LITERATURE REVIEW REPORT
FOR
CHRIS HANI DISTRICT MUNICIPALITY
FOR THE
DEVELOPMENT OF ENVIRONMENTAL MANAGEMENT FRAMEWORKS FOR SIX DISTRICT MUNICIPALITIES IN FOUR PROVINCES

DEVELOPED BY:
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FOR:
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Department of Forestry, Fisheries and Environment

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CHRIS HANI DISTRICT MUNICIPALITY
SUSTAINING GROWTH THROUGH OUR PEOPLE

1 Table of Contents

Table of Figures

Table of Tables

Table of Acronyms

ASGISA	Accelerated and Shared Growth Initiative for South Africa
CARA	Conservation of Agricultural Resources Act
CBD	Central Business District
CCRS	Climate Change Response Strategy
CCRVA	Climate Change Risk and Vulnerability Assessment
CHDM	Chris Hani District Municipality
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DFFE	Department of Forestry, Fisheries and Environment
DM	District Municipality

ECCCRS	Eastern Cape Climate Change Response Strategy
EMF	Environmental Management Framework
GDP	Gross Domestic Product
IDP	Integrated Development Plan
IUCN	International Union for the Conservation of Nature
KPA	Key Performance Area
LED	Local Economic Development
LM	Local Municipality
MEC	Member of the Executive Council
NEMA	National Environmental Management Act
SALGA	South African Local Government Association
SDF	Spatial Development Framework
SMME	Small, Medium and Medium Enterprises
WWTW	Waste water treatment works

1 REPORT OVERVIEW

1.1 INTRODUCTION

The aim of the Literature Review is to ensure a sound base for the development of the Environmental Management Framework (EMF) for the Chris Hani District Municipality (CHDM). This document will therefore act as a gap analysis of any relevant documentation for the area as well as the legislative requirements for EMF studies. This information will be used to inform the EMF on issues which need to be addressed in the subsequent phases of the project.

All relevant legislation as well as provincial and local policies and guidelines, including any possible environmental by-laws pertinent to this study have been identified. Specialist studies were also scanned to identify areas where more investigation is needed as well as areas of high importance. The literature was then interpreted and all major implications for the EMF identified.

A summary section is also provided for a brief description on various specialist studies conducted for the area. The summary section focuses on background information presented in each document and not necessarily a description of the information applicable for Chris Hani District Municipality. However, the key findings of each section provide either a description or a listing of the information that is useful for the EMF.

1.2 PROJECT AREA

Chris Hani District Municipality

The Chris Hani District Municipality (CHDM) is a landlocked district stretching across the northern portion of the province, bordered by the Northern Cape and by the Eastern Cape districts of Cacadu, Amatole, Ukhahlamba and OR Tambo. Chris Hani, one of the four ISRDP nodes in the Province, includes the former administrative areas of Transkei, Ciskei and Cape Provincial areas. The natural environment ranges from semi-arid Karoo in the west to moist upland and mountain grassland in the east. The District extends over 36,756km^2 and incorporates six local municipalities, namely Inxuba Yethemba, Intsika Yethu, Emalahleni, Engcobo, Sakhisizwe and Enoch Mgijima Local municipalities.

Chris Hani is classified as a Category C2 municipality, indicating a largely rural character and low urbanisation rate, as well as limited municipal staff and budget capacity. Intsika Yethu, Emalahleni and Engcobo are classed as Category B4 (rural, mainly subsistence), and Inxuba Yethemba, Sakhisizwe and Enoch Mgijima as B3 (small towns, agricultural) municipalities, similarly reflecting limited institutional capacity and areas characterised by small centres, limited SMMEs and market opportunities, greater dependence on public support and LED activities that are principally at the level of the small project.

The Enoch Mgijima municipal area is an economic hub, due to its strategic position in the middle of the national corridors to the Gauteng, Western Cape, KwaZulu-Natal, Northern Cape and Free State Provinces. There are good road and rail linkages between Queenstown and Buffalo City, as well as between the Inxuba Yethemba towns of Cradock and Middelburg and the Metro. In short, the most developed transport infrastructure takes one out of the district to the primary and secondary provincial centres, rather than across the small centres of the district. Greater intra-district flows may develop given the status of the R61 – which runs across the length of Chris Hani through the main towns of five local municipalities – as a national road.

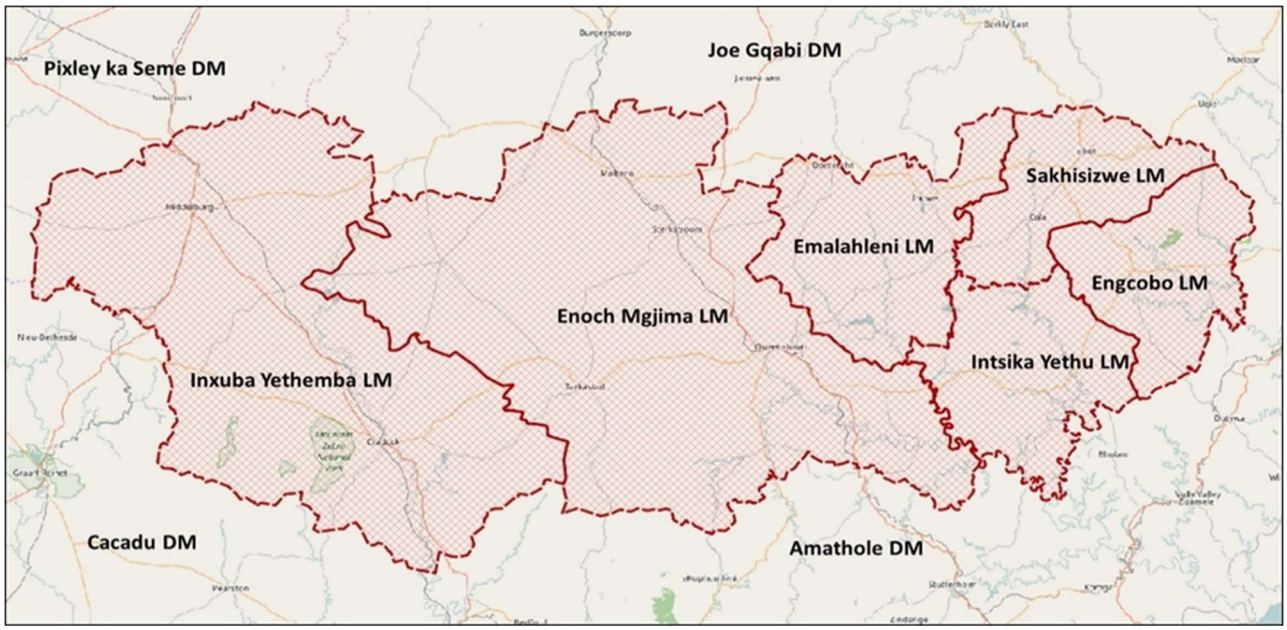

Figure 1: Map of the Chris Hani DM showing the local municipalities and the main towns

Overview of the Local Municipalities

Enoch Mgijima Local Municipality

The Enoch Mgijima Local Municipality is a Category B municipality situated within the Chris Hani District in the central part of the Eastern Cape Province. It is the largest of the six municipalities in the district, making up over a third of its geographical area.

It was established by the amalgamation of the Tsolwana, Inkwanca and Lukhanji Local Municipalities in August 2016. The area has a rich historical background dating back to the 18th century, with a number of monuments and key places of interest.

