISTORICAL AND CULTURAL RESOURCES	
Establishment of ecotourism ventures linking areas of conservation and cultural importance.	Exclude all developments not compatible with sites of cultural significance. <i>Tourism initiatives and protection of cultural and historical heritage</i>
Protection and restoration of sites of cultural significance.	Avoid development in areas containing sites of cultural significance. Involve communities in restoration and protection of sites. <i>Tourism initiatives and protection of cultural and historical heritage</i>
SOCIO-ECONOMIC	
Land reform initiatives	Land reform initiatives have been identified and indicated in the SDF. Environmental

Opportunity	Spatial Planning Implications
	implications need to be included. <i>Protection of environmentally sensitive areas</i>
Local economic development (LED) programmes	LED initiatives have been identified and indicated in the SDF. Environmental implications need to be included. Additional LED initiatives must be identified and indicated spatially in the SDF. <i>Protection of environmentally sensitive areas</i>
Growth of game farming	Current game farms must be mapped and included in SDF Additional areas suitable for game farming must be indicated. <i>Protection of environmentally sensitive areas provided game farming conducted in an environmentally sustainable manner.</i>
Tourism opportunities focussing on the unique environments e.g. forests and montane grasslands.	Areas suitable as tourism destinations must be included in the SDF. <i>Protection of environmentally sensitive areas</i>
Opportunities in eco-tourism and certain agricultural practices (e.g. medicinal herb nurseries) to improve the local economy	Indicate areas suitable for eco-tourism and agriculture to boost local economy. <i>Protection of environmentally sensitive areas</i>

9.5.1 Mega-Conservancy or Protected Area

A growing trend in South Africa is the establishment of conservancies where land owners with a common interest in conservation pool their land to establish a conservancy or protected area. A great deal has been written about the benefits of conservancies as they often provide secure environments which protect species of special concern, thereby preserving the species as a whole.

A recent report by the Centre for African Conservation Ecology (2006) highlights the socio-economic benefits of eco-tourism-based private game reserves (PGRs). Based on an analysis of 10 private game reserves, the study determined that PGRs provide a highly desirable land-use option compared with traditional land uses, where a change from farming to game based eco-tourism resulted in a 4.5 fold increase in employment and a 32 fold wage increase compared to agricultural activities.

It is strongly suggested that consideration should be given to establishing a mega-conservancy area immediately north east of Amabele, where one finds scenic and rugged terrain that could be very conducive to wild life and nature-based tourism.

9.5.2. Aquaculture Potential

There is a significant increase in interest in aquaculture both in South Africa and globally where global fish consumption has doubled in the last 40 years, outpacing population growth. In addition, fish is regarded as a good protein source and is promoted by nutritionists for the associated health benefits. Wriggleswade Dam could present opportunities for culture of freshwater fish species. However, setting

up an aquaculture business can be a risky exercise and requires a serious commitment of time and financial resources. In addition, aquaculture ventures are highly technical and require skilled staff to maintain the operation. As with any other business venture, it requires a detailed feasibility study before investment decisions are made, but the opportunity to train local community members combined with the available natural resources and market demand, may warrant further investigation. The Eastern Cape Development Corporation has indicated that the Wriggleswade Dam was identified as a Leisure Dam and not as a priority dam for Aqua-culture in studies that they completed.

- **Possible products/species**

It is suggested, as a start, that an aquaculture facility at the Wriggleswade Dam could focus on Tilapia products. The total aquaculture production of Tilapia was reported to be 1,265,800 tons in 2000. The largest exporter, Taiwan, supplies Japan with high-quality Tilapia fillets for the sashimi market, and ships frozen Tilapia to the United States market (40,000 tons in 2001). Taiwan exports about 70 percent of its domestic Tilapia production. In Africa, Zimbabwe, now also produces fresh and frozen fillets for the EU market.

The following criteria may be relevant for the establishment of an aquaculture project:

- Located on a suitable site, reliable water source and suitable land
- Acceptable water supply and water quality conditions
- Knowledge of the relevant climatic and land conditions
- Climatic conditions that are suitable for the intended species (which should be natural to the area)
- Access to the relevant target markets
- Adequate space for intended use plus future expansion
- Access to services, technical assistance and public infrastructure such as roads
- Environmentally friendly enterprise

9.5.3 Waste Management

- **Zero-Waste:-**

The Blueberry farming and Amabele Village initiative should strive toward a zero-waste programme. This would be consistent with the objectives of the National Waste Management Strategy and the principles of sustainable development, where the following waste management hierarchy is promoted:-

WASTE MANAGEMENT HIERARCHY	
Cleaner Production	Prevention
	Minimisation
Recycling	Reuse
	Recovery
	Composting
Treatment	Physical
	Chemical
	Thermal
Disposal	Landfill

Programmes that could be considered for the Blueberry farm and surrounding villages include:

- Waste separation onsite.
- Composting of organic waste for use in the Blueberry farms.
- Vermi-composting (worm farms).
- Recycling of non-organic materials.

The environmental feasibility has depicted that the proposals for by products of the blueberry industry eg vermiculture, bee keeping and wattle eradication for charcoal, etc are feasible and need to be incorporated into the scenario planning to determine the sustainability.

9.6 Infrastructure Feasibility

9.6.1 Water

- **Domestic:-**

Amabele Village is currently supplied with water from the Kubusie River scheme administered by Amatola Water. According to the current IDP, ADM/MIG is funding the R10 million Kei Road Water Treatment Works and the R2 million Kubusi pump upgrade which is currently underway. This scheme will increase the feasibility of future development in the village. The local rural villages are supplied either by Amatola Water or Amathole District Municipality and the capacity of these schemes will not easily support future development.

- **Groundwater:-**

There is significant ground water potential in the area for both domestic and irrigation purposes. In terms of the “Groundwater Harvest Potential of the Republic of South Africa”, Amahlathi falls into an area where:

- *15,000 to 25,000 m³/km²/annum can be abstracted;*
- *Average borehole yields of up to 1,5l/s can be expected;*
- *TDS's in the range of 750 – 1000 can be expected;*
- *The limitation on abstraction is the volume of effective storage;*

Better than average yields and qualities can be anticipated at interfaces with dolerite extrusions, a common phenomenon in the Amahlathi area.

It is important that the use of groundwater be considered for both domestic and irrigation water.

9.6.2 Water for Agriculture

Under the “Reconciliation Strategy for the Amatole Bulk Water Supply system”, it was noted that provision should be made for 701 ha of “run river” irrigation between Gubu and Wriggleswade with an annual average quantity of 5, 26 million m³/annum. Downstream of Wriggleswade provision is to be made to irrigate 400 ha, with an average annual quantity of 3, 00 million m³/annum.

Actual irrigation allocations are determined by DWA, Amatola Water and the Department of Agriculture in consultation with the irrigation boards and Water User Associations.

9.6.3 Sanitation

Apart from the major centres such as Komga, Stutterheim and Keiskammahoek there is predominantly on-site sanitation. Amabele has a centralised treatment facility linked too much of the village development. Septic tanks and soak-a- ways are used for some properties on the fringe of the developed area. The waste treatment facility will not be suitable for future land uses in this town and upgrading and expansion will be needed.

9.6.4 Electricity

Only 67 percent of people in the Amahlathi area have access to electricity. By the end of the 2008 financial year, Eskom has planned an additional 1800 connections in the Tsomo/Amahlathi Project, at a cost of R15, 6 million. The backlog will then be R8 million after the end of 2008.

- **Alternative Energy:-**

There is a responsibility globally, that alternative sources of energy need to be investigated in all proposed developments. Sustainable energy solutions need to be identified, especially in South Africa, with Eskom experiencing severe infrastructure challenges and finding it difficult to meet electricity needs, all options need to be investigated.

The following are some *sources of alternative energy* which can be investigated in this study. Once the various scenarios are in place, a better understanding of some of the main industries will be determined and in retrospect, alternative energy options can be determined.

- **Bio-fuels**

With the sharp increase in oil prices over the past few years there has been a renewed interest in the production of alternate fuels, with the emphasis been on environmentally friendly methods and renewable energy sources. Timber is a renewable energy source and research has been done on bio-fuel production from it. The research indicates that using waste products from the timber industry can be viable, but the bio-fuel industry cannot compete with the traditional timber industries for the high quality timber, as it is too expensive. The waste biomass from forestry operations includes all the bio-mass that is not used for saw logs (small branches, tops, etc) and the sawdust and shavings from the processing plants. The raw fuel is thus cheap but the transport is expensive as these products are often low-density products.

The Canadians are leaders in this field and have developed a portable bio fuel plant that can be dismantled, moved and erected within a week.

- **Electricity**

The generation of electricity from wood is also been researched. This is pertinent to South Africa at present as we are experiencing regular power cuts throughout the country. The generation of electricity from wood can be done by generating steam to drive a turbine or by a gasification process. This involves gasifying the wood and using this gas as a fuel to drive either an internal combustion engine or a gas turbine, which in tern generates electricity.

Electricity is not a commodity than can be easily stored and thus needs to be sold as it is generated. Eskom is the only supplier of electricity in South Africa so they would need to be approached to discuss the purchasing of any power produced.

Other alternative energy sources which can be included are as follows:-

- *Solar heating or photo-voltaic*
- *Possible wind farm pilot*
- *Biomass from wood and other organic buy-products to generate electricity or to meet other energy requirements (e.g. heating)*
- *Biogas (bio-methane) from digestion of organic waste can be used directly or to generate electricity;*

9.6.5 Roads

The National Route N6 passes by the Amabele Station so road access to the Station is excellent. The district road DR02779 is the shortest route to the Farm Thornhill and closely follows the railway line to Ross Siding. The road has an all-weather gravel surface, is 5 – 6 m wide with unlined side drains. It is also the main road to Wriggleswade Dam and upgrading is considered feasible. With respect to linkages to Komga, there may also be merit in extending this surfacing to intersect the Kei Road – Komga Main Road.

It is noted that the surfacing of the Stutterheim / Tsono Road is on the IDP for 2008/9, 2009/10 and 2010/11. The amount budgeted of R140 thousand per year is woefully inadequate for that purpose.

9.6.6 Rail and Passenger Transport

Articulated buses are the recommended most feasible means of transporting workers from Amabele to Thornhill, especially in the early years. In the longer term, there is significant opportunity for the Kei Rail to operate a Metro (commuter) service which could be run between Amabele and Komga, drawing workers from both areas. The financial and logistical implications of transporting between 3000 to 5000 workers everyday during the harvesting season are likely to be significant. Both taxi and bus facilities will be needed in the Ndakana area and then also within Amabele village itself, to accommodate transport needs. (It is suggested these be linked to the station to create an intermodal transport interchange).

According to the feasibility study and business plan for the Bus Road Transport System for Buffalo City, the estimated cost of transporting people 15 to 20 kilometres will be R8.00 per trip. The cost of moving 3000 workers to and from Amabele is estimated to cost R1 440 000.00 per month in the harvesting period. The impact of these costs on the feasibility of developing the berry production at Thornhill rather than locating berries near where people reside, requires further assessment.

It may also happen that a number of employees will choose to walk to and from Amabele, rather than use the taxi to get home. This may result in large numbers of people crossing the N6 early in the morning or in the evening, creating a highly dangerous traffic situation.

9.6.8 Solid Waste

New settlement patterns and the developments envisaged for Amabele and Thornhill will generate considerable quantities of solid waste. Amabele is 30 km from the Stutterheim and Komga solid waste sites, and 45 km from the King William's Town one.

In terms of infrastructure feasibility, the above depicts that there are no major infrastructure limitations which could prevent development from taking place in the area, however the feasibility of moving large volumes of employees to and from Amabele is expected to be have high cost and safety implications for Amathole Berries and the Public Sector.

10. KEY ISSUES

An analysis of the demographic, physical and socio economic characteristics of the general region around Amabele village and the village itself concluded that the following key issues need to be taken into account.

10.1 Policy alignment and Integration

In order for successful implementation of the Amabele LSDF to be achieved it is essential that the plan align with overriding policy frameworks namely; the Amahlathi IDP and SDF. In addition, sustainable development in Amabele village will only be achieved in the context of uplifting and developing Ndakana as well in the form of an integrated approach to both settlements.

10.2 High Potential for Development

The study concluded that the area has substantial potential due to its high accessibility, proximity to major transport systems, available land and infrastructure, high rainfall, superior soils, attractive scenic areas, rivers and large water bodies.

10.3 Feasibility for a wide variety of enterprises

The feasibility study identified a large number of potential agricultural, tourism, commercial and transport business opportunities which could be established. These could take the form of private, community or PPP type enterprises. Such a variety of business opportunities would enable much needed participation of communities in the region who are in urgent need of economic upliftment.

10.4 The Need for Diversification

The large scale investment in berry production, processing and packaging will create substantial employment opportunities and economic spin-offs. However, there is a need to ensure there is diversification of commercial and agricultural enterprises to reduce dependency on the berry project. In addition, the seasonality of employment in the berry project will necessitate farming other crops which will ensure employment in other seasons as well (i.e.: "berry counter-crops").

10.5 Transport Logistics

The feasibility studies highlighted the implications for Amabele village relating to the transport logistics of moving large numbers of employees to and from Thornhill Farm for work during the peak production period each year. Whilst rail appears to be an option, it

is expected road transport will offer the most flexible and manageable option in the short term. The capital and operational costs of the rail transport operation will need to be considered. In addition, the design and construction of adequate facilities, ranks, bridges and roads in and around Amabele will need to be prioritised to ensure safe movement of employees and vehicles.

10.6 Resource Management Plan

A number of potential tourism developments have been identified for the region, particularly in the vicinity of Wriggleswade Dam. However, the viability and feasibility of these proposals need to be appraised in terms of a Resource Management Plan to be prepared for the catchment and Wriggleswade Dam Area, under the auspices of the Department of Water Affairs and Forestry.

11. DEVELOPMENT SCENARIOS

Two development scenarios were assessed in order to guide where investment could best be directed, what development would be feasible and how stakeholders could participate, given the likely benefits expected to arise from each scenario. In addition, the scenario planning enabled the stakeholders to achieve common consensus on the best spatial development form for the focus area and the prioritisation of expenditure to reach the desired development outcome. The alternative scenarios were tested against the views of the various stakeholders and community representatives and, also evaluated in terms of the agreed development principles. On this basis an agreed scenario was selected and used as the framework for the preparation of the Spatial, Economic and Infrastructure Plans.

11.1 Development Scenario No 1

11.1.1 Regional Context

This scenario (refer to **Figure 15**) is based on the continuation of the existing agricultural situation whereby farming of livestock continues to be undertaken in the area around Amabele and Wriggleswade Dam. Rising input costs, high crime levels and pressure on the land from changing climatic conditions brought on by global warming and alternate forms of farming will see declining agricultural output. The black wattle encroachment problem is addressed by a concerted combined effort by all stakeholders. A sustainable and comprehensive long term plan is implemented to eradicate the wattle from the riparian areas and control the plantations elsewhere. The result will be an increase in grazing and cultivated land area for agriculture. More water will become available and licences will be issued for forestry development in the Ndakana area.