The Enoch Mgijima municipal area is an economic hub, due to its strategic position in the middle of the national corridors to the Gauteng, Western Cape, KwaZulu-Natal, Northern Cape and Free State Provinces. Parts of the municipality are developed with the relevant infrastructure so that modes of transport such as railway, road and a small airport are available to be utilised. Other parts of the region are experiencing a low economic growth rate, with high levels of unemployment and poverty in the towns.

It has a total area of 13 584km².

The main cities and towns are Hofmeyr, Komani (Queenstown), Molteno, Sada, Sterkstroom, Tarkastad, Whittlesea. The main economic sectors include: Agriculture, general government services, finance and business, wholesale, retail and catering, community services.

Figure 2: Map of Enoch Mgijima Local Municipality

Inxuba Yethemba Local Municipality

The Inxuba Yethemba Local Municipality is a Category B municipality situated in the Chris Hani District in the Eastern Cape Province. It is approximately 240km north of Nelson Mandela Metropolitan Municipality. It is one of six municipalities in the district, making up a third of its geographical area.

Cradock consists of the suburb of Cradock, and the Lingelihle and Michausdal communities, whilst Middelburg has the suburb of Middelburg, with the Kwanonzame Lusaka and Midros communities. The two urban centres of Cradock and Middelburg are fairly similar, with well-developed CBDs and fair infrastructure. A lot still needs to be done in the former previously disadvantaged communities.

The rural areas of both towns are mostly commercial farms, with small settlements in the rural areas of Fish River Mortimer and Rosmead. The N10 National Road, which is the vital economic link between Port Elizabeth and the north, runs through Cradock and skirts Middelburg.

It has a total area of 11 663km². The main cities and towns are: Cradock, Middelburg, Mount Zebra National Park. The main economic sectors include: Community services (58.9%), finance (13.8%), trade (7.5%), transport (5.9%), agriculture (5.4%), construction (4.2%), manufacturing (3.6%).

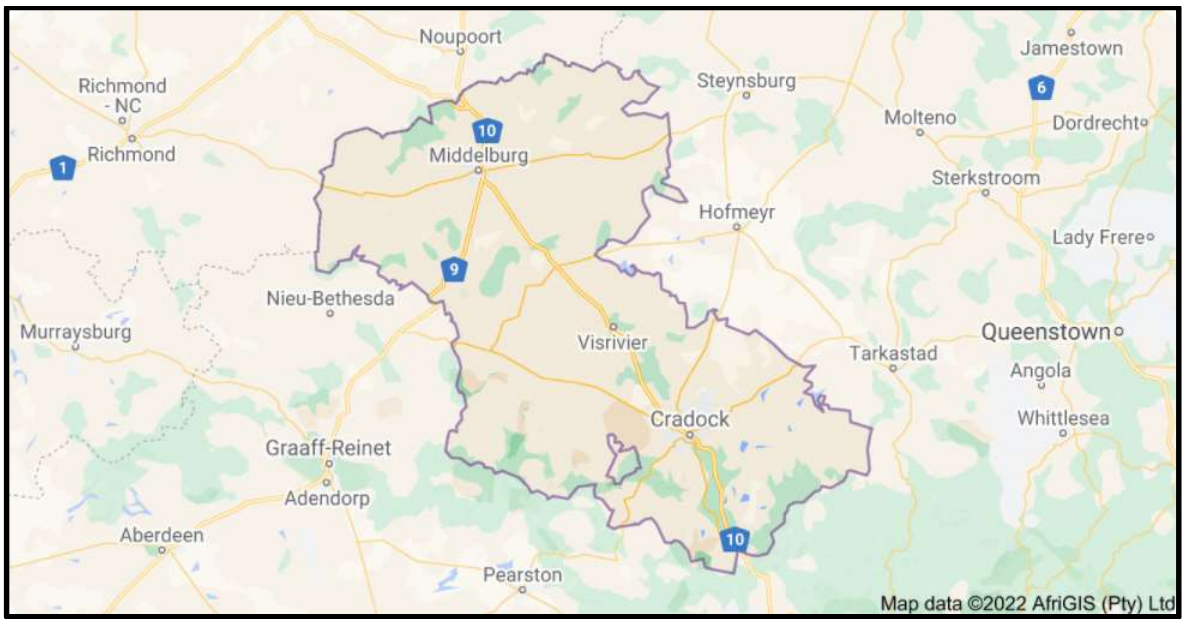

Figure 3: Map of Inxuba Yethemba Local Municipality

Emalahleni Local Municipality

The Emalahleni Local Municipality is a Category B municipality situated in the north-eastern part of the Chris Hani District Municipality in the Eastern Cape. It is one of six municipalities in the district.

The municipality was established during 2000 and comprises three rural towns, with more than 200 villages. Much of the municipal area was formerly in the Transkei. The quality of life in the rural villages is generally poor, marked by poverty and lack of access to services and amenities. Unemployment is high, and most households rely on social grants and remittances from family members working elsewhere.

Agriculture is limited to low-level subsistence farming, producing enough maize for personal use, traditional livestock farming and sorghum production, which is formalised and produced for the market. Wool production is one of the upcoming sources of income in the area for the emerging communal farmers.

It has a total area of 3 484km². The main cities and towns are: Cacadu (Lady Frere), Dordrecht, Indwe. The main economic sectors include: Government and services (55%).

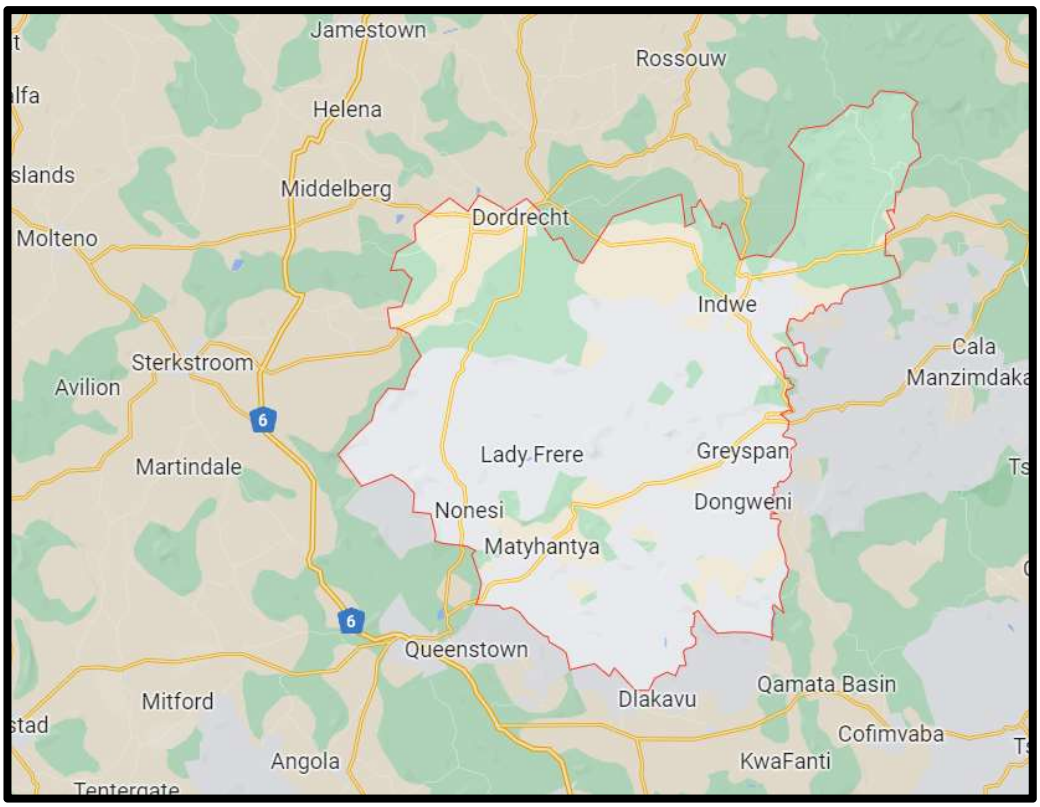

Figure 4: Map of Emalahleni Local Municipality

Engcobo Local Municipality

The Engcobo Local Municipality is a Category B municipality situated in the Chris Hani District in the Eastern Cape Province. It is one of six municipalities in the district.

The municipality claims the most youthful population, as well as the highest rates of poverty and unemployment, in the district, coupled with a high dependency ratio. The economy is underperforming and currently fails to create needed jobs and revenues. A dedicated LED strategy has been developed in order to guide interventions in turning this situation around. The municipality's low productivity score points to the low GDP per worker (formal and informal), a relative shortage of skills available to the economy, and low growth.

On a broad scale, the Engcobo Municipality has some striking features: it is a peripheral area in terms of the national economy, is underdeveloped, has a fragmented settlement pattern, has a low-density rural settlement environment, and its resource base is under pressure.

On the scale of urban development, Engcobo Town is classified as a Sub-District Development Node by CHDM (i.e. it is among a group of towns deemed to be on a second tier below the dominant district node of Komani). This means that Engcobo is understood to have an influence (reach or catchment population) beyond simply its local area and that it draws people to the town to access goods and services from a broader area (i.e. in some cases even from neighbouring municipalities).

However, Engcobo may also currently be described as a low-density urban environment. In spite of its low density and intensity of development, Engcobo's business centre is thriving, though it does not function optimally due to overcrowding and a lack of facilities serving both pedestrian and vehicular traffic. Business in the town is reliant on commuters (rural consumers) and there is no mass of resident consumers. This limits the range of commercial and social facilities that the private sector provides in town and inhibits the development of a more vibrant urban character.

It has a total area of 2 484km². The only major town is Engcobo. The main economic sectors include: Agriculture, forestry, trade and tourism.

Figure 5: Map of Engcobo Local Municipality

Intsika Yethu Local Municipality

The Intsika Yethu Local Municipality is a Category B municipality situated within the Chris Hani District Municipality in the Eastern Cape Province. It is bordered by Sakhisizwe to the north, the Amathole District to the south, Engcobo to the east, and Emalahleni and Enoch Mgijima to the west.

The municipality is one of six municipalities in the district, accounting for 8% of its geographical area. Intsika Yethu is an isiXhosa name meaning ‘our pillars'.

It covers an area of 2 873km² and includes towns such as Cofimvaba and Tsomo. The main economic sectors are Community services (52%), trade (14.8%) and agriculture (14.6%).

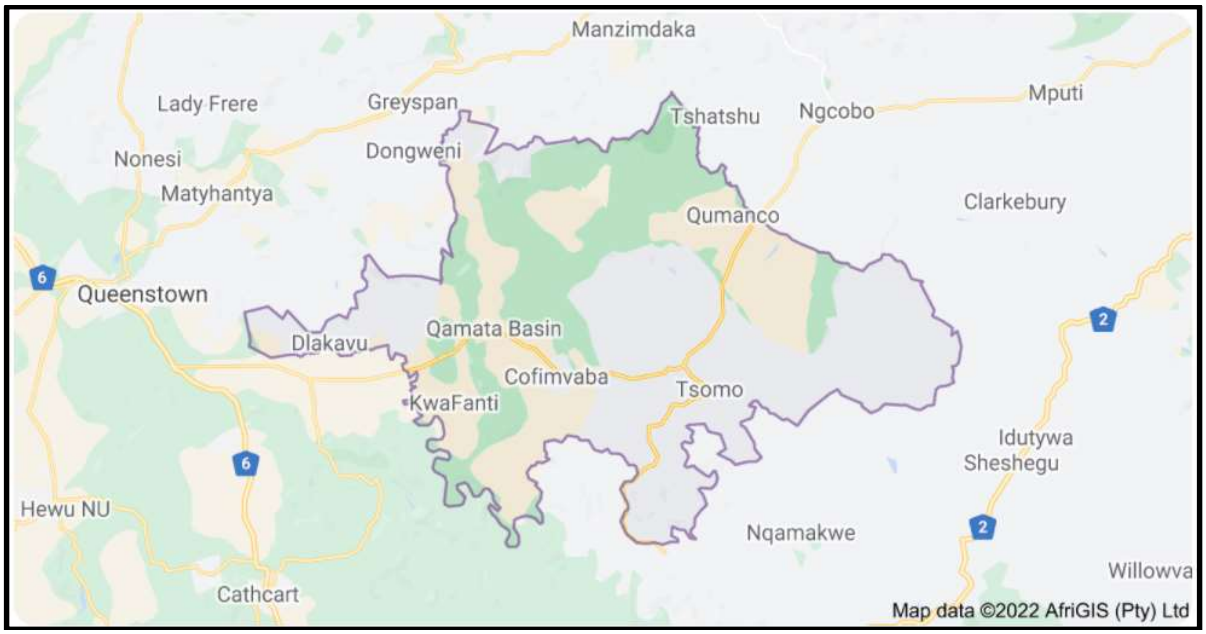

Figure 6: Map of Intsika Yethu Local Municipality

Sakhisizwe Local Municipality

The Sakhisizwe Local Municipality is a Category B municipality situated within the Chris Hani District in the Eastern Cape Province. It is bordered by the Joe Gqabi District to the north, Intsika Yethu to the south, Engcobo to the east, and Emalahleni to the west.

The municipality is the smallest of six in the district, making up 6% of its geographical area. Sakhisizwe is an isiXhosa name meaning 'we are building the nation'.

It covers and area if 2 318km² and include Cala and Khowa (Elliot) towns. The main economic sectors are: Community services, agriculture and trade.