Finance is made available for a revival of agricultural development in the Ndakana area where the focus is on small areas of high value irrigated crop production (such as vegetables, fruit and flowers) forestry and extensive cropping under rain fed conditions.

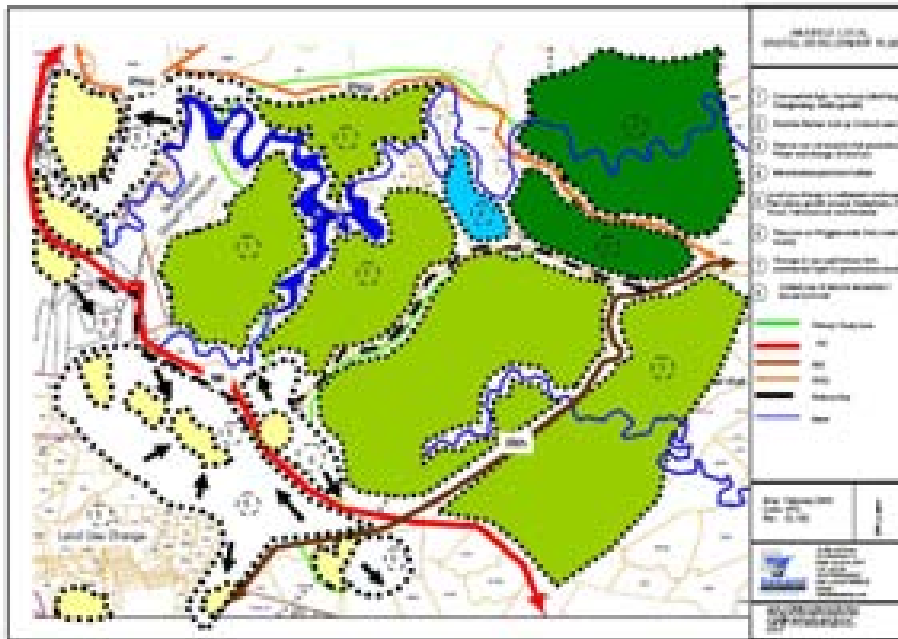


Figure 15: Regional Development Scenario 1

Amathole Berries will achieve full production on Thornhill Farm, water issues on the lower Kubusie will be resolved and private farmers will enter into berry production. The Keiskammahoek out grower programme will develop and the Department of Agriculture will assist small outgrowers to enter into berry production in the Stutterheim, King Williams Town and Tyume areas.

The eEscape Tourism initiative will facilitate the extension of tourism packages linked to water based leisure tourism, limited rail based tourism excursions and seasonal agri-tourism linked to the berry harvesting season.

Local economic enterprise initiatives will be established through partnerships between the Private Sector, Communities and Government. Such enterprises will include wattle beneficiation, Bees, Vermiculture, Transport services, game conservancies and a community based Lodge overlooking the Wiggleswade Dam.

11.1.2 Amabele Village and Ndakana (Local Spatial Context)

In the local development scenario 1 (refer to **Figure 16**) the community of Ndakana develops various agricultural enterprises by turning much of the land between Ndakana and Amabele village into productive community agricultural activities as counter crops to offset the seasonality of the berry crop. These could include forestry, dry land cropping, bamboo, vegetables and other high value crops. A small plot growing berries linked to the tourism venture in the village is established as a “pick your own berries” outlet.

The Amabele Village undergoes substantial upgrading and redevelopment into a major rural service node, to accommodate the new packaging processing plant, winery and training facility. Additional housing is built for management and other investors. In this scenario there would be major infrastructure upgrading to accommodate the growth of commuting labour from Ndakana to Thornhill farm, from an estimated 1000 people per day in the next 3 years to 5000 people per day by year 10. This commuting traffic would be considerable during the summer harvesting months and at a lesser scale during winter months.

A tourism centre is established in partnership with the Local Tourism Organisation and the community. This centre provides a link to tourism products and heritage tourism routes in the area, access to the berry production (Pick your own Berries) and provides a commercial/refreshment and information outlet to visitors.

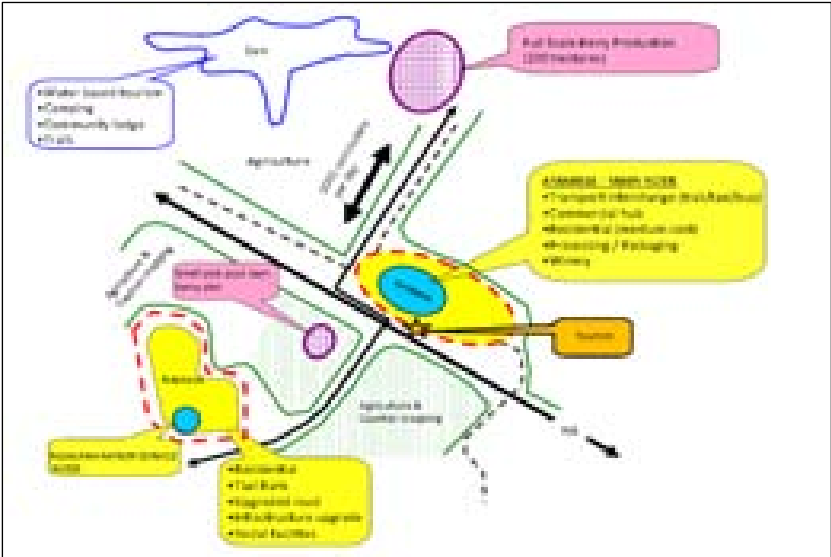


Figure 16: Local Development Scenario 1

11.2 Development Scenario No 2

11.2.1 Regional Context

This second scenario (refer to Figure 17) is founded on the assumption that agricultural practices in the area will move towards establishment of a mega game conservancy and provision of a section of packaged tourism experience for domestic and international visitors.

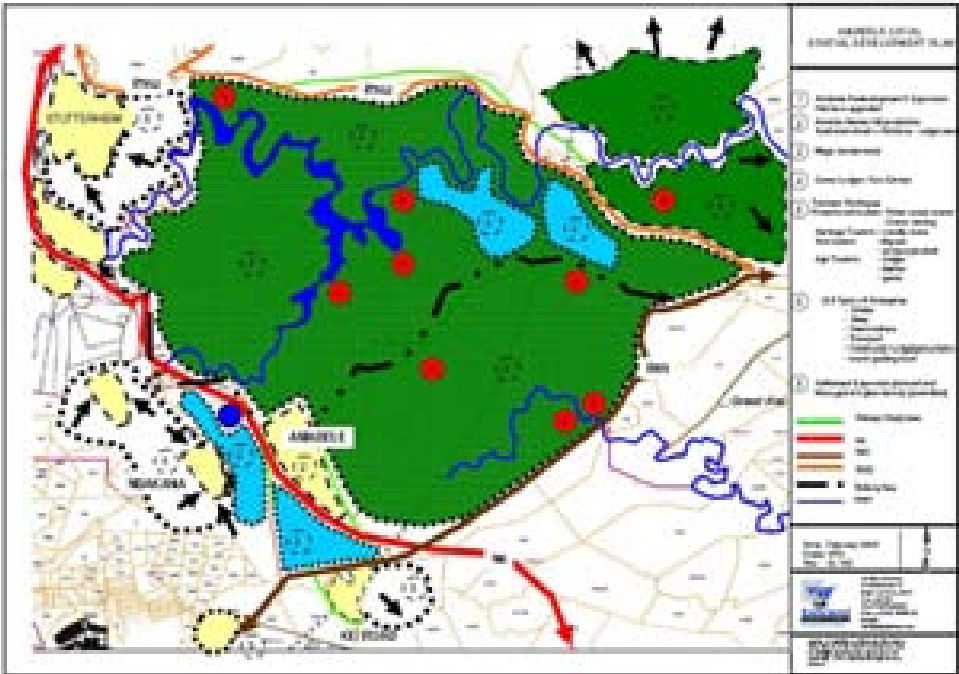


Figure 17: Regional Development Scenario 2

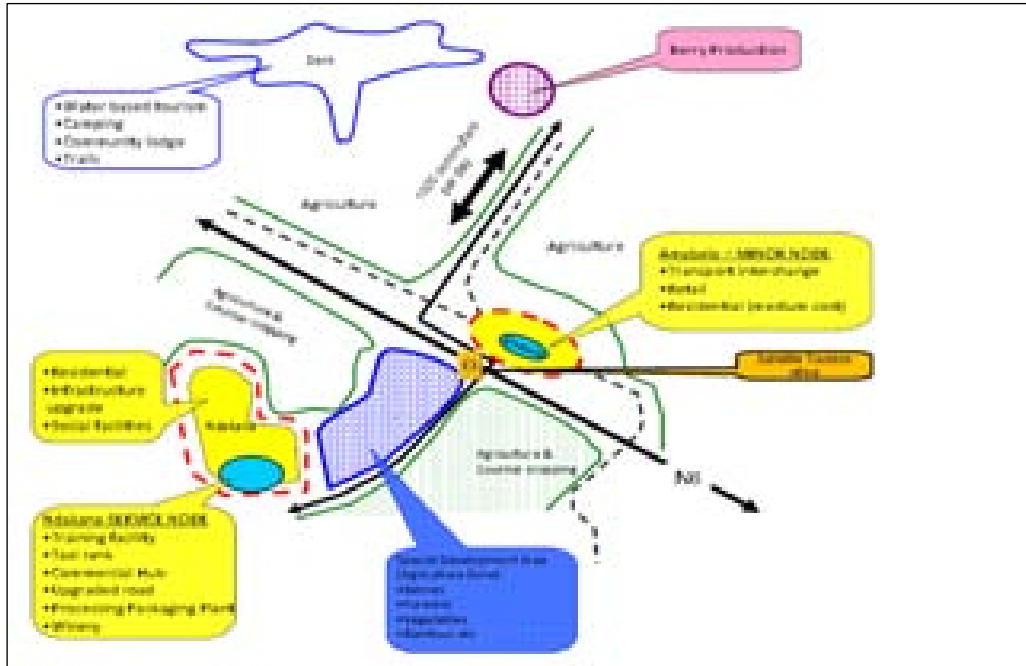


Figure 18: Local Development Scenario 2

Amathole Berries will achieve smaller and only partial production on Thornhill Farm with large out grower berry farming programmes in the Keiskammahoek and Ndakana areas. This will result in more people walking to work near Ndakana and less (some 1000 people) having to commute to Thornhill Farm for employment.

A mega game conservancy will be established over time as a nature reserve in a partnership between private farmers, Eastern Cape Parks Board and the Department of Water Affairs and Forestry. The reserve would ultimately extend from the N6 in the west, to the R63 in the south (the upper reaches of the Gonubie catchment), the outskirts of Stutterheim in the north and the R352 in the east.

Selected tourism packages would be established, marketed and operated by eEscape members, product owners and community based tourism enterprises. Such packages would be founded on the unique selling point of the Amathole Heritage Initiative. Local economic enterprise initiatives will be established through partnerships between the Private Sector, Communities and Government. Such enterprises will include wattle beneficiation, Bees, Vermiculture, Transport services and a community Based Lodge overlooking the Wriggleswade Dam.

11.2.2 Amabele Village and Ndakana (Local Spatial Context)

In this second local development scenario, the villages of Amabele and Ndakana will be formalised and upgraded with necessary infrastructure and housing (**refer to Figure 18 below**). Amabele would focus on becoming the transport interchange for the region but would remain a minor node. Significant retail and service industrial development linked to the tourism and berry processing and packaging, will be developed near Ndakana in order to maximise the accessibility of agricultural job opportunities to the settlements in the area. As a result Ndakana

would become the main agricultural service node in the area, with berry production as the main agricultural operation.

11.3 Preferred Development Scenario

After consultation with the various stakeholders, the members of the Project Steering Committee and the community representatives, the preferred scenario was indicated to be Development Scenario No 1. The basis of this preference relates to the following conclusions and input:

- Scenario 1 focuses most of the development initiative and investment in Amabele and Thornhill farm by building on existing strengths and infrastructure;
- It is assumed the logistical and cost implications of large numbers of employees moving each day to and from Amabele in order to work at Thornhill Farm will be managed successfully by Amathole Berries.
- Establishment of a major service node at Ndakana would not be financially sustainable and less accessible to transport facilities, compared to Amabele village which is nearer to the N6 and the railway;
- It is believed that a concentrated effort needs to be made to create an agricultural processing cluster near Ndakana (focussing on counter crops) to ensure that employment and economic activities will be secured throughout the year for Ndakana communities.
- Scenario 2 (proposing major berry production for Ndakana) would create unsustainable dependency for Ndakana with seasonal employment mainly derived from berry production.

It is considered that Development Scenario No 1 should be the preferred option because, through the strategic intervention of clustering investment around the Amabele and Ndakana area and using the land around the villages, a development “partnership” could be entered into. This partnership would offer a unique opportunity to leverage private and public investment towards creating a unique agro-processing cluster in a special agricultural development area (adjacent to the national road and rail corridor) with employment close to where people live. This Development Scenario (No 1) would have the potential to unlock spin offs which could uplift the quality of life, basic services, improved access to transport and to social facilities for the residents of all communities.

12. SPATIAL DEVELOPMENT FRAMEWORK

12.1 Development Vision

The Stakeholders of Amahlathi have the vision of ***Amabele Village and adjacent Ndakana communities developing in partnership as an integrated Rural Service Node centred around the regional transport interchange, founded on thriving, sustainable agricultural enterprises, agro-processing and tourism ventures.***

12.2 Development Objectives

In order to achieve the future vision, the following development objectives have been formulated:

- Managed development to upgrade the villages of Amabele and Ndakana and improve the quality of life, access to basic services, social facilities and employment opportunities;
- Upgrading of infrastructure to support the growing transport services and new land development initiatives;
- Targeted agricultural enterprises with community, private sector and Public/Private/Community Partnerships in identified areas of opportunity; and
- Establishment of tourism enterprises linked to integrated tourism packages, tourism routes and attractions in the surrounding region.

12.3 Development Principles

The development framework for the study area is based on the key development issues identified in the Situation Analysis, Feasibility Studies and the alternative development scenarios. The following development principles (as recommended by the Development Facilitation Act) are recommended for the Amabele Local Spatial Development Framework:-

- *Provide for urban and rural, formal and informal and existing and new development.*
- *Discourage illegal land occupation (land invasions) but acknowledge informal development.*
- *Stimulate and promote efficient and integrated development through:-*
- *Integrating the socio-economic, institutional and physical aspects of development;*
- *Promoting integrated development in urban and rural areas in support of each other;*
- *Rationalizing residential and work areas (work close to home);*
- *Optimal use of existing resources;*
- *Diverse combination of land uses (mixed land uses);*
- *Discourage urban sprawl and promote (appropriate) greater densification resulting in more compact cities and towns and thus better use of existing infrastructure;*
- *Rectify historically skewed/distorted infrastructural and service provision and maximise use of existing infrastructure and services; and*
- *Sponsor environmentally sustainable development practices and processes.*
- *Allow for active and direct community participation in development and assist in mobilising resources.*
- *Assist in developing community and individual skills and capacity, particularly those from disadvantaged backgrounds, who are involved in development.*
- *Encourage and optimise the participation and involvement of all sectors of the economy (public and private sectors).*
- *Promote sustainable development at the required scaled, vis-à-vis:-*
- *Within fiscal, institutional and administrative means;*
- *Establish viable communities;*
- *Sustained protection of the environment; and*
- *Safe utilisation of land (geo-technical, undermined, etc).*
- *Provide that any and all development will be adjudged on its own merits and no preferences will be given to any particular type of development or land use.*
- *Promote and provide security of tenure in any form, be it freehold (individual) or communal, and in case of upgrading development should not deprive beneficial occupiers and in the event of them requiring to be moved then their interests should be accommodated where they are settled.*

- Promote and provide for the effective functioning of a development market, based on open competition between supply and demand.