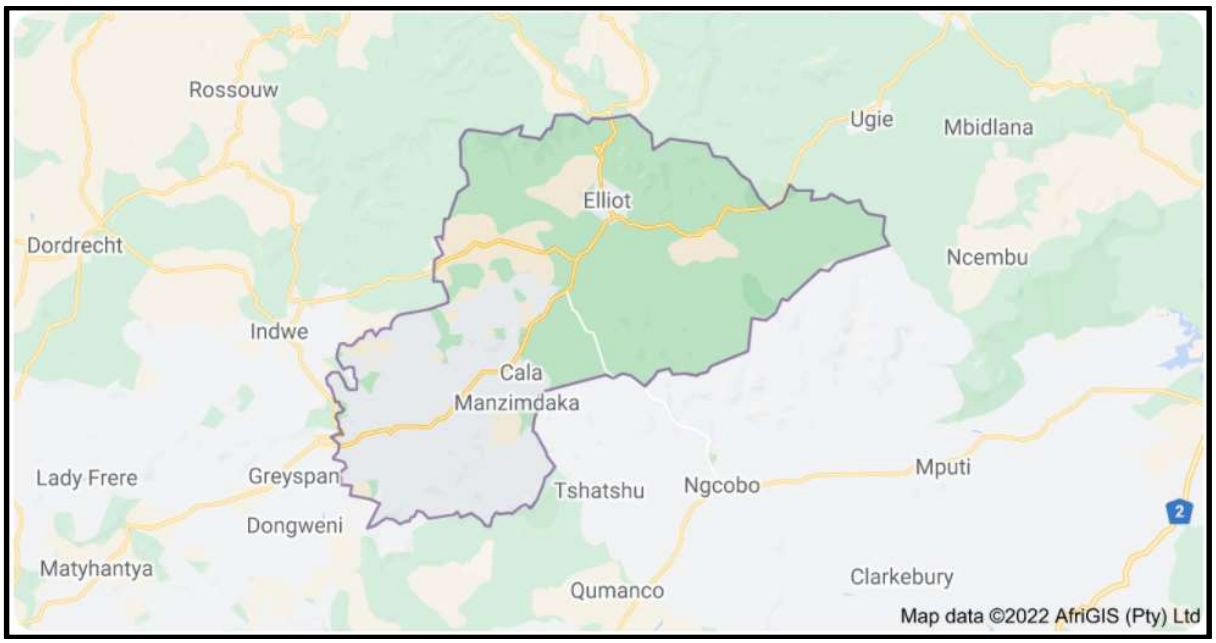

Figure 7: Map of Sakhisizwe Local Municipality

2 SUMMARY TABLE

The table below (**Table 1**) provides a list of documents included in this literature review:

Table 1: List of all the documents reviewed in this report

NAME OF REPORT	DATE
A. ENVIRONMENTAL LEGISLATION	
National legislation	
The Constitution of the Republic of South Africa Act 108 of 1996 (The Constitution)	1996
The National Environmental Management Act (Act No. 107 of 1998), NEMA as amended	1998
Specific Environmental Management Acts (SEMAs) promulgated in terms of NEMA, 1998, as amended, all fall under the auspices of the overarching National Environmental Management Act, (Act No. 107 of 1998), (NEMA).	2003

• National Environmental Management: Protected Areas Act (Act No. 57 of 2003), known as the NEM:PAA • National Environmental Management: Biodiversity Act (Act No. 10 of 2004), NEM:BA • National Environmental Management: Air Quality Act (Act No. 39 of 2004), NEM:AQA • National Environmental Management: Waste Act (Act No. 59 of 2008), NEM:WA	2004 2004 2008
Conservation of Agricultural Resources Act (Act No. 43 of 1983), as amended	1983
Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).	1970
National Forests Act, 1998 (Act No. 84 of 1998)	1998
National Water Act (Act No. 36 of 1998)	1998
The Water Services Act, 1997 (Act No. 108 of 1997)	1997
Municipal Systems Act (Act No. 32 of 2000)	2000
Infrastructure Development Act, (Act No. of 2014)	2014
The Spatial and Land Use Management Act, (Act No. 16 of 2013) and SPLUMA regulations	1998
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)	1983
Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA)	2002
The Development Facilitation Act, 1995 (Act No 67 of 1995) (DFA)	1995
The Mineral and Petroleum Resources Development Act, (Act No. 28 of 2002) and regulations.	2002
Electricity Regulation Act (Act No. 4 of 2006)	2006
The World Heritage Convention Act, 1999 (Act No. 49 of 1999)	1999
National Heritage Resources Act (Act No. 25 of 1999)	1999
Provincial legislation	
Provincial Planning and Development Act, (Act No. of 2009)	2009
Local legislations	
By-laws on Climate Change Response Strategy and Air Quality Monitoring	
By-laws on National Building Regulations	
By-laws on Town Planning/Land Use	
By-laws on Outdoor Advertising	
By-law relating to Dumping, Littering and Waste Collection	
B. ENVIRONMENTAL REGULATIONS	
Environmental Impact Assessment regulations, 2017, in terms of Section 24(5) and 44 of NEMA (Act No. 107 of 1998) as published in Government Notice R.326 of 7 April 2017.	2017
Environmental Management Framework Regulations, 2010, in terms of Section 24(5) and 44 of NEMA (Act No. 107 of 1998) as published in Government Notice R. 547 of 18 June 2010.	2010
C. PROVINCIAL DOCUMENTATION AND STUDIES	
Eastern Cape Competitive Advantage Assessment And Training Support Project: Programme of Support to Local Economic Development in the Eastern Cape - Annexure 3: District Profile Eastern Cape Chris Hani District Municipality (DC13)	2020
The Provincial Spatial Economic Development Strategy	
The Eastern Cape State of Environment Report (2nd Edition) November 2009	2009
• Atmosphere and Climate Change Specialist Report	
• Biodiversity Specialist Report	
• Human Settlements Specialist Report	
• Land Specialist Report	
• Freshwater Specialist Report	
Eastern Cape Rural Development Strategy - Facilitated by the Eastern Cape Department of Agriculture and Rural Development.	

Eastern Cape Climate Change Response Strategy	March 2011
Draft Climate Change Adaptation Action Plan for the Eastern Cape Province	31 March 2017
D. LOCAL DOCUMENTATION AND STUDIES	
Profile and analysis, District Development Model: Chris Hani District Municipality EC	2020
Local Municipality Spatial Development Framework (SDF)	
Local Municipality Spatial Development Framework	
Rural Development Plan for the Chris Hani DM	
District Municipality Spatial Development Framework	
District Municipality: Synopsis of the Review Integrated Development Plan 2010-2011 Financial Year	2010/11
Draft Integrated Development plan 2020/21 Review (version 0.3)	2020/21
District Development Plan (DDP)	2017
Chris Hani District Municipality Integrated Development Plan (IDP) 2017-2022	2017-2022
E. OTHER SOURCES OF INFORMATION	
The National Framework for Sustainable Development	
Vision 2030:	
Nodal Economic Profiling Project Chris Hani Eastern Cape	2007
District Profile Eastern Cape O.R. Tambo District Municipality (DC15). Programme of Support to Local Economic Development in the Eastern Cape.	2005
Rural Development Plan for the Chris Hani DM: Stakeholder participation Workshop	9 November 2015
Chis Hani Master Agri -Park Business Plan	April 2016
The Guideline Document developed by the National Department of Environmental Affairs and Tourism on Strategic Environmental Assessment in South Africa, February 2007	February 2007
DEA (2020) Environmental Management Frameworks in terms of the EMF Regulations of 2010, Integrated Environmental Management Guideline Series 6, Department of Environmental Affairs (DEA), Pretoria, South Africa.	2020
National development Plan (NDP)	

3 THE LEGAL OVERVIEW OF ENVIRONMENTAL MANAGEMENT FRAMEWORK

A legislation and policy review has been undertaken to ensure that the EMF is “legally compliant” while facilitating development planning and decision making. The review included relevant policies and acts, categorizing them according to National, Provincial and Local levels of governance. All the legislation listed would not be equally important during the development of the EMF, but should be considered. The intention is that this baseline is built on in the next phase of the EMF development, by defining what the specific requirements or implications of the policies and acts are for the development and/or outcomes of the EMF. In addition to the references provided in the TOR, **Table 1** summarizes the initial policy and legal review.

3.1 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT

The ***National Environmental Management Act, (No 107 of 1998) (NEMA)*** includes an overarching framework policy which defines the nature of sustainable development and introduces sustainable development as the accepted approach to resource management.

The Framework for sustainable development was compiled in order to articulate South Africa‘s national vision for sustainable development and indicate strategic interventions to re-orientate South Africa’s development path in a more sustainable direction.

Integrated Environmental Management (IEM) enforced by Chapter 5 of NEMA is one of the policy directives towards giving effect to section 24 of the Constitution and the sustainable development imperatives of the Rio Earth Summit in 1992. The purpose of this chapter is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities. Section 24 (2) and (3) of the ***National Environmental Management Act, 1998 (NEMA***) (as amended), states that the Minister, and

every MEC with the concurrence of the Minister, may compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every competent authority.