Source: Development Facilitation Act

12.4 General Development Planning Strategies

There are a number of general spatial development planning strategies which could be applied to the Amabele/Ndakana area and the hinterland around those villages. These strategies are depicted on a set of simple diagrams (Sourced as an example from the Alfred Nzo Spatial Development Plan- **Refer to figures 19 and 20 below**) and include:

12.4.1 Using Access Routes as an Investment Framework

- Using access routes as investment linkages and lines;
- Developing a framework to direct public and private investment;
- Developing a network of opportunity on the basis of existing roads, rail, settlement, high agricultural potential, natural resources and features; and
- Create a hierarchy of investment linkages consisting of primary, secondary and tertiary routes and use these linkages to guide the location of relevant land uses.

12.4.2 Creating a Service Centre Framework

- Identify and support a hierarchy of service centres offering a range of services, residential choice and commercial opportunities;
- Develop service centres to serve a catchment's and develop according to potential which exists; and
- Invest in the hierarchy of centres in a focused way to ensure opportunities are realised.



Figure 19: Using Access Routes as an Investment Framework

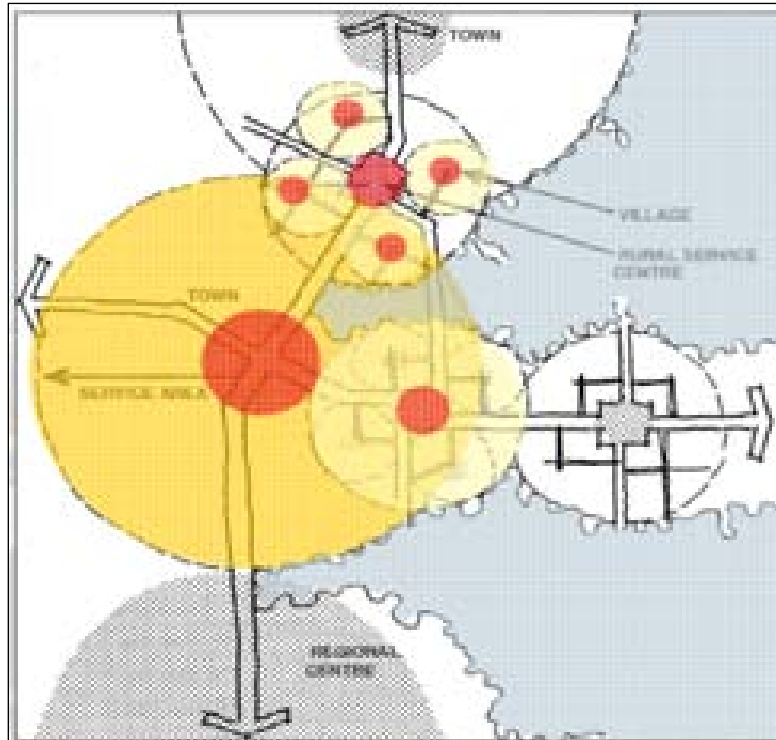


Figure 20: Creating a Service Centre Framework Source: Alfred Nzo SDP (Iyer Rothaug Collaborative; 2006)

12.4.3 Formulating a Development Management Framework

- Identify primary land use zones to guide investment, such as environmental conservation areas, agriculture zones, settlement, tourism, urban and rural zones; development management framework; whereby basic service levels are provided in rural low intensity settlement, improved service levels are provided in strategic rural areas where future growth could be achieved and, high levels of service in urban areas;
- Invest in a range of service levels according to service centre hierarchy and
- Integrate the natural features of the area into the plan so that these special features act as barriers, focal points, vistas and special development opportunities
- Formulate and implement Land Use Management Guidelines to implement the Spatial Development Framework Plan.

12.4.4 Amahlathi SDF Principles and Strategies

The objectives and strategies contained in the Amahlathi Spatial Development Framework also provide more detailed guidance as to the principles to be applied in the Amabele Local Spatial Development Framework Plan. These are depicted in the table below.

Key Spatial Development Objectives		Proposed Spatial Development Strategies
1.	To fulfil basic needs obligations and address spatial integration within available means.	<ul style="list-style-type: none"> • Ensure efficiency and sustainability of basic services, by promoting the integration of sprawling settlements in both urban and rural areas, and the consolidation of larger settlements at nodal points. • Consolidate and integrate spatial development by developing land in proximity to public transport routes and existing services. • Develop infill areas within fragmented settlement areas, where appropriate.
2.	To manage land development in line with a structured approach to ensure sustainability.	<ul style="list-style-type: none"> • Manage land development in line with land use management guidelines related to identified spatial structuring elements and special development areas within Amahlathi. • Support a land reform and settlement development programme by identifying zones of opportunity for land development.
3.	To adhere to environmental law and protect environmentally sensitive areas.	<ul style="list-style-type: none"> • Implement the principles of Integrated Environment Management (IEM).
4.	To manage land development in line with the General Principles of the Development Facilitation Act and the provisions of the Land Use Planning Ordinance (15 of 1985).	<ul style="list-style-type: none"> • Implement the provisions of the Section 8 Zoning Scheme Regulations in terms of the Land Use Planning Ordinance (15 of 1985). • Apply for funding for a programme to develop an appropriate new Zoning Scheme for Urban and Rural areas, in line with the direction of new legislation, when promulgated.

Source: Amahlathi Spatial Development Framework Plan

In terms of the first SDF objective, the future development of villages of Ndakana and Amabele need to be managed in order to ensure efficiency of basic services, promoting integration and consolidation into nodal points. In addition, development to public transport routes and existing services is paramount.

In terms of the second SDF objective, land use needs to be managed according to structuring elements and land use management guidelines and, zones of opportunity for land development need to be identified to support the land reform and settlement programme.

With regard to the third SDF objective; the principles of the Integrated Environment Management Act have to be adhered to; and

Finally, the fourth SDF objective requires that all development is managed in terms of the Section 8 Zoning Scheme Regulations in terms of the Land Use Planning Ordinance (15 of 1985) until such time as appropriate new Zoning Schemes are approved for the area.

12.5 Spatial Structuring Elements

To comply with the Amahlathi SDF and to plan for efficient transport access, maximized use of resources and sustainability, there needs to be a focus on investing limited public resources to areas of strategic opportunity in order to create maximum impact. For this to be achieved, certain spatial structuring elements are required to guide future planning. These structuring elements are clustered into the following main components:-

- **Nodes** having mixed uses (Towns, Service Centres and Tourism resorts) defined as Primary Nodes (Stutterheim) Secondary Nodes (Keiskammahoek and Cathcart) Tertiary Nodes (Kei Road) and Rural Service Nodes;
- **Infrastructure** for road and rail (divided into the National Route (N6) Trunk Roads, Main Roads, District Roads, Railway), Strategic Routes (divided into a Primary strategic link, Secondary strategic link, Strategic – Socio Economic Linkage and Strategic – Tourism Linkage), Water services infrastructure such as treatment works, storage etc, Cell phone mast installations and Institutional land parcels.
- **Strategic Development Zones** divided into Special Development Areas, Settlement Zones, Tourism Potential, Agricultural Potential and zones of Environmental Importance.
- A final spatial structuring element is the use of an **Urban Edge**.

These structuring elements are depicted on the Spatial Development Framework Concept Diagram (**refer to Figure 21 below**) and are described in greater detail below.

12.5.1 Nodes

Nodes comprise existing and proposed nodal points in the study area where mixed uses and high intensity transport, business and residential activities take place. Nodes are generally defined as areas of mixed use development, usually having a high intensity of activities involving retail, office, industry and residential land uses. These are the places where most interaction takes place between people and organisations, enabling most efficient transactions and exchange of goods and services. Nodes are usually located at transport interchanges to provide maximum access and usually act as catalysts for new growth and development. Nodes have been identified as areas where suitable urban growth can occur.

12.5.2 Infrastructure

In addition to the existing road and rail links, there are existing and proposed infrastructure installations (such as water works, reservoirs, pipelines, solid waste sites etc) cellular mast structures and sand mining activities. These require formalization and management in future. New infrastructure will be required as the area develops and sites will need to be set aside for them.

12.5.3 Strategic Development Zones

These zones can be described in greater detail as follows:

- Special Development Areas are primarily focused on Strategic Development associated with land restitution and the priorities associated with provision of basic needs to communities.
- Secondly there are settlement zones which involve green field (or new settlement), densification or formalisation and, existing planned settlement zones.

- The third strategic development zone relates to areas of tourism potential, points of interest, heritage sites the established tourism routes.
- Areas of agricultural potential comprise the fourth zone, involving rural/communal farming areas, commercial farms, arable lands and forestry plantations. These areas would include all subsistence and small scale agriculture, resource management areas, grasslands, grazing, woodlots and medicinal plant reserves. The development character of these areas differs from the nodes because it is low density in nature and clustered in the form of villages alongside grazing, commonage and tracts of arable land.
- Environmentally sensitive areas have been defined as those areas where in terms of broad environmental constraints and other environmental reasons (including legislation) development is not desirable, but not excluded. Any proposed development within a conservation area should be viewed with caution and should include a thorough evaluation of the following before designating an area for future development or change in land usage.

12.5.4 Urban Edge

The urban edge is the prescribed boundary surrounding an urban node comprising a purpose drawn line which demarcates the limit for urban growth and availability of conventional infrastructure from the municipality. It is a policy determined boundary line where the transition from the urban area is proposed to change to peri-urban and rural development, involving differing land use characteristics and density of development.

An urban edge is a growth management tool used to limit sprawl and the outward growth of an urban area, in favour of densification and infill development, to ensure the more efficient use of resources and land within the urban area; and it can also be a conservation tool used to exclude certain elements of the environment from the urban area, in order to protect or preserve it, or to discourage its development in the short and medium term while the long term implications are uncertain.

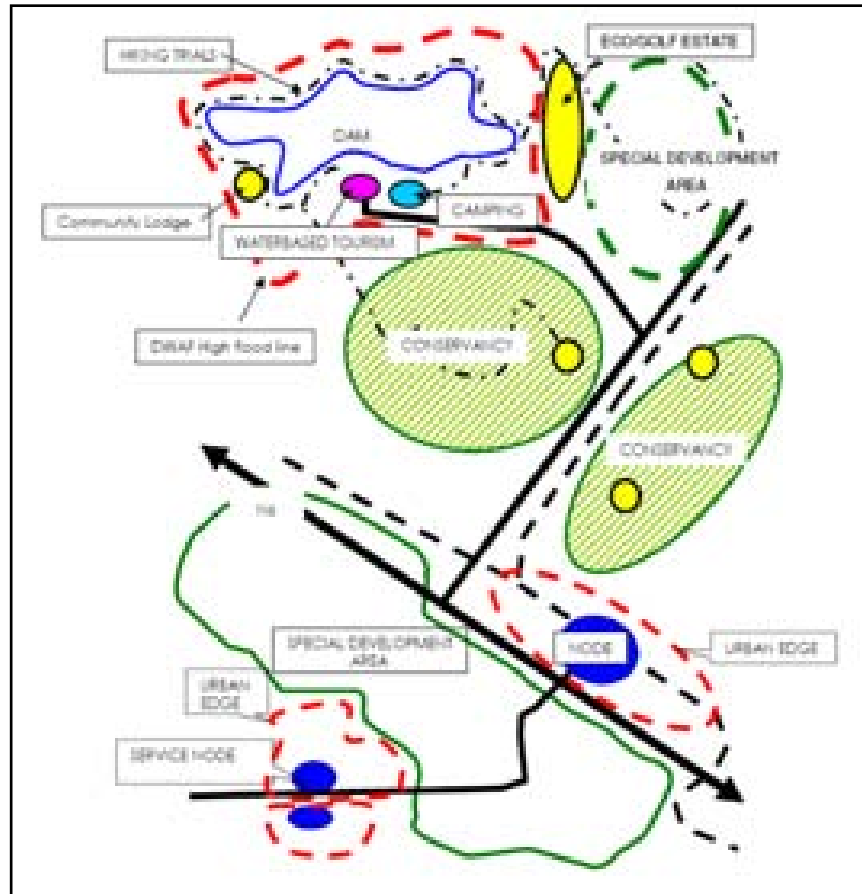


Figure 21: Spatial Development Framework Concept

13. SPATIAL DEVELOPMENT PLAN

The fundamental spatial planning principle that should apply to the Spatial Development Plan is that Amabele and Ndakana cannot be planned and developed in isolation from each other. The investment currently being initiated in the area in rail transport, agriculture and tourism is creating a significant opportunity for these villages to develop into an integral Rural Service Node. This Local Spatial Development Plan is accordingly structured in such a way that future public and private investment will be managed according to this strategic principle and associated intervention. The spatial proposals are depicted at various levels of detail on **Plan number 10** for the local area around Amabele and Ndakana, **Plan 11** for the central area of Amabele village and **Plan 12** for the region around the node (Refer to appendices)

It is important to note that most of the land located in and around Amabele is privately owned and therefore the proposals made in this spatial plan are dependent upon private sector support and investment. The larger undeveloped portions are invariably zoned for agricultural purposes (Agriculture Zone 1) and any proposals to subdivide and rezone these parcels will require approval from Amahlathi Local Municipality, Department of Local Government and Traditional Affairs, Environment Affairs and Department of Agriculture.

The land situated around Ndakana comprises government owned properties and development proposals will (in addition to the above authorities) require approval by the communities concerned and Department of Land Affairs.

13.1 Development Nodes of Importance

13.1.1 Amabele

It is envisaged that Amabele will develop (in conjunction with Ndakana) from a small, declining railway village into a **Rural Service node** and transport interchange, offering a range of land uses, facilities and services to the surrounding communities and visitors. This node should be developed over the medium to long term with improved infrastructure to support additional middle income (estimated at 10 units initially and then a further 20 units) and low income housing (estimated at 50 units) retail outlets and tourist facilities such as bed and breakfasts, shops, banks and information centre. It is possible that a berry packaging, processing and winery would be located alongside the N6 on either the western side of the existing housing in Amabele (on privately owned land) or, on the State owned land situated across the N6 to the west of the N6.

The central business area of the village is proposed opposite the station on a link road giving access directly from a new intersection on the N6 (refer to plan 12). In this way the heart of the village becomes a vibrant taxi/bus facility with facilities for SMME's and a market place for vendors. Upgrading of the village takes place with upgraded infrastructure, mixed land uses, expansion in the residential area, upgraded clinic, recreation facilities, a future primary school and crèche facilities. It is noted that two schools already exist in Ndakama and a further primary school in Amabele would only be sustainable in the long term future when the number of households have increased substantially and demand complies with Department of Education standards. It is considered important that the business opportunities offered by increased traffic by train, bus and taxi should be supported as much as possible by the subdivision and rezoning of land along the main streets outside the station and connecting to the new junction on the N6.

With the upgrading of the station and its environs, it is expected that mixed land uses will be established in the properties across the road from the station. Over time, such uses could include bed and breakfasts, restaurant/café, information and newsagents, banks, shops and offices. The key to such a transformation in the village will be the creation of a vibrant SMME market centre adjacent to a taxi/bus terminus and parking facility. In the short term, it is envisaged this would be developed in the open street space opposite the station (refer to the Amabele LSDF – central village **Plan No 12**). As time passes and the traffic, commuters and tourist traffic grows, it is possible that the taxi/bus facility and parking would be extended into adjacent residential properties.

From a spatial development point of view it is emphasised that the successful upgrading of Amabele is linked to the upgrading of Ndakana and the agricultural/agri-processing development on the land between them. The railway station and N6 provide the highest possible accessibility exposure of the proposed rural service node to the outside world. Accordingly, the extent to which the node develops a sustainable economic heart will depend on the extent to which it

establishes a “sense of place” and “centrality” on the rail and road mobility corridor.

For this centrality to occur, it is essential that the road junctions be rationalised to create a main junction for the node leading the traffic to the Amabele Station in the east and Ndakana special development area in the west. If the villages remain distant little clusters, remote from the mobility route, the upgrading potential will be stifled and investors will prefer to locate in more attractive, accessible and more visible positions elsewhere. Creation of a main road junction will offer an opportunity for various retail and service industries to be located near the junction.

13.1.2 Ndakana

Ndakana is actually a high potential agricultural area with better soils (particularly in the north and west). Land use is mixed, with low density settlement, crop land, grazing, and small commercial and indigenous forests. It is, as yet not subject to peri-urban sprawl, and is quite beautiful in some areas, especially on a natural escarpment linked to the lower slopes of the Amathole Mountains.

The four villages comprising Ndakana namely; Fresh Water, Stanhope, Jersey Valley and Nkululeko are categorised as falling within the Amahlathi SDF **Settlement Zone B** and should be densified, upgraded and formalised. These settlements would benefit from the proposal to create a special development area on the land situated between and around the villages (refer to the agricultural proposals contained in section 14 and **plan 13**). It is envisaged Ndakana would develop further to become an integral part of the rural service node with an emphasis on residential and agricultural/agro-processing land uses established as a result of the various spin off enterprise opportunities linked to berry production, massive food programme and forestry.

It will be essential that the road linking the Ndakana villages to the N6 be upgraded and improved infrastructure, social facilities and service industrial premises are created in convenient localities to accommodate the future community based enterprises. The spatial plan shows conceptual positioning of a possible future node comprising social facilities, retail, service industry, recreation, sports field and a taxi rank. Detailed forthcoming formalisation and upgrading process of the villages would be required to locate these uses in an appropriate manner.

13.2 Development Corridors of Importance

According to the Amahlathi SDF, development corridors are regarded for spatial and economic planning purposes, as road and/or railway routes associated with the movement of goods and people. This high transportation function creates the opportunity for economic activity to take place along these movement corridors, particularly at junctions. Amabele is a perfect example of a nodal centre situated on a movement corridor and situated at a junction both between road and rail systems.

The N6 plays the role of a high order “**mobility route**” carrying traffic between major urban centres. However, due to the limited access onto the N6 local business development cannot benefit directly from it. If however, it were possible to rationalise the junctions at Amabele and upgrade the streets and roads in the area, the linkages between Amabele, Ndakana and the N6 would be improved and a single high order junction could be created on the N6. It would then be possible to create an “**activity**”

street” from the new N6 junction directly to the station precinct in the village, along which business enterprise could flourish (refer to **Figure 22**). This would be particularly important if the station could interface with a taxi/bus terminus facility (refer to **plan 11**). In order to create an intermodal transport interchange, the taxi/bus facility should be positioned as close as possible to the station. The plan proposes this could initially be located in the public street space opposite the station. As traffic demand grows, it is expected that privately owned properties next to the station may have to be purchased for the taxi facility to be extended and if considered feasible, the connection of the proposed activity stree from the new N6 intersection to the station.

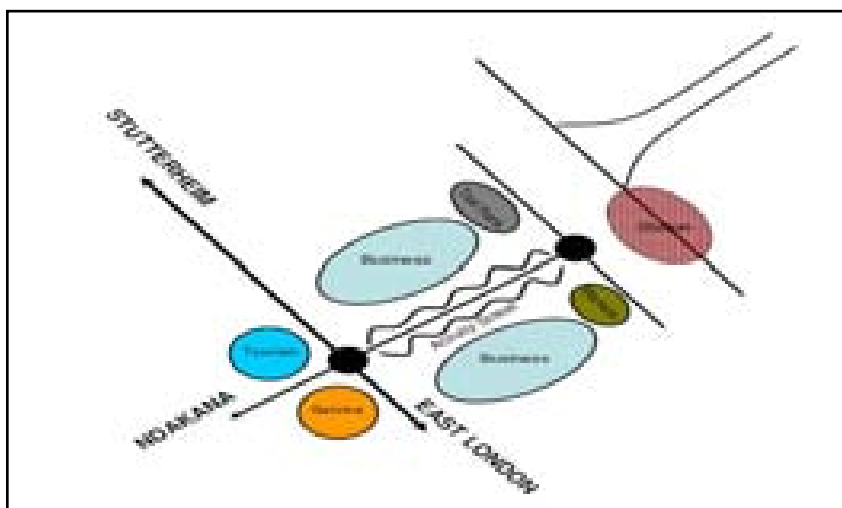


Figure 22: Activity Street Concept

The Amahlathi SDF categorises certain roads in the municipal area as “special or strategic routes” due to their significance in the economic role they provide (such as in the case of tourism). Two such **strategic routes** would be created in the Amabele and Ndakana area, namely; the **first strategic route** (of socio-economic and tourism importance) would be on the western side of the N6 and this upgraded road link would be required through the special development area to the rural node proposed at Ndakana (Freshwater village) linking with the Sandile Heritage Tourism route and beyond. In addition, a **second strategic route** (of agricultural and tourism importance) would also be created on the road to Wriggleswade Dam and Thornhill (route DR02779) whereby the route needs to be upgraded to unlock the tourism potential of the dam and support the significant agricultural investment at Thornhill Farm (**Refer to Plan 13**).

13.3 Urban Edges

The proposed Urban Edge is depicted on **Plan 10** and this comprises an Urban Edge around Amabele and the four villages of Ndakana in such a manner that sufficient land is allocated for future urban type uses commensurate with the role of these nodes as emerging rural service centres and minor nodes. In order to manage urban sprawl it would be necessary to monitor the extent to which densification takes place within the villages and ensure excessive depletion of valuable agricultural land and resources is prevented.

This is more a diagrammatic urban edge rather than one based on precise boundaries of the anticipated development. A regular monitoring and review process linked to the review of the Amahlathi SDF, should determine how the proposed urban edge should change and how much land should be allocated for nodal growth in future.

13.4 Special Development Areas

13.4.1 New Public Funded Housing Development

According to the Amahlathi SDF, Kei Road is the designated Tertiary node and “should be targeted for public funded housing to meet local demand as proposed in the Yellow woods Kei Road Settlement Plan”. However, it is believed realistic to expect that the rail transport intervention and the agricultural development in the vicinity of Amabele will undoubtedly attract a demand for housing from people working in the village and unable to qualify for land in the neighbouring villages of Ndakana. Provision needs to be made for land and infrastructure, initially estimated at 50 units to be built in the medium term (over the next 5 years) on the back of the berry project development. Such housing would best be developed on the south western side of Amabele village and some 5 hectares of privately owned land would best be acquired for this purpose.

13.4.2 Rural Development Areas

The four villages situated in Ndakana (Fresh Water, Stanhope, Jersey Valley and Nkululeko) fall into the category of **Settlement Zone B** which should be densified, formalised and upgraded. The Housing Sector Plan for Amahlathi proposes the upgrading programme be implemented for a total of 1300 sites.

13.4.3 Land Reform Zone

There are three farms earmarked for restitution in the vicinity of Amabele. These are Remaining Extent of Farm 23, Portion 2 of Farm 23 and Portion 2 of Farm 571. Any development proposal for property in the area needs to be investigated with the Regional Land Claims Commissioner to ascertain the status regarding land claims and restitution.

13.4.4 Tourism Zone

The tourism potential of the Kubusie and Gonubie river valleys and Wriggleswade Dam are recognised in the Amahlathi SDF (and recorded as Tourism Zone 4). That SDF indicates that the “scenic landscape and environmental elements give the potential for game farming in the region.” This LSDF believes that this tourism zone has far greater potential, with linkages to the future Amatola Biosphere reserve, the proposed Berry Corridor and the Sandile Heritage Tourism Route. This potential is discussed in greater detail in the Economic Plan (see Section 14.7 below). The spatial tourism proposals include the following:

- There is a need to establish a satellite information centre at Amabele (with high visibility to the N6) with linkages to a museum and an information service at the railway station. It is envisaged a satellite tourism centre would be positioned close to the proposed new road intersection between the N6 and the roads linking to Ndakana and Wriggleswade dam; the satellite information centre would be a subsidiary to the main Tourism centre in Stutterheim and it is expected it could comprise a small facility with info boards, a small retail component for local crafts, berries, wine and vegetables.
- In order to maximise potentials related to water based tourism, it is envisaged that a community based eco-lodge be investigated in the Resource Management Plan for Wriggleswade Dam: and
- It is also proposed that land be identified for the development of eco/game estates for residential leisure accommodation overlooking the Wriggleswade

Dam. This could either be on state land or privately owned land and the proposed Resource Management Plan, to be prepared under the auspices of DWAF, should evaluate the most optimum position, size and nature of such a proposal.

13.4.5 Agricultural Zones

The commercial agricultural area encompasses the village of Amabele and extends into the hinterland towards Kei Road, Stutterheim and Wriggleswade Dam (**refer to Plan 13**). Forestry areas are located mainly in the valleys and ridges of high lying land. It is envisaged that community based agricultural activities would be undertaken on the good soils located around Ndakana, which include the old ULIMOCOR (Ciskei) lands (**refer to Plan 14**). A special development area is proposed between Ndakana (Fresh Water village) and Amabele to accommodate the intensive production of high value crops, which could include berries, dry land crops, vegetables and/or forestry. It is possible that future detailed feasibility studies could determine the need for the processing, packaging and production agro-processing facility to be located on state owned land in the special development area. The proposed agricultural projects are described in the Economic plan (section 14 below).

13.5 Environmental Proposals

Environmental considerations are an increasing aspect of any development initiative and should form an integral part of the activities proposed in terms of the Amabele LSDF. Environmental considerations are not only relevant to conserving environmental assets and minimizing environmental impacts, but are also becoming increasingly important in **product branding** and also entry into international economic markets, particularly Europe.

The following environmental proposals, therefore, have two main drivers:

- To promote environmental legal compliance and minimise environmental impacts associated with the Amabele LSDF proposals
- To promote the environmental branding and market entry for products and activities associated with the Amabele LSDF proposals

13.5.1 NEMA principles

The National Environmental Management Act (NEMA) requires that all development must be economically, socially and environmentally sustainable. A key aspect of NEMA is that it provides a set of environmental management principles that apply throughout the Republic to the actions that may significantly affect the environment.

The following provides a summary of the NEMA principles most relevant to the Amabele LSDF and proposed activities:

- Development must be socially, environmentally and economically sustainable.
- Avoid, or minimise and remedy:
 - Disturbance to ecosystems
 - Loss of bio-diversity
 - Pollution
 - Degradation of the environment
 - Disturbance of cultural heritage sites and landscapes

- Waste, promotion of recycling
- Practice risk aversion, adhere to the precautionary principle and acknowledge the limits of our knowledge.
- Pre-assess risks and avoid, minimise and mitigate impacts
- Selection of the “best practicable environmental option”.
- Comprehensive “cradle to the grave” accounting of environmental consequences.
- Decisions based on social, economic and environmental impact assessment.
- Promote environmental health in the workplace.
- Stewardship – the environment is a public resource to be protected and managed in the interests of the public.
- Polluter pays.

13.5.2 Environmentally sensitive areas

The Amabele area has a number of sensitive areas that need to be conserved or avoided for development purposes (**Refer to Plan 13**). These generally include:

- Rivers and water courses
- Forest and thicket areas
- Diverse grasslands

With respect to the Amabele LSDF, the following general environmental guidelines for spatial planning are proposed.

NO-GO AREAS	GO-BUT AREAS	
No Development Areas	Inside Urban Edges	Limited Development Areas Outside Urban Edge (rural context)
Areas of high environmental sensitivity and conservation value <ul style="list-style-type: none"> • Indigenous forests • Proclaimed nature reserves • STEP Protected, Process and Critically Endangered areas • Rivers, estuaries and undisturbed riparian zones of rivers • Diverse grasslands and thicket vegetation types 	Urban Settlement <ul style="list-style-type: none"> • Residential • Public-Funded Housing • Resort Development • Business and Trade • Other Develop from Inside – Outward (Phasing) <u>BUT, no for</u> <ul style="list-style-type: none"> • Environmentally sensitive areas within the urban edge • Lack of services 	<u>Limited by</u> <ul style="list-style-type: none"> • EIA process • Low density • Density/footprint/impact restrictions • Not in areas of environmental sensitivity • Unique & Sustainable Developments • Must show tangible economic benefits to broader community • Clustering of built form • Aesthetic controls • Mitigate impacts • Show net gains for the environment • Provision of services
Zoning: Open Space Zone III (nature reserve) or Special Zone: Conservation	Zoning: Various	Zoning: Mixed - Agriculture Zone I/Resort Zone I or II/Residential/ Open Space Zone III /Special Zone: Conservation

13.5.3 Environmental Impact Assessment

Certain activities proposed in the Amabele LSDF will potentially trigger the need to conduct an Environmental Impact Assessment (EIA) in terms of the NEMA EIA Regulations (2006). While it is currently not possible to anticipate the full complement of projects that will require an EIA or the scope of an EIA, the following table provides an indication of some of the probable triggers for a **Basic Assessment** or **Full EIA** (incorporating comprehensive Scoping and Impact Assessment components)

Activity number	Activity description
Basic Assessment	
1	The construction of facilities or infrastructure, including associated structures or infrastructure, for: <ul style="list-style-type: none"> • agri-industrial purposes, outside areas with an existing land use zoning for industrial purposes, that cover an area of 1 000 square metres or more; • the bulk transportation of sewage and water, including storm water, in pipelines with <ul style="list-style-type: none"> ○ an internal diameter of 0,36 metres or more; or ○ a peak throughput of 120 litres per second or more; • the transmission and distribution of electricity above ground with a capacity of more than 33 kilovolts and less than 120 kilovolts; • the treatment of effluent, wastewater or sewage with an annual throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres; • marinas and the launching of watercraft on inland fresh water systems;
15	The construction of a road that is wider than 4 metres or that has a reserve wider than 6 metres, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.
16	The transformation of undeveloped, vacant or derelict land to – <ul style="list-style-type: none"> (b) establish infill development covering an area of 5 hectares or more, but less than 20 hectares; or (c) residential, mixed, retail, commercial, industrial or institutional use where such development does not constitute infill and where the total area to be transformed is bigger than 1 hectare.
18	The subdivision of portions of land 9 hectares or larger into portions of 5 hectares or less.
Full Scoping and EIA	
1	The construction of facilities or infrastructure, including associated structures or infrastructure, for: <ul style="list-style-type: none"> • the treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more; • rail transportation, including: <ul style="list-style-type: none"> ○ railway lines; ○ stations; or ○ shunting yards;
2	Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more.
3	The construction of filling stations, including associated structures and infrastructure, or any other facility for the underground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin.