In terms of section 24(4)(b)(vi) of NEMA, procedures for the investigation, assessment and communication of the potential consequences or impacts of activities (commonly known as Environmental Impact Assessments) must include, where applicable, with respect to every application for an environmental authorisation consideration of environmental attributes identified in the compilation of information and maps as contemplated in subsection 24(3).

3.2 THE NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT

Section 51 of the ***National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEM:PAA)*** states that the Minister or the MEC may by notice in the Gazette restrict or regulate activities in a protected environment under the jurisdiction of the Minister or the MEC (a) development that may be inappropriate for the area given the purpose for which the area was declared and (b) the carrying out of other activities that may impede such purpose.

In terms of Section 9 of NEM:PAA, the system of protected areas in South Africa consists of the following kinds of protected areas: special nature reserves, nature reserves (including wilderness areas) and protected environments; world heritage sites; marine protected areas; specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the ***National Forests Act, 1998 (Act No. 84 of 1998)***; and mountain catchment areas declared in terms of the ***Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970)***.

3.3 THE NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT

The main legal provisions pertaining to the management of biodiversity of South Africa are embedded in the ***National Environmental Management Biodiversity Act, (Act No. 10 of 2004) (NEM:BA).***

In terms of the abovementioned Act, the State is the trustee of biological diversity and in this context it must manage, conserve and sustain South Africa's biodiversity and its components and genetic resources through the effective implementation of the NEM:BA.

The main relevant provisions of the NEM:BA for the management, conservation and sustainable use of biodiversity is stated in terms of section 9(1) of the Act, the Minister may, by notice in the Gazette issue norms and standards for the achievement of any of the objectives of this Act. Such norms and standards may apply nationwide, in a specific area only; or to a specific category of biodiversity only. Different norms and standards may be issued for different areas or different categories of biodiversity.

NEM:BA sets out various management instruments in the context of biodiversity planning and monitoring, including the national biodiversity framework, bioregions and bioregional plans, and biodiversity management plans.

Biodiversity management should be integrated in the EMF. In this context, management of the District Municipality must ensure that biodiversity is effectively managed and conserved and that there is sustainable use of indigenous biological resources in the District Municipality by taking note of the management instruments as mentioned above.

3.4 NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY

The ***National Environment Management: Air Quality Act (Act No. 39 of 2004)*** aims to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures and for matters incidental thereto.

3.5 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT

The ***National Environmental Management: Waste Act (Act No. 59 of 2008)*** aims to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; provide for institutional arrangements and planning matters; provide for national norms and standards for regulating the management of waste by all spheres of government; provide for specific waste management measures; provide for the licensing and control of waste management activities; provide for the remediation of contaminated land; provide for the national waste information system; provide for compliance and enforcement and to provide for matters connected therewith.

3.6 CONSERVATION OF AGRICULTURAL RESOURCES ACT

The ***Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA)*** and the regulations made under CARA are designed to provide for control over the utilisation of the natural agricultural resources of the country in order to promote the conservation of the soil, the water sources, the vegetation and combating of weeds and invader plants.

CARA is administered by the Department of Agriculture. The ambit of the Act is however limited as land situated within an "urban area" does not fall within the scope of the Act, except in so far as the Act relates to weeds and invader plants. Urban areas are defined as those areas that formed part of a municipal area prior to the designation of „wall-to-wall" municipalities in 1994.

With regards to weeds and invader species, CARA regulations on ***the Combating of Declared Weeds and Invader Plants were published in GN R1048 of 25 May 1984***.

3.7 WATER ACTS

The National Water Act (Act No. 36 of 1998) and the ***Water Services Act (Act No. 108 of 1997)*** provide the legislative water management requirements in South Africa. The National Water Act, provides the legal framework for the effective and sustainable management of water resources.

The Water Services Act provide for the rights of access to basic water supply and basic sanitation. Sufficient water and an environment not harmful to health or well-being is necessary. Government has to ensure that water supply services and sanitation services are provided in a manner that is efficient, equitable and sustainable. The provision of water supply services and sanitation services, although an activity distinct from the overall management of water resources, must be undertaken in a manner consistent with the broader goals of water resource management.

This Act, among other things, also provide for the gathering and the distribution of information in a national information system and the promotion of effective water resource management and conservation, and both these acts will be applicable on the District Municipality.

3.8 NATIONAL HERITAGE RESOURCS ACT

The ***National Heritage Resources Act (Act No. 25 of 1999)*** sets requirements for heritage resource identification and protection in the District Municipality. It aims to introduce an integrated and interactive system for the management of the national heritage resources; promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations; lay down general principles for governing heritage resources management throughout the Republic; introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa; establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources at national level; set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance; control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries; enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; provide for the protection and management of conservation-worthy places and areas by local authorities; and provide for matters connected therewith.

3.9 OTHER APPLICABLE LEGISLATION

The Mineral and Petroleum Resources Development Act, (Act No. 28 of 2002) is the central mining legislation and regulates the equitable access to, and sustainable development of, the nation's minerals and petroleum

resources and provides for environmental protection and rehabilitation in cases of mine-closure. The Act is administered by the Department of Mineral Resources, and has a strong focus on sustainable development.

3.10 ENVIRONMENTAL REGULATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT

Although the objectives of Chapter 5 of NEMA envisaged tools for all elements defined in terms of NEMA, the ***NEMA EIA Regulations,*** was promulgated in terms NEMA, 1998, as amended, which was adopted and implemented only addressed command and control (through EIA) and was in its application very much limited to "projects" as opposed to the wide range included in the definition of activities in NEMA.

The EMF Regulations, 2010 (published under section 24(5) and 44 of the National Environmental Management Act, 1998), is the first step towards closing this gap. Section 2, point 3 and 4 of the ***EMF Regulations, 2010*** provides further information on the scope and status of an EMF.

The regulations specify that information and maps compiled in terms of section 24(3) of NEMA can be used as environmental management frameworks in the consideration in terms of section 24 (4)(b)(vi) of NEMA of applications for environmental authorisations in or affecting the geographical areas to which those frameworks apply. They also provide specific regulatory requirements pertaining to the development of an EMF specifying that either the Minister or MEC with the concurrence of the Minister may initiate an EMF for an area. For this purpose, the Minister or MEC must compile a draft environmental management framework and subject it to a public participation process (by making the draft available for public inspection at a convenient place; and inviting potential interested and affected parties, by way of advertisements in newspapers circulating in the area and in any other appropriate way, to inspect the draft and submit representations, objections and comments in connection with the draft to that person or organ of state). The draft EMF should then be reviewed in the light of any representations, objections and comments received before being finalised.

In terms of the regulations, the Minister or MEC may adopt, with or without amendments, an EMF. When an EMF has been adopted, notice must be given in the Government Gazette or the official Gazette of the relevant province of (a) the adoption of the environmental management framework; and (b) the place where the environmental management framework is available for public scrutiny.

Finally, the regulations prescribe that an EMF which has been adopted must be taken into account in the consideration of applications for environmental authorisation in or affecting the geographical area to which the framework applies. An EMF should therefore be regarded as a supportive instrument to assist environmental impact assessment and related decision making processes in the specified District Municipality area.