13.5.4 Environmental projects

The environmental component of the Phase 2: Feasibility Report (November 2008) included various “environmental projects” that could be considered in the Amabele LSDF. These included the following:

- Eco-tourism (Bird watching, game farming, horse trails, fly-fishing, lodges, hunting, etc.)
- Mega-conservancy or protected area
- Amatola Biosphere Reserve
- Aquaculture
- Wattle
- Alternative energy
- Waste management and Zero-waste

While the scope of the Amabele LSDF has since been refined through the scenario planning and consultation process, the following environmental projects could still form an integral part of the economic renewal process for the Amabele and Ndakana areas and should be promoted.

Climate change mitigation

The issue of climate change is becoming an ever increasing consideration and, apart from promoting climate change mitigation measures and **reducing the carbon footprint** of activities proposed in terms of the Amabele LSDF, such initiatives could have the following additional benefits:

- Skills development and job creation
- Promote environmental branding

Potential initiatives that could readily be included in the Amabele LSDF that could contribute to reducing the carbon footprint include:

- Biomass and waste to energy
- Adopt renewable energy technologies (e.g. solar, wind, biomass etc)

Mega-conservancy or protected area

A growing trend in South Africa is the establishment of conservancies where land owners with a common interest in conservation pool their land to establish a conservancy or protected area. We again wish to emphasise the social and economic benefits that conservancies can generate, where a recent report by the Centre for African Conservation Ecology (2006) highlights the socio-economic benefits of eco-tourism-based private game reserves (PGRs) and provide a highly desirable land-use option compared with traditional land uses where a change from farming to game based eco-tourism resulted in a 4.5 fold increase in employment and wages 32 fold greater than agricultural activities.

It is strongly suggested that consideration should be given to establishing a mega-conservancy in the Amabele area in terrain that could be conducive to wild life and nature-based tourism.

Again, linking up with the proposed **Amatola Biosphere Reserve Project** recently completed Amatola District Municipality (ADM) should be considered, where the following main objectives are promoted

- To conserve and protect landscapes, ecosystems, species and genetic resources;

- To enable and encourage sustainable economic development compatible with the first function; and
- To coordinate and logistically enable the development of projects, education, training, research and monitoring that support the first two functions.

Environmental code and environmental branding

An environmental code should be adopted in terms of the Amabele LSDF, and should include the following elements:

- Architectural and aesthetic guidelines
- Architectural theme
- Promote use of renewable energy (e.g. solar water heating, wind, biogas, etc.)
- Urban greening
- Control of invasive alien species
- Others

Wattle eradication

The environmental impacts associated with wattle infestation have already been discussed in the feasibility studies (Section 9 above) particularly the impacts on water resources, and the following business opportunities were suggested:

- Firewood
- Biomass for composting or electricity generation

These proposals are discussed in greater detail in section 14.6 below.

14. ECONOMIC DEVELOPMENT PLAN

The Economic Development Plan for the spatial development framework is based upon the economic strategy of clustering investment around the Amabele and Ndakana areas and using the land between the villages.

14.1 Berry production and processing

Thornhill Farm will form be the first core farm with up to 200ha of high density, open hydroponics, organically grown blueberries that will produce 5,265 tonnes a year at peak production in 2023. Up to 25 managers, 140 supervisors and semi-skilled permanent staff, together with 3,000 seasonal employees will be required at Thornhill, which will only produce fresh blueberries. A total investment of R45 million will be needed. The large cost implications of moving numerous employees to Thornhill farm are currently under review with consideration being given to the strategic option of locating some of the berry production on State owned land located between Amabele and Ndakana.

A community farming enterprise/ (large outgrower scheme) is proposed to be developed on communal land around Keiskammahoek and possibly, near Ndakana, Tyumie valley and King Williamstown areas. If this enterprise reaches 300ha, 6,000 tonnes of blueberries will be produced at peak in 2018. Up to 23 managers, 581 supervisors and semi-skilled permanent staff, together with 11,000 seasonal employees will be required, which will only produce blueberries for processing. A total investment of R98 million will be needed. Management will be supported by technical skills training from the Thornhill farm.

A network of up to 250 emerging farmer outgrowers will be established, with technical support and training from Thornhill Farm. Each farm will be around 1ha in size, with emerging farmers drawn from the Small Farmer database of the Department of Agriculture and from other interested commercial farmers. The first two sites are in process with a further five applications pending for 2009. These 250 emerging farmers will be contract growers providing blueberries for processing. They have the potential to provide 500 permanent jobs and 1,500 seasonal jobs.

Amathole Berries are planning for a packshed and processing facility to be developed at Amabele, as well as a siding to load fresh and processed product onto rail. Packed blueberries will be rail or road freighted from Amabele Station to East London. Export fruit will be transported via a mixture of sea and air freight. Airfreight fruit will be trans-shipped to OR Tambo international airport in Johannesburg by rail and then flown to the EU. Sea freight will be packed in containers at Amabele and railed direct to vessel in the East London Port. Fruit transported to local markets will be via road and rail with the local rail freight depots serving as a local hub. The processing facility will cover a wide range of products, including juice, vinegars, jams, concentrates, purees, IQF (Individual Quick Frozen) and freeze-dry products, which will also be rail and road freighted.

14.2 Berry linked businesses

A number of downstream businesses have been proposed to link with the packshed and the processing facility in Amabele, including:

- A 'Blueberry Coffee Shop' and other tourism businesses at Amabele;
- Pick-your-own berries, farm tourism, guest houses, and hikes and meanders can potentially be developed from Amabele linking to other tourism routes and facilities;
- Large volumes of organic compost and bark chips will be needed for the blueberry plants;
- Bees will be needed for pollination of the blueberry plants each year, with an opportunity to develop a 'core apiary' with individual outgrowers with hives in nearby forests; and
- Stemming from this there are further opportunities to develop honey, mead and wine businesses.
- These downstream businesses are discussed in greater detail below.

14.3 Bees

Bees are one of the linked businesses to the blueberry venture. Bees are essential pollinators for the blueberry plants to produce fruit, and will need to be brought to all blueberry plants in the area during August to December, with each blueberry variety needing around three weeks for pollination. Large numbers of hives will be needed in total, with a hive needed for each 1,000 plants. The estimated numbers of hives are therefore:

Thornhill: 5 million plants or 1,250 hives in 4 windows

Emerging Farmers: 250ha needs 1,600 hives

Keiskammahoek: 300ha needs 975 hives

Alternative food sources will be needed for the bees from December to May each year, most probably by foraging in the many nearby small forests. The large number of hives required at a set time each year therefore requires in a 'core apiary' that will keep a large number of hives that will be reliably available. This core apiary could however also develop opportunities for individual outgrowers, possibly employees of Amathole

Berries, with hives in local forests. There will need to be significant training of both staff and outgrowers in beekeeping and the safe handling of bees.

14.4 Honey

The large number of bees that will be needed in the Amabele area will provide the further business opportunity for honey production. There is a world shortage of honey, which has high demand as an organic product. Hives can be leased out to individual growers, who would be able to develop an income from selling honey. Similarly, there will need to be training in beekeeping and related safety issues.

There are then further opportunities for local businesses in honey processing, mead (iQilika) and wine. These are specialist businesses requiring significant training and skills, but which will provide further employment in the area.

14.5 Compost and Vermiculture

Amathole Berries will farm organically, requiring high volumes of compost. An organic fertiliser production business will therefore be needed to service Amathole Berries and their contract growers. Large quantities of organic waste are needed for composting with the main local source being municipal organic waste and Afval. The composting production system and the berry requirements for compost will still need to be determined. Indicative production figures show that 1 kg/plot/year of worm casts will be needed, requiring 30 lts/ha/year of worm tea and a 1:4 ratio of casts to tea.

From an environmental point of view, composting activities would be best situated near to the source of the organic waste (e.g. near berry farms) where it can be readily used again for reapplication as compost. Sites would preferably need to be away from any water courses (at least 50 metres to prevent residues discharging into water courses). Accordingly such activities would be close to the location of the berry grow-out areas and vegetable production areas.

Labour requirements for composting are limited, but vermiculture is a small business opportunity. The siting of the composting facility or the resiting of the municipal organic refuse dump is an environmental issue. A service contract will also need to be established between the composting business and the Amahlathi municipality.

14.6 Other Agricultural Projects

DWAF controls all plantations and indigenous forests, and there is an estimated 1,200ha of wattle in water courses which needs eradication. A significant portion (Approx 100ha's) of the special development area was in the past planted to Pine trees and this should go back to Pine trees. The area lies within the high lying mist belt which is well suited for timber production.

Wattle eradication in the area will increase water availability in the Kubusie River. Alien species eradication (black wattle) presents a significant opportunity for the local population to benefit through business enterprises for logs, poles and wattle chips, with sustainable harvesting of small plantations afterwards. These trees are a burden to the water resources of the area and need to be removed. The effective eradication will require good long term planning and some form of subsidisation. The freeing up of valuable water and land resources will allow for more farming and therefore food production (Refer to Plan 14).

As mentioned in the previous reports agricultural development in the area is limited by soil and water constraints. The Ndakana area generally lacks irrigation water but does have a high percentage of good agronomic soils and a relatively high rainfall. There are 400ha of cultivable land with potential for rainfed maize, and 10ha of irrigable land from dams with potential for vegetables. The areas to the South West of Ndakana incorporate the previous Ciskei lands which are high potential and should be cleared of alien species and re-used for food production. A maize / soybean rotation system would work well here under rainfed conditions.

An area should also be set aside for the development of an organic vegetable growing operation. This area would require irrigation but need only be 1 ha in size. Its aim would be to produce high value organic produce for sale to passing motorists and tourists.

14.7 Tourism Enterprises

There are already many tourism businesses in Amahlathi and the numbers are growing, although tourism is a relatively small economic sector. One of the greatest challenges to tourism development in the Amabele area is creating institutional partnerships between entrepreneurs and communities around sustainable ventures. There tend to be numerous ideas for tourism development but the realisation is growing that the tourism opportunities need to be exploited carefully and developed in clusters of unique products and experiences.

There are five main clusters identified in the Amabele area, centered around firstly, water based tourism on Wriggleswade Dam; secondly, agri tourism through the experiences linked to the berry corridor and game farms in the area; thirdly, the train based tourism connected to Amabele and the rail services into Transkei; fourth, the leisure based tourism using the beautiful natural attractions and hiking trails in the area; and finally, the Heritage Tourism linked to the Sandile Heritage Tourism Route and the numerous underdeveloped historical attractions in the region.

There is much potential in linking the diverse attractions and businesses around Amabele into tourism routes. There is also much potential in heritage tourism and in investing in the quality of heritage attractions and products. The business opportunities cited above in blueberries, honey, and agro-forestry for Amabele, Wriggleswade Dam and Ndakana should link therefore into the Amahlathi and Amatola tourism routes.

There is also potential for a hiking and bike trail through Ndakana to link with King William's Town to Stutterheim road and to then link to the other Amahlathi and Amatola tourism routes. As part of these developments, the gravel road through Ndakana from the N2 to the King William's Town to Stutterheim road (R346) can be upgraded to provide access for the community and to promote tourism.

The tourism spatial development proposals described in Section 4.4.4 above need to be considered in conjunction with the following tourism economic development proposals:

There is a need to establish a satellite information centre at Amabele (with high visibility to the N6) with linkages to a museum and an information service at the railway station. It is envisaged a tourism centre would be positioned close to the junction, overlooking the scenic beauty of the Amathole Mountains and the dam situated to the north. In time, it may be possible to locate viable accommodation for travellers at or near such a centre, linked to the Berry corridor, the Wriggleswade Dam tourism, the proposed mega game conservancies in the area, the Sandile heritage tourism route, hiking trails and

cultural experiences. The tourism centre could be operated as a joint venture between the local community and the Local Tourism Organisation with links to the main Tourism information centre in Stutterheim. It is important to emphasise that this centre would be a local facility fitting under the main centre in Stutterheim, providing local information to visitors, guiding to the trails and attractions in the area and a commercial outlet for agri-products, art and craft;

It is believed that rail based tourism has potential and if the berry production centre, the agro-processing zone across from Amabele and the various spin off enterprises could be packaged, a unique tourism experience would be made possible.

In order to maximise potentials related to water based tourism, it is envisaged that a community based eco-lodge be investigated in the Resource Management Plan for Wriggleswade Dam. In terms of the attraction of the dam and the role it plays in Sports Tourism in the area, a lodge with conference facilities could be a significant product offering 3 or 4 star accommodation (in addition to the camping site and caravan park facilities) and could provide the community an opportunity for investment in local tourism enterprise, with a public/private partnership and expertise to mentor the operation;

It is also believed appropriate for the investigation into the development of eco/game estates for residential leisure accommodation to be located overlooking the Wriggleswade Dam. This could either be on state land or privately owned land and the proposed Resource Management Plan to be prepared under the auspices of DWAF could evaluate the most optimum position, size and nature of such a proposal. The Amahlathi Housing Sector Plan stresses the strategic approach of Council in developing housing for upper income and retired couples seeking to live in the unique and scenic beauty of Stutterheim and surrounds. The dam has enormous potential to attract such development which could create a boost to the rates revenue of the municipality, increase tourist volumes to the area and create additional employment which would not be dependent on agriculture.

15. INFRASTRUCTURE DEVELOPMENT PLAN

15.1 Transportation Logistics

Transportation will play a key role in the development of Amabele. Traditionally, the railway station has been the junction for goods and passenger traffic to the Transkei. The railway line from Amabele to Mthatha has been upgraded and is an integral part of the Kei Rail to convey passengers between East London and Mthatha.

In the future, with the growth of Amabele village and Ndakana and the development of the berry industry at Thorn Hill, transportation linkages between Ndakana and Thorn Hill, via Amabele will become ever more important. This will include the road transportation of materials to Thorn Hill, and passenger transport of workers by road or by rail.

Whatever happens, Amabele will develop as an inter-nodal facility representing the interface between up to three forms of passenger transport. The different transport options will require taxi / bus facilities at Ndakana, Amabele station, and possibly Thorn Hill.

15.1.1 Commuter facilities

There is no clarity on how Amathole Berries will transport their employees from their places of abode to work. Preliminary employment figures indicate that their requirements will be:

YEAR	EMPLOYEE	TAXI RANK			REMARKS
		Ndakana	Amabele	Thornhill	
2010	22	31	15	46	a) 50% walk to Amabele b) 2,500m ² required for Kei Rail now
2011	75	104	52	156	
2012	260	361	181	542	
2013	648	900	450	1,350	
2014	948	1,317	658	1,975	
2015	1460	2,028	1,014	3,042	
2016	2745	3,813	1,906	5,719	
2017	3491	4,849	2,424	7,273	
2018	4238	5,886	2,943	8,829	
2019	4808	6,678	3,339	10,017	

Under its present operating regime of transporting passengers from Amabele to East London by bus, there is a need for a surfaced passenger (bus/taxi) facility of 2,500 m² at Amabele station.

Should all workers be conveyed from Ndakana directly to Thornhill, the sizes of taxi ranks are shown per year in the above table. However, if the primary method of transporting employees is by train, it is assumed that at least 50% of Ndakana employees would walk to the station. Under this condition, the rank at Ndakana could be halved and reduced to the size of the one at Amabele.

Without pre-empting other studies, it is reasonably certain that employees will be transported by road until at least 2014. Under these conditions, a taxi/bus rank of 2,500 m² would suffice until 2015. A facility at Thornhill is the responsibility of the owner, and is anticipated to be much larger due to congestion at the end of the working day.

15.1.2 Rail commuting

With the Kei Rail planning to operate a commuter service between Mthatha and Butterworth, there would be a precedent for them to operate a similar service between Amabele and Komga, once the demand grows. This would make employment opportunities available at Thornhill to residents of both areas. However Kei Rail would require to be engaged in negotiations to see whether they would be prepared to operate such a “metro” service. The Department of Roads and Transport would need to conduct a feasibility study into constructing a turnout/siding towards Thornhill farm from Ross siding, to facilitate movement of employees to the farm each day.

15.2 Roads

Discussions have been held with SANRAL officials regarding access into Amabele Village off the N6. Indications are that they will support measures which will improve

safety on this Route. The rationalising of the three intersections into a single intersection would be likely to meet with their approval. However, due to difficulties in regulating traffic, they are not in favour of a four-way stop, preferring a traffic circle to remove the potential for conflict between vehicle movements. They will not support any additional accesses off the N6, so a filling station will not be allowed with direct access off the N6. There is also a restriction on signage within 60 m of the N6. This means that any commercial development related to a new rationalised intersection will have to take place some distance off the N6, possibly on the feeder roads used to rationalise the intersection.

It is therefore proposed that the DR02779, Amabele and Ndakana intersections will be rationalised into a 4-way intersection. This will necessitate closing all the existing intersections, and re-routing the Ndakana traffic onto the original alignment of the N6 which will then function as a service road. With the closure of the existing Amabele and DR02779 intersections, an additional service road will be required to access all properties within the village and route traffic alongside the N6 to the DR02779 over the existing level crossing and eastwards to Wriggleswade dam. The approach road to the level crossing can be raised to give it a better gradient. It is not practicable to use the existing alignment of the DR02779 as the approach to a road over rail-bridge at the site of the existing level crossing. The viability of creating a pedestrian under or over pass across the N6 will need to be considered in the event that the main berry production is located at Thornhill Farm. This would result in the movement of large numbers of pedestrians in the morning and evening peak across the N6 thereby creating an extremely hazardous situation, although this may be mitigated by the slowing down of the traffic through the traffic circle.

In the event increased traffic in future results from the growth of berry production and tourism around Wriggleswade Dam, the proposed eastern service road alongside the N6 could diverge from the N6 as it approaches the DR02779 in order to gain elevation, before crossing the railway line in a long radius sweeping bend. This will result in a shorter crossing of the main line either by a 'road over rail' bridge or a level crossing. Due to the topography, it will not be possible to cross the line by constructing an underpass.

15.3 Water

It is understood that the Department of Water Affairs is funding a scheme to supply bulk water to, among other areas, the Amabele Village and the Ndakana cluster of villages. Water is drawn from the Wriggleswade system and is treated at the Kei Road Water Purification Works, from where it will be conveyed to supply the Ndakana and Amabele reservoirs. The present demand for water at Amabele is only 30 kl/day. However, allowing for 10 ha of land for berry related activities (4 ha for composting; and the remainder for packaging, cold storage, a winery and an office complex) and a total of say 200 houses, it is estimated that the ultimate water demand for Amabele would be of the order of 500 kl/day. In order to have 48 hours storage at Annual Average Daily Demand (AADD), a 1,000 kl ground storage reservoir should be allowed for. In order to command as much of the village as possible, this could be located on the local ridge on the DR02779 on the outskirts of the village. It would still be necessary to allow for an elevated tank to supply the high level zones, and a preliminary sizing of 100 kl should suffice for this.

15.4 Wastewater

Wastewater is conveyed to the existing Amabele Wastewater Treatment Works via an existing pump station and pumping main. It is unlikely that this would be able to treat more than 50 to 80 kl/day, and it is anticipated that there could be up to 250 kl/day sewage arising from Amabele Village and the activities associated with the berry industry. Accordingly we recommend that provision be made in the planning of Amabele for a 250 kl/day wastewater treatment works. The existing pump station and pumping/gravity mains should be adequate for the additional flows.

15.5 Solid Waste collection and disposal

Amabele and the Ndakana villages are part of the Amahlati Local Municipality which is responsible for the collection and disposal of solid waste. Stutterheim is only 15 km away from the railway station and has an established solid waste site. It is our understanding that Amatole Berries is a “zero net waste” operation. The increase in the generation of solid waste is limited to additional residential dwellings and increased commercial opportunities. There should be no need for a new transfer station, merely a small increase in the volume to be collected and disposed of.

15.6 Electricity

Eskom is the provider of both bulk and reticulated power in the area. New consumers will be required to apply directly to them. Apart from the berry processing factory, whose power use is not known, all other potential users are at the scale of domestic consumption and should be accommodated within the spare capacity.

15.7 Schools and Service Centre in Ndakana

Ndakana is served by a rudimentary water reticulation with community standpipes and has on site sanitation. It is recommended that all new buildings in this category practice rainwater harvesting in addition to securing water from network. Should these buildings have an adequate “municipal” water supply, sanitation can be provided using septic tanks and soakaways, failing which pit latrines will have to be used in the interim.

15.8 Telecommunications

Telecommunication services are the responsibility of Telkom (a state owned entity) and the cellular service providers, at least one of which is partly owned by Telkom. From last year, South Africa has a second landline based telecommunication service provider, which seems to be focusing in areas of higher service demand. Amabele has full landline based telecommunication services. Extension of these services to meet the needs of this study, i.e. berry processing, a small residential component and possibly an office development should not be onerous and well within the capability of Telkom. However, the provision of facilities and data lines to Thornhill are more problematic. This is a rural area, zoned for agriculture, and if the farm requires better than a single landline and dial up facilities, then they should enter into negotiations with Telkom and meet the costs of such a special service. It is apparent that mobile service coverage at the farm is poor. However the demand for services is probably too low for the installation of additional transmitters. A demand node at the farm could make beneficial use of an antenna to enhance cellular reception.

16. IMPLEMENTATION FRAMEWORK

16.1 Implementation Programme, Projects And Costs

Implementation of the Amabele Spatial Development Framework Plan is expected to involve a three phased approach over the next nine to ten years. The relevant projects priorities, timeframes, costs and funding sources are depicted on the programme spreadsheets below.

The various project costings have been estimated by the Technical Team on the basis of First Order Magnitude budgets according to similar projects in the Eastern Cape. Final costs will only be possible after a more detailed project based design has been affected in future.

It is envisaged that the detailed action plan will endeavour to secure adequate funding from the public private partnership involving all the stakeholders committed to the programme.

16.1.1 Phase 1 (2010/2011 to 2012/2013)

The spatial locality of the proposed projects is depicted on **Plan 14** in the Appendices. The projects cost estimates; funding sources and phasing are depicted on the relevant spreadsheets below.

- **General Region**

This phase seeks to achieve detailed planning for the general region around Amabele. The Environmental Management Plan, Waste management and Zero Waste Agriculture Plan, project specific feasibility for environmental projects, solid waste management plan and detailed agricultural feasibility and project plan are all essential to enable implementation of projects to commence, Whilst planning is underway, it is envisaged work could commence on instituting the wattle management and bee farming projects. Revival of the agricultural activities on the good arable soils located to the north and west of Ndakana are seen to be a “quick win” opportunity (**refer to plan 13**). Finally, an application to revive forestry in the area will need to be prepared and lodged with the Department of Water Affairs and Forestry.

- **Amabele**

There is great deal of work proposed for Amabele village itself. Initially, a detailed planning layout and zoning plan will be required. However, due to the fact that most of the land is privately owned, a co-operative process will be required between the land owners and the municipality concerned for this planning to succeed.

The closure of intersections and creation of a new intersection on the N6 with a service road connecting to the Wiggleswade dam road are seen to be crucial roadworks to be effected by SANRAL. Underpinning these, will be the need to upgrade the streets, water and electricity of Amabele itself. It is expected that the Amathole Berries project will invest in land within the village to provide for the much needed processing and packaging plant and the initial management housing cluster.

- **Ndakana**

Creating opportunities for Ndakana to achieve integration with the new development initiative in the area will be vital. A fundamental priority will be the

upgrading of the access road (DR 07690) to Ndakana villages. Associated with uplifting the quality of life in Ndakana will be the commencement of the upgrading and formalization process through settlement planning and survey (as already proposed in the Amahlathi Housing Sector Plan).

- **Wriggleswade Dam**

Many of the envisaged development projects in the vicinity of Wriggleswade Dam need to be assessed through the Resource Management Planning process to be undertaken during phase 1. It may happen that the Resource Management Plan will support or dismiss such proposals. However, in recognition that Wriggleswade Dam constitutes a significant attraction and has enormous potential for water based tourism and associated investment, upgrading of the road linking the dam to Amabele (DR 02779) is considered as having strategic importance. Coupled with improved access to the dam, such a road will also enhance accessibility to the berry investments on Thornhill Farm and various game reserves, eco-lodges and conservancies in the Kubusie and Gonubie River Valleys.

- **Special Development Area**

The spatial development framework plan proposes that there be an agricultural processing cluster in the area situated between Ndakana and Amabele. This special development area would contain high value crops and processing facilities geared to maximize the potentials afforded by the highly accessible N6, proximity to the Kei Rail System, available labour, water (high rainfall) and infrastructure. Such an initiative seeks to ensure employment and economic benefits are generated all year round, reducing dependency on the seasonal berry production in the area.

A community resolution process facilitated by Department of Land Affairs is an essential pre-requisite of this proposal and it should be supported by a private public partnership to create a zero waste agricultural business cluster.

- **Environmental Impact Assessment**

There are a number of proposed activities that potentially trigger an Environmental Impact Assessment (EIA). It would probably make sense to do one consolidated EIA encompassing as many future project elements as possible, specifically

- Phase 1
 - Amabele
 - Detailed Amabele Planning Layout and Zoning Plan and associated infrastructure
 - Ndakana
 - Upgrade existing Road (DR07690) to Ndakana
 - Outgrower operation at Ndakana/N6 site
 - Rainfed cropping in old Ndakana lands Phase 1
- Phase 2
 - Ndakana
 - Settlement Upgrade and formalization – Ndakana
 - Infrastructure upgrade – Ndakana service centre
 - Service centre facilities (Premises, Recreation etc)
 - Amabele
 - Middle income housing at Amabele
 - Activity street link to new Amabele N6 junction

- Taxi Rank parking facility in Amabele
- Tourism Information centre at Station
- Rezoning and Survey Commercial Erven
- SDA
 - Dryland annual cropping (soy, maize),
 - Outgrower operation at Ndakana/N6 site,
 - Satellite Tourism Centre
 - Rainfed cropping in old Ndakana lands Phase 2
- Phase 3
 - Ndakana – Settlement Upgrade and formalization
 - Amabele – Affordable Housing

16.1.2 Phase 2 (2013/14 to 2015/2016)

- **General Region**

This phase would see continued development of the wattle management, control and related enterprises. Bee farming would grow in support of the agricultural projects and further revival of the agriculture on old Ndakana lands would be achieved (refer to plan 15).

- **Ndakana**

The ongoing upgrading and formalizing of Ndakana would necessitate construction of an accessible taxi rank and the provision of infrastructure to a service node in the area. Formalising of the settlement would continue in this phase and following the provision of infrastructure there would be an opportunity to develop various premises for processing of agricultural produce, social facilities and recreation facilities.

- **Amabele**

This phase will see the development of additional management homes in support of growth in the berry production. The village itself will start to take shape with the construction of a taxi / bus facility opposite the station; parking, a tourism information centre and SMME market stalls at the station.

It will be important to consolidate the structure of the village and achieve greater centrality between the station and the N6 junction. This will be achieved by constructing an activity street linking these two important transport intersections. The activity street will need to be supported by business; retail; commercial and office uses and planning, rezoning and survey of these properties will be required.

- **Special Development Area**

Phase 2 will see the reinstatement of forestry on crest of the escarpment (on the understanding that the forestry permit is granted). The special agricultural projects cluster will continue to grow and a satellite tourism centre will be established near the N6. This centre will become viable owing to the unique nature of berry production in the area and linkages to the heritage tourism routes and Wriggleswade Dam water based tourism activities.