NEMA Section 24(2)(d) also provides that the Minister, or an MEC with the concurrence of the Minister, may identify listed or specified activities that may commence without an environmental authorisation (and need for the EIA process to be followed), subject to compliance with prescribed norms or standards, which can then be incorporated in the EMF process.

4 PROVINCIAL DOCUMENTS AND STUDIES

4.1 EASTERN CAPE VISION 2030: PROVINCIAL DEVELOPMENT PLAN 2014

The Eastern Cape Vision 2030: Provincial Development Plan 2014, refers to sustainable development and development frameworks as well as norms and standards that need to be adopted. The Environmental Management Frameworks for the two district municipalities in the Eastern Cape are such sub-plans and draw on specific sections from this document.

Part 1: Overview of the Provincial development plan

Introduction and background

A provincial plan rooted in the NDP and a vision for a just society

The NDP sets out a vision and roadmap for the development of South Africa up to the year 2030. While the plan acknowledges the achievements of the first two decades of a free and democratic South Africa, it also responds to key challenges still facing the country today. The NDP seeks to build on the opportunities that lie not only in natural and material endowments, but also in innovative approaches to addressing the country's challenges.

In its introduction, the NDP sets out a number of important premises to underpin a reconsidered approach to development. These premises also informed the Eastern Cape's development plan.

Following the adoption of the plan, departments and other institutional stakeholders will develop detailed sub-plans and implement key propositions of the plan, independently as well as collaboratively. Implementation will be complemented by ongoing monitoring and evaluation of the PDP, and fostering a culture of accountability.

Part 1 of the Provincial Development Plan (PDP) can be read as a stand-alone overview to provide readers with a reasonable understanding of the province's development path.

Part 2 of the document consists of six chapters:

- The first chapter makes a case for why the Eastern Cape should prioritise rural development. It sets out the rationale for such bias, the key challenges to be addressed, an approach to doing rural development, as well as a proposition on institutional arrangements.

- The next five chapters then address each of the five main goals of the plan. Against each goal are set out objectives and strategic actions that respond to particular challenges identified, or actions that will deliver certain desired ends.

This part also summarise challenges and opportunities for the Easter Cape province.

The main challenges are:

- High unemployment rate
- The standard of education for most black learners is poor
- Infrastructure is poorly located, under-maintained and insufficient to foster higher growth and spatial transformation.
- Spatial patterns exclude the poor from development.
- The economy is overly and unsustainably resource intensive.
- A widespread disease burden is compounded by a failing public health system.
- Public services are uneven and often of poor quality
- Corruption is widespread
- South Africa remains a divided society

Opportunities summarised:

The Eastern Cape is endowed with a number of resources that give it a competitive edge. These include water, biodiversity and an extensive coastline of over 800km along the Indian Ocean with enormous potential for an ocean economy, as well as mineral and energy resources. The potential for agriculture and forestry also remains under-tapped. The province has arable, relatively well-watered land that is not optimally utilised

The Eastern Cape also has an illustrious history, it is a province that bears a strong imprint of the early inhabitants of the southernmost region of the continent – in language8, cultural practices, artistic impressions and artefacts. This rich heritage is an asset for the province.

The Eastern Cape is also home to four universities and a number of further education and training (FET) colleges (which in future will be known as technical vocational education and training [TVET] colleges) that play an important role in the province's development.

When analysing the province's potential and opportunity, it is important to consider assets and strengths found in various sub-regions of the province in order to aid regional and local planning and development. A regional9

development approach allows for targeted investment and development initiatives, while fostering connections and linkages between provinces. Regional development should also be approached from a holistic spatial perspective that brings together urban, rural and wilderness areas. Furthermore, including ecological considerations in the conception of regional development can ensure environmental resilience.

Based on a brief regional analysis, the following opportunities need careful attention in Chris Hani DM:

The East and North-East – OR Tambo, Alfred Nzo, Chris Hani, Joe Gqabi and parts of Amathole
These are generally high-density, poverty-stricken rural areas, with teeming underdeveloped towns that largely serve as trading hubs. The predominant enterprise is consumption-oriented, with little production both primary and secondary value-adding. Yet, this region also accounts for the bulk of arable land, and has high rainfall patterns and water to sustain agriculture and forestry.

The Chris Hani District has significant agricultural potential, with good water resources and some irrigation infrastructure in the schemes established during the homeland era. An ambitious and detailed plan for agriculture-driven development has been proposed, covering all local municipalities of the district, with a proposed agro-industrial hub conjoining Sakhisizwe, Engcobo and Emalahleni. This presents the province with an opportunity to develop a large agro-industrial hub and significantly re-order spatial patterns of economic activity and growth by promoting value-adding agro-processing industry, related industries and services, and develop new settlements of a technical and professional class in this region. This development could also benefit Enoch Mgijima (Queenstown), positioning it as a growing logistics nexus and light-manufacturing hub. The Chris Hani District is also establishing itself as a model district by piloting new forms of collective enterprise – mainly cooperatives to help grow the participation of the excluded majority in the economy. Cradock is also a growth node for agriculture and the emerging biofuel industry in the province, with its proximity to the port city of Nelson Mandela Metro a distinct advantage.

These developments largely focus on developing the rural regions of the province. In the short term, they will take place at production sites not yet significantly altered by land-reform efforts led by government. In the long term, even greater opportunities will open up as the land-reform process unlocks more land for expanded farming, together with growing local capabilities for agricultural production and enterprise.

Strategy, goal and actions

The province's long-term development strategy is built on a focused set of goals, interventions and programmes.

Spatial development, particularly spatial planning, affects all three components (Human development, Economic opportunity & rights and Institutional Capabilities) of the PDP conceptual framework in terms of location, access, connectivity and mobility. Spatial and land-use legislation, planning, policy and incentives affect the location of public services, amenities and the investment of public resources. The implementation of the PDP must ensure that the interaction between people, development and ecosystems is well articulated and understood.

One of the principles underpinning the PDP's propositions and their implementation is: **Intergenerational equity.** There are two critical aspects to this principle. The first is providing all citizens, especially the young, with equal chances and the resources to prevent inequalities being passed down to future generations. The second aspect concerns respecting the idiom that "eli lizwe silibolekiwe" – the belief that we have been lent this earth and must leave it in good shape for generations to come. This means we should consciously protect the natural environment in all respects, leaving subsequent generations with a valuable endowment. Sustainable patterns of consumption and methods of production that cause minimal harm to the natural environment should be supported. Fundamental to sustainable development is also recognising the interdependence of economic, social and environmental systems, and how policy decisions affect each system. Policy, spatial and investment decisions must be approached in a manner that supports and promotes this principle.

There are five goals set out for the PDP, all accommodating a rural development bias that is intended to address the spatial and structural imbalances highlighted as a critical challenge for the Eastern Cape.

The Goals:

Goal 1: A growing, inclusive and equitable economy

Goal 2: An educated, empowered and innovative citizenry

Goal 3: A healthy population

Goal 4: Vibrant, equitably enabled communities

Goal 5: Capable, conscientious and accountable institutions

For each goal is summarised a vision, key objectives as well as strategic actions. Further detail on those objectives and strategic actions relevant to the Environmental Framework is listed in Part 2 below.

Part 2: The Plan elaborated

Rural development and transformation

This chapter explores key rural development challenges in the Eastern Cape, motivating why rural development should be a key priority for the PDP and infused into its goals and programmes. It also looked at the Objectives and Strategic actions of each Goal. Those relevant to the Environmental Management Framework are listed below.