AMABELE SPATIAL DEVELOPMENT PLAN: IMPLEMENTATION PROGRAMME

PHASE 1: Years 2010/2011 - 2012/2013

LOCALITY	REF	ITEM	UNITS	TYPE	UNIT COST	TOTAL (RAND)	POSSIBLE FUNDERS	2010/2011	2011/2012	2012/2013
General	1	Environmental management plan	1	plan	100,000	100,000	ADM/ALM	100,000		
Region	2	Waste management and zero-waste plan	1	plan	50,000	50,000	DEDEA	50,000		
	3	Project specific feasibility studies for environmental projects	10	per study	50,000	500,000	DEAT/ADM	500,000		
	4	Solid waste management plan	1	plan	50,000	50,000	ALM	50,000		
	5	Waste management and control	200	hectares	5,000	1,000,000	DWAF			1,000,000
	6	Bee farming Phase 1	200	hives	1,100	220,000	Dept of Agric			220,000
	7	Detailed Agricultural feasibility and project plan	1	plan	150,000	150,000	Dept of Agric	150,000		
	8	Rainfed cropping in old Ndzakana lands Phase 1	100	hectares	11,000	1,100,000	Dept of Agric		550,000	550,000
	9	Application for forestry licence	1	Application	50,000	50,000	ALM/ADM/E/CDC		25,000	25,000
	10	Consolidated EIA of Projects and Proposals	1	EIA	800,000	800,000	DEDEA/ADM/E/CDC	400,000	400,000	
		Sub Total				4,020,000		1,250,000	975,000	1,795,000
Amabele	11	Detailed Amabele Planning Layout and Zoning Plan	1	Plan	300,000	300,000	ALM	300,000		
	12	Upgrade of internal streets Amabele	750	metres	5,000	3,750,000	ALM		3,750,000	
	13	Upgrade of water supply	1	various	500,000	500,000	ADM/DWAF	500,000		
	14	Electricity upgrade to Amabele	1	various	500,000	500,000	Ekom		500,000	
	15	Management housing at Amabele	10	houses	300,000	3,000,000	Amathole Berries	3,000,000		
	16	Purchase of land for Housing	2	hectares	100,000	200,000	Amathole Berries	200,000		
	17	Packaging and Processing Plant	3	hectares	10,000,000	30,000,000	Amathole Berries	30,000,000		
	18	Upgrade clinic	1	Various	1,000,000	1,000,000	Social Development		1,000,000	
		Sub Total				39,250,000		34,000,000	5,250,000	-
Ndzakana	19	Upgrade existing Road (DR02690) to Ndzakana	3000	metres	4,000	12,000,000	ADM			12,000,000
	20	Settlement Planning and survey	1300	aven	1,000	1,300,000	DLA/DCH		650,000	650,000
		Sub Total				13,300,000		-	650,000	12,650,000
Wiggleswade	21	Resource management plan Wiggleswade Dam	1	plan	500,000	500,000	DWAF	500,000		
	22	Upgrading of Road (DR027739) to Thornhill Farm and Dam	15	Kilometres	4,000,000	60,000,000	DORT	10,000,000	30,000,000	20,000,000
		Sub Total				60,500,000		10,500,000	30,000,000	20,000,000
Special Development Area	23	Feasibility for zero-waste agriculture business in special development zone	1	Report	50,000	50,000	ADM/ALM	50,000		
	24	Community resolution for land access SDA	1	Process	50,000	50,000	DLA/ADM/ALM	50,000		
	25	Special Agricultural Projects cluster	1	hectare	1,000,000	1,000,000	Dept of Agric		1,000,000	
		Sub Total				1,100,000		100,000	1,000,000	-
		TOTAL				118,170,000		45,650,000	37,875,000	34,445,000

AMABELE SPATIAL DEVELOPMENT PLAN: IMPLEMENTATION PROGRAMME

PHASE 2: Years 2013/2014 - 2015/2016

LOCALITY	REF	ITEM	UNITS	TYPE	UNIT COST	TOTAL	POSSIBLE FUNDERS	2013/2014	2014/2015	2015/2016
General	1	Waste management and control	600	hectares	5,000	3,000,000	DWAF	1,000,000	1,000,000	1,000,000
Region	2	Bee farming Phase 2	600	hives	1,100	660,000	Dept of Agric	220,000	220,000	220,000
	3	Rainfed cropping in old Ndzakana lands Phase 2	250	hectares	11,000	2,750,000	Dept of Agric	687,500	687,500	1,375,000
		Sub Total				6,410,000		1,907,500	1,907,500	2,695,000
Ndzakana	4	Taxi Rank at Ndzakana	1	rank	200,000	200,000	Public works	200,000		
	5	Settlement Upgrade and formalisation - Ndzakana	500	Erven	25,000	12,500,000	DC/DIDA	2,500,000	6,250,000	3,750,000
	6	Infrastructure upgrade- Ndzakana service centre	6	Erven	150,000	900,000	MIG/ALM/ADM	450,000	450,000	
	7	Service centre facilities (Premises, Recreation etc)	6	Facilities	250,000	1,500,000	Social Dev/ECDC			1,500,000
		Sub Total				15,100,000		3,150,000	6,700,000	5,250,000
Amabele	8	Middle income housing at Amabele	20	houses	200,000	4,000,000	Amathole Berries		2,000,000	2,000,000
	9	Active street link to new Amabele NS Junction	1	junction	250,000	250,000	ALM	250,000		
	10	Taxi Rank parking facility in Amabele	2	hectares	100,000	200,000	DCRT/public works	200,000		
	11	Tourism information centre at Station	1	info office	500,000	500,000	DEDEA/LTO/ALM	500,000		
	12	Closure of existing intersections on N6	3	Various	150,000	450,000	SANRAL/DCRT		450,000	
	13	New intersection on N6	1	Various	500,000	500,000	SANRAL/DCRT			500,000
	14	Service Road to Wiggleswade Road	750	metres	4,000	3,000,000	DCRT			3,000,000
	15	Re zoning and Survey Commercial Erven	10	Erven	25,000	250,000	ALM/ADM		250,000	
		Sub Total				9,150,000		950,000	2,700,000	5,500,000
Wiggleswade	16	New rail siding to Thomhill Farm	5	Kilometre	6,000,000	30,000,000	DCRT	15,000,000	15,000,000	
		Sub Total				30,000,000		15,000,000	15,000,000	-
Special	17	Forestry project	100	hectares	20,000	2,000,000	Dept of Agric		1,000,000	1,000,000
Development	18	Special Agricultural Projects cluster	2	hectares	1,000,000	2,000,000	DT/E/CD/C	1,000,000	500,000	500,000
Area	19	Satellite Tourism Centre	1	Centre	2,500,000	2,500,000	DEDEA/LTO/ALM		2,500,000	
		Sub Total				6,500,000		1,000,000	4,000,000	1,500,000
		TOTAL				67,160,000		22,007,500	30,307,500	14,845,000

16.1.3 Phase 3

- **General Region**

The final phase will see the development of tourism enterprises in the region towards and around Wriggleswade Dam. The agricultural activities involving high value crops will be augmented by irrigated vegetable cropping, bamboo and forestry projects (refer to plan 16).

- **Ndakana**

The formalization and upgrade of Ndakana settlement will be completed in this phase.

- **Amabele**

As a result of increased traffic generated on both the rail system and the road between Amabele and Wriggleswade Dam; a new road over Rail Bridge will be constructed over the existing level crossing. The larger scale production and processing of berries; tourism activities, commerce and agricultural projects cluster in the special development zone will support development of a further extension of affordable housing in Amabele. This housing will be needed to accommodate families drawn to the village due to increased economic opportunities in the area.

- **Special Development Area**

There will be continued growth in special agricultural projects, linked to an alternative energy plant. This development will be linked directly to attaining a successful zero waste agriculture zone between Ndakana and Amabele.

AMABELE SPATIAL DEVELOPMENT PLAN: IMPLEMENTATION PROGRAMME

PHASE 3: Years 2016/2017 - 2018/2019

LOCALITY	REF	ITEM	UNITS	TYPE	UNIT COST	TOTAL	POSSIBLE FUNDERS	2016/2017	2017/2018	2018/2019
General	1	Eco-tourism (bird-watching, game farming etc)	2	Community Ent	4,500,000	9,000,000	DEDEA/ECDC	3,000,000	3,000,000	3,000,000
Region	2	Rainfed cropping Phase 3	300	hectares	12,000	3,600,000	DEPT OF AGRIC	1,200,000	1,200,000	1,200,000
	3	Irrigated vegetable farming	3	hectares	80,000	240,000	DEPT OF AGRIC	80,000	80,000	80,000
	4	Bamboo	100	hectares	60,000	6,000,000	DEPT OF AGRIC		3,000,000	3,000,000
	5	Forestry project	1,000	hectares	20,000	20,000,000	DEPT OF AGRIC	5,000,000	5,000,000	10,000,000
	6	Wattle management and control	600	hectares	5,000	3,000,000	DWAF	1,000,000	1,000,000	1,000,000
	7	Bee farming Phase 2	600	hives	1,100	660,000	DEPT OF AGRIC	220,000	220,000	220,000
		Sub Total				42,500,000		10,500,000	13,500,000	18,500,000
Ndakana	8	Settlement Upgrade and formalisation	800	Erven	25,000	20,000,000	DOH/DLA	4,000,000	10,000,000	6,000,000
		Sub Total				20,000,000		4,000,000	10,000,000	6,000,000
Amabele	9	New Road over Rail bridge	1	Bridge/road wks	1,000,000	1,000,000	DORT		500,000	500,000
	10	Affordable Housing	100	houses	65,000	6,500,000	DLA/DOH		3,250,000	3,250,000
		Sub Total				7,500,000		-	3,750,000	3,750,000
Special	11	Alternative alien eradication/energy plant	1	Various	2,500,000	2,500,000	Min & En			2,500,000
Development	12	Special Agricultural Projects cluster	2	hectares	1,000,000	2,000,000	DTI/ECDC	1,000,000	500,000	500,000
Area		Sub Total				4,500,000		1,000,000	500,000	3,000,000
		TOTAL				74,500,000		15,500,000	27,750,000	31,250,000

16.2 Implementation Framework: Economic And Employment Projections

This section summarises the projected returns for the enterprises set out in the implementation framework. Returns are summarised for five aspects of each enterprise in the sub-sections below:

- Enterprise income or turnover per year;
- Permanent and temporary employment creation per year;
- Capital costs per year;
- Net profit per year;
- Rate of return on cumulative capital per year.

The full returns and financials for each enterprise are set out in the Appendix. The first enterprise reviewed is the Thornhill blueberry farm, followed by the linked enterprises and finally, the community enterprises proposed for Ndakana. The enterprises proposed for communal blueberry farming at Keiskammahoek and by emerging farmers are not included as firstly Keiskammahoek is outside the study area and secondly, estimates of the number of emerging farmers expected to undertake blueberry farming are not available.

16.2.1 Thornhill Blueberry Farm

Table: Thornhill Blueberry Farm Returns

Year	Sales value R'000	Permanent employees (Nos.)	Temporary waged employees (Nos.)	Cumulative capital investment R'000	Net profit R'000	Net RoR on Capital
2009	R 0	2	0	R 13 369	-R 15 615	-116.8%
2010	R 3 130	27	22	R 35 060	-R 12 957	-37.0%
2011	R 10 194	122	75	R 81 813	-R 14 979	-18.3%
2012	R 34 425	210	260	R 120 662	-R 6 618	-5.5%
2013	R 69 645	299	548	R 140 927	R 9 235	6.6%
2014	R 115 499	387	948	R 159 702	R 34 719	21.7%
2015	R 170 475	486	1 460	R 177 826	R 62 814	35.3%
2016	R 238 655	581	2 133	R 193 883	R 100 188	51.7%
2017	R 308 335	606	2 876	R 213 463	R 131 665	61.7%
2018	R 371 845	609	3 620	R 222 558	R 171 785	77.2%
2019	R 408 449	649	4 150	R 229 842	R 181 436	78.9%

Financials for the Thornhill Blueberry Farm have been taken from figures prepared by Phillip Howes for the Board in April 2009. These figures however have been supplemented by two additional costs.

- The cost of transporting temporary workers to Thornhill during the 20 week harvesting period (4 weeks per variety for 5 varieties) which it is expected will accrue to the employer at an estimated R8.00 per journey from Amabele to Thornhill.
- The capital cost of surfacing the road to Thornhill at an estimated cost of R60 million which is included in years 2010, 2011 and 2012 of the implementation plan, as well as the capital cost of constructing a rail spur to Thornhill at an estimated cost of R4.6 million over the same period.

While large scale cumulative capital investment of more than R200 million is required to establish and develop the Thornhill farm, growing profits are achieved after 2013 based on the anticipated development of the farm starting in 2009.

Although the road and rail capital projects are currently under the responsibility of the provincial Department of Roads and Transport (DORT), the above figures show that Thornhill Blueberry Farm is still highly profitable even if it has to support to the full costs of transport infrastructure and labour transport to what is, after all, a private sector project.

The public benefit from the Thornhill investment consists of two aspects.

- Permanent employment rising to 649 by 2019 and temporary seasonal employment for harvesting during a 20 week window rising to 4 150 by 2019.
- The further employment generation effect from linked enterprises, the returns of which are summarised below.

In view of the high levels of profitability of Thornhill Blueberry Farm, even if it has to support transport and infrastructure costs, and in view of the private sector nature of this project, it is recommended that the costs of road and rail links to Thornhill be met by the investors in Thornhill Farm.

16.2.2. Giya Packhouse

Table: Giya Packhouse Returns

Year	Sales value R'000	Permanent employees (Nos.)	Temporary waged employees (Nos.)	Cumulative capital investment R'000	Net profit R'000	Net RoR on Capital
2009	R 0	0	0	R 19 241	-R 19 241	-100.0%
2010	R 674	3	8	R 19 948	-R 1 454	-7.3%
2011	R 3 038	3	8	R 20 799	-R 1 097	-5.3%
2012	R 10 267	3	18	R 21 802	-R 307	-1.4%
2013	R 20 754	3	36	R 32 865	-R 8 856	-26.9%
2014	R 33 915	3	60	R 43 739	-R 6 660	-15.2%
2015	R 48 078	3	90	R 45 272	R 4 878	10.8%
2016	R 67 231	3	129	R 45 297	R 9 361	20.7%
2017	R 87 332	3	170	R 45 510	R 12 395	27.2%
2018	R 108 115	3	211	R 46 172	R 15 031	32.6%
2019	R 123 633	3	241	R 46 197	R 18 032	39.0%

The Giya Packhouse will process fresh blueberries for export and for local consumption. Financials for the Packhouse have been taken from figures prepared for consideration by DBSA during April 2009. These figures show a significantly profitable enterprise after 2015.

Again, the main public benefit of the Packhouse is the temporary employment of more than 200 employees for the 20 week harvesting window after 2018.

16.2.3 Processing Plant

The Processing Plant will process frozen blueberries for jams, juice and other processed products. Relatively small proportions of the Thornhill blueberries will be processed, while higher proportions will be processed from production by the Keiskammahoek communal farm and the emerging farmers.

Financials for the Processing Plant have been estimated using the figures for the packhouse as figures for the plant were not made available. These estimates should be considered both tentative and very provisional and can undoubtedly be improved. The figures show a marginally profitable enterprise by 2019.

Table: Processing Plant Returns

Year	Sales value R'000	Permanent employees (Nos.)	Temporary waged employees (Nos.)	Cumulative capital investment R'000	Net profit R'000	Net RoR on Capital
2009	R 0	0	0	R 19 241	-R 19 241	-100.0%
2010	R 17	1	2	R 19 948	-R 843	-4.2%
2011	R 59	1	2	R 20 799	-R 971	-4.7%
2012	R 203	1	5	R 21 802	-R 1 132	-5.2%
2013	R 428	1	9	R 32 865	-R 11 170	-34.0%
2014	R 741	1	15	R 43 739	-R 10 951	-25.0%
2015	R 1 141	1	23	R 45 272	-R 1 555	-3.4%
2016	R 1 666	1	32	R 45 297	R 56	0.1%
2017	R 2 247	1	43	R 45 510	-R 44	-0.1%
2018	R 2 828	1	53	R 46 172	-R 389	-0.8%
2019	R 3 242	1	60	R 46 197	R 323	0.7%

It must however be remembered that the investment in the processing plant is justified based on a larger processing volume taken from the Keiskammahoek communal farm and the emerging farmers.

Again, the main public benefit of the Packhouse is the temporary employment of more than 200 employees for the 20 week harvesting window after 2018.

16.2.4 Vermiculture

Table: Vermiculture Returns

Year	Sales value R'000	Permanent employees (Nos.)	Cumulative capital investment R'000	Net profit R'000	Net RoR on Capital
2009	R 0	0	R 100	-R 100	-100.0%
2010	R 319	2	R 110	R 93	85.0%
2011	R 850	3	R 120	R 287	239.1%
2012	R 1 488	4	R 130	R 510	392.6%
2013	R 2 125	5	R 140	R 746	532.7%
2014	R 2 763	6	R 150	R 982	654.7%
2015	R 3 506	8	R 160	R 1 239	774.4%
2016	R 4 250	8	R 170	R 1 545	908.8%
2017	R 4 250	8	R 180	R 1 544	857.9%
2018	R 4 250	8	R 190	R 1 545	813.0%
2019	R 4 675	8	R 200	R 1 720	859.8%

The vermiculture enterprise is the first ancillary enterprise identified as an opportunity for the Ndakana community. The blueberries require compost from made local biomass through vermiculture.

The vermiculture enterprise is expected to be low capital and to have a very high rate of return relative to the investment. The employment effect is however fairly limited requiring an estimated 8 full time employees. This however does not include the organic compost required by the Keiskammahoek communal farm and the emerging farmers. The employment impact could therefore rise to as many as 20 full time employees.

16.2.5 Wattle Control and Chip Production

Table: Wattle Returns

Year	Sales value R'000	Permanent employees (Nos.)	Cumulative capital investment R'000	Net profit R'000	Net RoR on Capital
2009	R 0	0	R 250	-R 250	-100.0%
2010	R 0	0	R 275	-R 25	-9.1%
2011	R 0	0	R 300	-R 25	-8.3%
2012	R 2 000	64	R 325	R 975	300.0%
2013	R 2 000	64	R 350	R 975	278.6%
2014	R 2 000	64	R 375	R 975	260.0%
2015	R 2 000	64	R 400	R 975	243.8%
2016	R 2 000	64	R 425	R 975	229.4%
2017	R 2 000	64	R 450	R 975	216.7%
2018	R 2 000	64	R 475	R 975	205.3%
2019	R 2 000	64	R 500	R 975	195.0%

The Wattle Control and Management enterprise is the second ancillary enterprise identified as an opportunity for the Ndakana community. The blueberries require chips as a medium for propagation and growth. Wattle chips also find a ready market for other purposes.

The Wattle enterprise is also expected to be relatively low capital with the main investment being an estimated R250 000 for a mobile chipping plant. As a result the enterprise has a very high rate of return relative to the investment. The employment effect is significant requiring an estimated 64 full time employees. This however does not include the chips required by the Keiskammahoek communal farm and the emerging farmers. The employment impact could therefore rise to as many as 150 full time employees.

16.2.6 Bee Keeping and Honey Production

Table: Bee and Honey Returns

Year	Sales value R'000	Permanent employees (Nos.)	Cumulative capital investment R'000	Net profit R'000	Net RoR on Capital
2009	R 0	0	R 75	-R 75	-100.0%
2010	R 161	3	R 200	-R 46	-23.1%
2011	R 430	6	R 350	R 60	17.1%
2012	R 753	10	R 500	R 218	43.5%
2013	R 1 075	14	R 650	R 375	57.7%
2014	R 1 398	19	R 825	R 508	61.5%
2015	R 1 774	24	R 1 000	R 691	69.1%
2016	R 2 150	28	R 1 000	R 1 050	105.0%
2017	R 2 150	28	R 1 000	R 1 050	105.0%
2018	R 2 150	28	R 1 100	R 950	86.4%
2019	R 2 365	31	R 1 100	R 1 155	105.0%

Bee Keeping and Honey Production are the third ancillary enterprise identified as an opportunity for the Ndakana community. The blueberries require pollination by bees, leading to an opportunity for community members to keep hives and rent them out, and to the opportunity for honey production. The estimated returns are made from the figures set out in the Feasibility report.

Hive hire and honey production is also expected to be a low capital enterprise with the main investment being an estimated R1 000 for a bee hive. As a result the enterprise has a very high rate of return relative to the investment. The employment effect is significant requiring an estimated 31 full time employees for tending the hives, with the profit from honey sales accruing to community members. This however does not further growth in honey production from the Keiskammahoek community and from hives needed to service the emerging farmers.

16.2.7 Rain-Fed Cropping at Ndakana

Table: Rainfed Cropping Returns

Year	Sales value R'000	Permanent employees (Nos.)	Cumulative capital investment R'000	Net profit R'000	Net RoR on Capital
2009	R 0	0	R 0	R 0	
2010	R 0	0	R 0	R 0	
2011	R 650	4	R 100	-R 50	-50.0%
2012	R 650	4	R 110	R 40	36.4%
2013	R 813	5	R 120	R 53	43.8%
2014	R 813	5	R 130	R 53	40.4%
2015	R 1 625	10	R 140	R 115	82.1%
2016	R 1 400	8	R 150	R 90	60.0%
2017	R 1 400	8	R 160	R 90	56.3%
2018	R 1 400	8	R 170	R 90	52.9%
2019	R 1 400	8	R 180	R 90	50.0%

Rain-fed Cropping, mostly maize, is the fourth ancillary enterprise identified as an opportunity for the Ndakana community. The implementation plan recommends 50 Ha starting in 2011 rising to 100 Ha by 2019.

Rain-fed cropping is low capital with the main investment being an estimated R100 000 for farm machinery. As a result the enterprise has a very high rate of return relative to the investment. The employment effect is however minimal, requiring only an estimated 8 full time employees.

16.2.8 Irrigated Vegetable Production at Ndakana

Irrigated vegetable production, mostly cabbage, is the fifth ancillary enterprise identified as an opportunity for the Ndakana community. The implementation plan recommends 1 Ha starting only in the third phase of the implementation plan. The estimated returns are made from the figures set out in the Feasibility report and follow the same schedule as set out in the implementation plan.

Irrigated vegetable production is low capital with the main investment being an estimated R50 000 for irrigation equipment for 1 Ha. As a result the enterprise has a very high rate of return relative to the investment. The employment effect is however minimal, requiring only an estimated 2 full time employees which are concentrated in the harvesting period.

Table: Irrigated Vegetable Returns

Year	Sales value R'000	Permanent employees (Nos.)	Cumulative capital investment R'000	Net profit R'000	Net RoR on Capital
2009	R 0	0	R 0	R 0	
2010	R 0	0	R 0	R 0	
2011	R 0	0	R 0	R 0	
2012	R 0	0	R 0	R 0	
2013	R 0	0	R 0	R 0	
2014	R 0	0	R 0	R 0	
2015	R 0	0	R 0	R 0	
2016	R 125	2	R 50	-R 30	-60.0%
2017	R 125	2	R 55	R 15	27.3%
2018	R 125	2	R 60	R 15	25.0%
2019	R 125	2	R 65	R 15	23.1%

16.2.9 Other Enterprises

Bamboo and Forestry are included in the Implementation Plan as enterprises for Ndakana. They are however proposed for establishment during the third phase and so returns have not been included in this section due to the time taken post-establishment for income to result.

Tourism enterprises have also not been included in the returns as it is difficult to estimate returns fro businesses that are not directly linked to the blueberry farming or to Ndakana. The success of tourism enterprises will be determined more by the overall development of tourism in the area and by the successful integration of these enterprises into local and regional tourism routes.

16.3 Institutional Arrangements

16.3.1 Project Implementation

There can be no doubt that integrated implementation of the Amabele Spatial Development Framework Plan will require a collaborative partnership between community, private and public stakeholders in the area. Failure to effectively manage and co-ordinate development initiatives would result in economic potentials being lost and the envisaged benefits would not be realized.

Accordingly, it is considered essential that an effective institutional arrangement be introduced to ensure ongoing implementation management and co-ordination (Refer to Figure 25). It is envisaged that the existing project steering committee will become the “Amabele Implementation Committee” and comprise the representatives of Government Departments, Municipalities, Communities, private sector, funding agencies, parastatal organisations and so on. Whilst the Amathole District Municipality and Amahlathi Local Municipality are ultimately responsible for local economic development and infrastructure provision in terms of the Integrated Development Framework Plan and Spatial Development Framework, the development agency, ASPIRE will play the role of project co-ordinator and implementer.

Various identified projects would be implemented in accordance with the spatial development framework plan and ASPIRE will play the all important role of co-ordination, reporting on progress to the committee. The committee will meet regularly (at least every quarter) to review progress, address problems, agree on policy and priorities and provide support where needed.

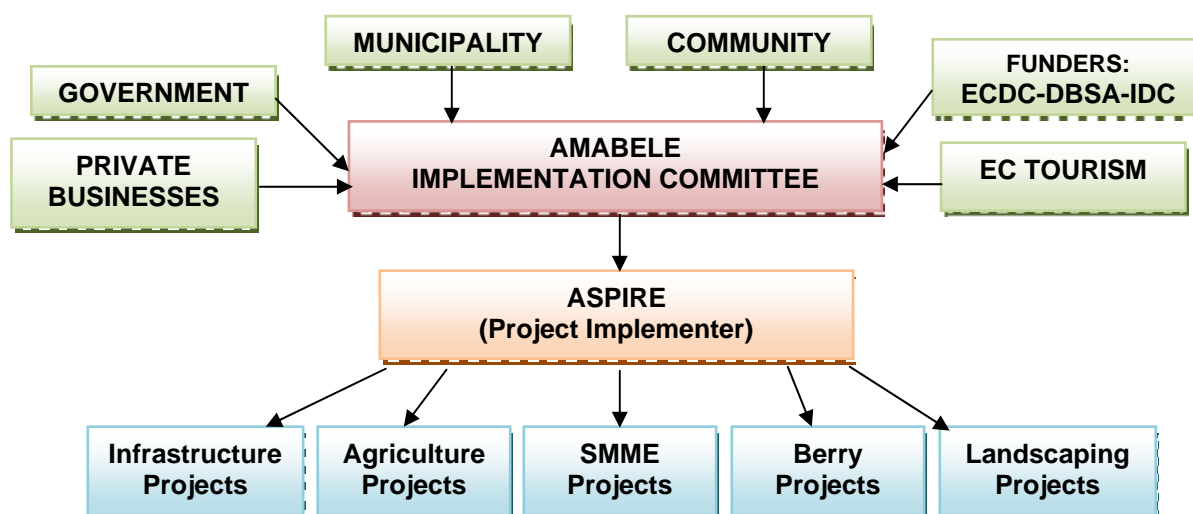


Figure 23: Institutional Framework

16.3.2 Agricultural Implementation and Management

This is the single most important factor determining the success or failure of any agricultural project. The lack of commercial agricultural management skills has led to the failure of many projects which have had the infrastructure and potential to succeed. On the other hand, good management has ensured that projects with limited potential are a success. Management on projects of this nature have different functions, namely the management of the farmers and their structures and the agronomic management of the

farming operation. These two components are both separated and integrated at the same time as one cannot function without the other.

In terms of agricultural management the model proposed is that of appointing a local manager and having an outside manager / mentor overseeing the operations on a regular basis. As the scheme grows over the three phases it will be necessary to employ managers for different operations within the greater scheme. Intensive irrigated agriculture such as Blueberries or vegetables will definitely require a full time dedicated manager while the other cropping operations could run with one manager between them.

The chart below (refer to Figure 26) indicates the basic structure which is believed can be functional with the mentor and a financial person appointed as external independent specialists. Both these individuals would then report through the overall institutional structures as indicated in the institutional arrangements. It is important that community matters and politics be divorced from the commercial agricultural operation if it is to succeed.

The structuring of a mentoring contract can be done in a number of ways ranging from a simple fee to different forms of incentive based schemes. Much of how this will be determined by the duration of the mentoring period. It is advisable on a project of this nature that this period is longer rather than shorter. It is strongly recommended that mentoring be undertaken for a period of at least 5 years, by which time the project will be close to full production and the local management and labour will have a good understanding of its workings. During the initial development phases of the project the mentor is going to be required a lot more than later on once development is completed. It thus makes sense that there is a fixed fee attached directly to the amount of time required. As the project progresses and production levels increase the mentor could move more to a production incentive based payment system. The details of such a scheme would need to be negotiated and finalized with the appointed mentor.

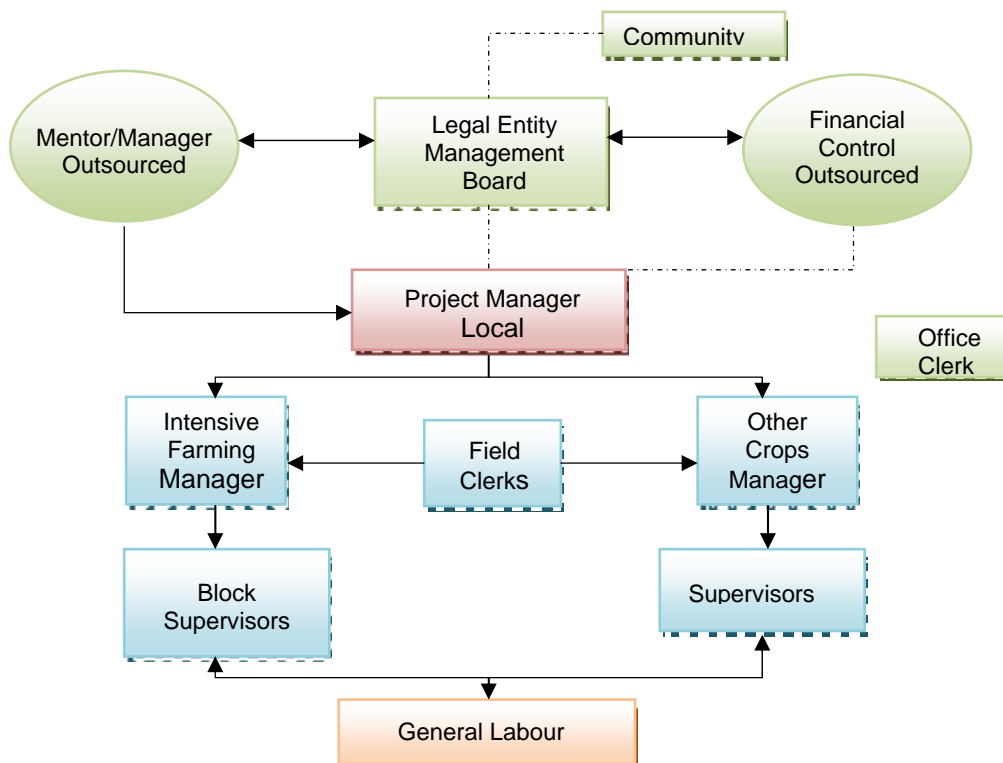


Figure 24: Agricultural Implementation and Management Framework