Strategic objective 4.1: Develop and implement a provincial land-use and spatial planning system

Strategic action 4.1.1: Actively promote spatial equity through regional planning

The PDP proposes that the province adopts a regional development approach to achieving spatial equity. This approach looks at the province holistically, focusing on connections and linkages, as well as enabling a long-term view for targeting investment and development initiatives. Regional development also allows for differentiated approaches based on the context and associated needs and resources of each area.

Regional development should bring urban, rural and wilderness areas together. Including ecology in regional development will help protect the province's environmental resilience.

For the purpose of this plan, we adapt the definition of a region in the Spatial Planning and Land Use Management Act:

[A region is] a circumscribed geographical area characterised by distinctive economic, social, [cultural] or natural features which may or may not correspond to the administrative boundary of a province or provinces or a municipality or municipalities.

Proposed milestones and targets include the following:

- Develop a long-term spatial framework for the Eastern Cape through a participatory process and provincial dialogue by 2016. The spatial framework should provide a guide and a set of instruments to guide the spatial targeting of investment, expenditure and development action in the medium and long term. The spatial framework should address:

    - The environment, land and other natural resources as the basis for current and future development. This should include resource management and conservation.

- Identify target regions and develop specific regional spatial development frameworks/plans for managing growth in settlement regions, and revitalising secondary towns and surrounding rural areas by 2016. For example:

    - The Wild Coast and other rural development zones (this is already under way, led by the Department of Economic Development, Environmental Affairs and Tourism and the Department of Cooperative Governance and Traditional Affairs).

Strategic objective 4.1: Develop and implement a provincial land-use and spatial planning system

Strategic action 4.2.2: Develop and strengthen mechanisms and instruments for integrated planning

This strategic action aims to create working official partnerships and central authority to enable joint human settlement planning, and responsive and accountable governance.

Proposed interventions:

- Establish a provincial *spatial planning observatory* and information management system in a central authority, covering provincial departments and subsequently local government. This will increasingly be used as the basis for project planning and approval.

- Review departmental and institutional mandates to establish a central physical planning authority and clearing house for the province. The authority will develop criteria for project approval and provide hands-on support to settlements and infrastructure planning at provincial and local level. Principles should include:

    - *Developing non-negotiable minimum standards for sustainable and integrated settlement design*.
    - Only approving projects that are integrated and based on a longer-term strategy for the area (local municipality or region).
    - Only approving projects that do support the local and provincial strategy for spatial restructuring.

- Establish platforms for provincial engagement with national departments and entities responsible for infrastructure (water, sanitation, energy) to enable integrated and sustainable settlements.

The province will need to build technical planning capabilities (across the spectrum of town planning, environmental management and built environment professions), improve technical/administrative and political coordination and accept a plan-led approach.

4.2 EASTERN CAPE CLIMATE CHANGE RESPONSE STRATEGY MARCH 2011

The Eastern Cape Climate Change Response Strategy (ECCCRS) is an extensive document that includes the provincial CCRVA as well as the CCRS (addressing adaptation and mitigation) (DEDEAT, 2011)

The Eastern Cape Climate Change Response Strategy report is presented in five separate sub-reports. These are outlined below:

- Summary Report – which gives a high-level synthesis of the overall process and outcomes;
- Phase I Report: Eastern Cape Climate Change Scenario - where an understanding of the issues and context of climate change in the Eastern Cape was developed.
- Phase II Report: Provincial Needs and Technology Assessment – where technical options for climate change mitigation most appropriate to the circumstances and needs of the Eastern Cape are identified.
- Phase III Report: Guideline Document on Sectoral Climate Change Action Plans – where priority response options are identified and developed as cross-sectoral programmes. The response programmes are grouped into adaptation programmes and mitigation programmes.
- Phase IV Report: Eastern Cape Climate Communications, Education and Public Awareness Strategy.

The Eastern Cape is a province of contrast and diversity. Proximity to the ocean, extensive mountain ranges and altitude variations makes for a diverse climate, resulting in a diversity of natural resource availability and production potential. Differential socio-economic infrastructure development, directly linked to the Apartheid Government's spatial planning policies, is further evident. While a tool for segregation, the Apartheid Government's spatial planning was also planned along resource availability and production potential, confining large parts of the population to the most resource poor and less productive areas of the province. As such, a spatial divide is apparent, between the well-developed and functioning socio-economic infrastructure of the west, and the lack thereof to the east.

Accordingly, 11 areas of high vulnerability are largely, though not exclusively, concentrated to the eastern and north-eastern parts of the province. Aspects found to drive the high vulnerabilities identified include lack of

access to basic services such as water, sanitation and electricity, coupled with high population densities, low local government expenditure and low governance capacity. Exposure is a further driver of vulnerability in the province, with low lying coastal areas exposed to sea-level rise and storm surge, and areas experiencing frequent fire and flooding and a potential increase in the prevalence of malaria. The climatic gradients are apparent across the province, from the east to the west and coastal to inland. This includes a transition from some winter rainfall to predominantly summer rainfall, yet with some areas experiencing all year-round rainfall. Low temperatures, hovering around 0°C during winter months, can be experienced at high altitudes, with snow not an unusual occurrence in some areas. In contrast, low lying coastal areas can experience average winter temperatures more than 10°C warmer.

While a lack of long-term homogeneous time series data prevents the performance of an extensive analysis of trends, existing temperature records show consistent warming trends. Temperature increases of about 2°C per century have been detected over the western interior of the province over the 1931-2015 period - more than twice the global rate of temperature increase. Temperature trends exhibit consistent warming of daytime maximum, and, though less consistently so, increases in night-time minimum temperatures. Warm nights have increased and cold nights have decreased. There has also been a significant trend towards a reduction in the annual maximum lengths of cold spells in the province.

Rainfall trends over the last 50 years are somewhat unclear. Annual rainfall totals show statistically significant increases over the western interior parts of the province, with associated increases in extreme daily rainfall events. The positive trends in annual rainfall totals over the western interior is reflected mostly in the summer rainfall trends, which is the main rainfall season for this region. There have also been significant increases occurring in very high daily rainfall totals, mainly in summer, in the western interior. Possible decreases in wet days in summer have been detected in the north east, while there are indications of increasing dry spell duration in the interior regions. Sea-level rise at a rate of 15cm per century has been measured along the Cape south coast region, with rates found to increase towards the east. Sea-level rise projections are not yet available specifically for the Eastern Cape coastline, however it is worth noting that even a modest increase in oceanic wind speed would in itself have great implications for wave height and wave power.

Climate change projections indicate a continuation of the warming trend in the Eastern Cape into the future, and while rainfall variability is very likely to increase the direction and amount of rainfall change cannot yet be projected with confidence (DEA, 2016b). The LTAS study showed that in Zone 5, the Eastern Cape, there is potential for both increases and decreases in rainfall (DEA, 2015). However, zone 5 represents the area of transition between the summer and winter rainfall regions, and as such is likely the area of greatest projection uncertainty. More intense rainfall events in the northern parts of province, as well as on the coastal plains and mountains, are a possibility, however cannot be projected with certainty.

Changes in basic climate parameters impact physical and chemical processes, with implications for ecosystem services and production and consequently for social and economic systems. For example, changing rainfall patterns and increasing temperatures, and thus changes in climate envelopes for biomes, are expected to lead to fundamental spatial shifts and changes in the biomes in the Eastern Cape. Biome shifts are set to change the hydrological properties of catchments, as well as fire regimes, as woody biomass responds and alters the fuel load.

The changes could also have potentially cascading effects through ecosystems, altering the benefits that people derive from ecosystems, including clean water, wood products and food. Shifting biomes, as well as the direct impact of more variable and potentially more intense rainfall, could impact the productivity of grazing lands, many of which are already degraded and thus highly susceptible to further erosion. With the livestock sub-sector accounting for about 70% of the provincial agricultural income, climate change impacts on the livestock sub-sector may lead to loss of income and food security.

Reducing the impacts of climate change in Eastern Cape, from the biophysical impacts through to the social and economic impacts, requires reducing sensitivities to climate and, where possible, exposure. It further requires

emphasis on strengthening adaptive capacity, the ability of to adjust to damage, take advantage of opportunities or respond to consequences (IPCC, 2014).

In the Eastern Cape aspects identified as important for strengthening adaptive capacity include improved communication and information flow from provincial to municipal level and the allocation of budgets and skilled staff for mainstreaming adaptation, as well as focus on building understanding and awareness of climate change across scales and sectors and the strengthening of coordination of activities across sectors to avoid duplication. A critical aspect of this draft Action Plan is to address the province specific vulnerabilities touched upon above, and providing the starting point for programmes of action that reduce climate sensitivities and exposures and strengthen adaptive capacity in the Eastern Cape.

4.3 DRAFT CLIMATE CHANGE ADAPTATOIN ACTION PLAN FOR THE EASTERN CAPE PROVINCE 31 MARCH 2017

The process of updating the CCRVA and the revision of the adaptation component of the CCRS has culminated into this draft Adaptation Action Plan. This draft Action Plan builds on a six-month process, and was run by a project team from the University of Cape Town (UCT).

The objective of the Action Plan is to provide an updated roadmap, guiding the way towards an improved state of readiness to respond to climate change in the Eastern Cape, by recommending sectoral programmes of action which can be taken forward immediately to strengthen adaptive capacity and reduce climate sensitivities and exposures. Beyond the ECCCRS, the Eastern Cape's focus has mainly been on mitigation and sustainable energy production. This has resulted in the development of plans including the Provincial Bioenergy Implementation Support Plan (2015) and the Eastern Cape Sustainable Energy Strategy (2012).

In 2016, South Africa began the process to develop the National Climate Change Adaptation Strategy (NAS) which will be used as the National Adaptation Plan (NAP) to the UNFCCC. The NAS prioritises the country's climate change adaptation needs, based on the updated assessment of impacts, vulnerability and adaptation responses. Extensive stakeholder consultation at national and sub-national levels led to an overall set of climate change adaptation and resilience priorities. These must reflect a unified, cross-sectoral and economy-wide approach to adaptation.

The Department of Environmental Affairs identified the need for strategic alignment and a shared vision for climate change adaptation between all nine provinces and to review the Provincial Climate Change Response Strategies and the Development of Action Plans. Existing provincial CCRVAs and CCRSs needed to be updated and revised to incorporate the most recent studies and information available. The updated CCRVAs informed the updating or revision of any existing CCRS and, subsequently, this implementation/action plan.

In the Eastern Cape Province, the DEA has collaborated with the mandated department, the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), to support the process leading to an improved state of readiness to respond to climate change, culminating in this draft implementation/action plan.

This phase (Phase 4 of the overall project) aimed to lead to the development of an updated draft Action Plan.

The effects of climate change such as temperature increases and sea-level rise may have significant knock on effects which combine to threaten the environmental, economic and social systems of the province. These effects also threaten the continuity and functioning of provincial and local governance institutions and their associated mandate in the Eastern Cape A climate change risk assessment matrix was developed as part of the ECCCRS. The risk assessment matrix aims to facilitate a step-wise approach to understanding which climate change impacts may affect the province, how serious these impacts are likely to be, and which provincial plans, agencies and departmental and municipal mandates are directly affected. The following systems, sectors or infrastructure types are included in the matrix:

- Agricultural Sector
- Air Quality Systems

- Biodiversity Systems
- Coastal and Marine Systems
- Energy Services Infrastructure
- Fisheries & Aquaculture Sector
- Forestry Sector
- Geology & Soils Systems
- Health Services Infrastructure
- Social & Economic Systems
- Tourism Sector
- Transport Infrastructure
- Water Resources Systems
- Water Services Infrastructure

Climate change risks assessed as being of extreme significance are given in the table below. Note that these risks were assessed at the scale, and in the context of, the various mandates of the Eastern Cape Provincial Government.

Table 2: Impacts of extreme significance for various sectors as identified in the preliminary risk assessment process.

Climate Change Manifestation	2nd Order Impact	3rd Order Impact	Systems/sectors/ Infrastructure
More hot days and heat waves	Increased frequency of fire danger index reaching high-extreme, coupled with berg-wind conditions	Risk of major loss of livestock, grazing, crops and infrastructure. Threats to financial sustainability of existing commercial and subsistence farming operation and rural livelihoods; Reduced food security.	Agriculture Sector
Increased storm severity/ Extreme weather events.	Increased inundation and loss of coastal land, wetlands and estuaries.	Increased damage to/loss of coastal property and infrastructure and increased insurance premiums.	Coastal and Marine Systems.
More hot days and heat waves	Increased frequency of fire danger index reaching high-extreme, coupled with berg-wind conditions	Risk of major and widespread loss of standing stocks and threats to financial sustainability of existing operations.	Forestry Sector
More hot days and heat waves	Increased morbidity and mortality among elderly and infirm (e.g. HIV/AIDS patients)	Increased strain on health services	Social & Economic Systems
Higher mean temperatures	Coupled with increased rainfall, spread in range of diseases and vectors, including cholera, malaria and bilharzia.	General increase in occurrence of disease; exacerbation of effects on people with HIV/AIDS, the elderly and the poor.	Social & Economic Systems

Increased storm severity/ Extreme weather events.	Increased storm surges coupled with sea level rise and flooding from both climate change causes and catchment hardening.	Direct threat to livelihoods, services and infrastructure in coastal low lying areas.	Social & Economic Systems
Increased storm severity/ Extreme weather events.	Coupled with more intense rain, catchment hardening due to urban development, and reduced integrity of water catchments: increased risk of flooding or flash floods	Direct threat to infrastructure within flood-prone areas; Direct threat to human life.	Social & Economic Systems
More hot days and heat waves	Increased frequency of fire danger index reaching high-extreme	Increased fire frequency increases direct threat to human life; threats to livelihood and infrastructure.	Social & Economic Systems
More hot days and heat waves	Increased morbidity and mortality among elderly and infirm (e.g. HIV/AIDS patients)	Direct threat to livelihoods and social services	Social & Economic Systems
Higher mean temperatures	Increased evaporation, reduced soil moisture, reduced runoff and river base flow.	Compounded by reduced MAP, systemic water shortages will limit economic growth potential to the south-west.	Social & Economic Systems
Sea level rise	Coupled with storm surges and flood events exacerbated by catchment hardening, inundation and wave damage to coastal low lying areas.	Direct threat to livelihoods, services and infrastructure in coastal low lying areas.	Social & Economic Systems
Increased storm severity/ Extreme weather events.	Crop damage from hail and wind and heavy rain	Increased risk of crop failure; threats to commercial and subsistence agriculture, rural livelihoods and food security.	Social & Economic Systems
Longer dry spells and increased likelihood/ severity of droughts	Increased risk/frequency of dry land crop-failure; Increased mortality and reduced productivity among livestock.	Threats to commercial and subsistence agriculture, rural livelihoods and food security.	Social & Economic Systems
More hot days and heat waves	Heat waves coupled with dry conditions may increase the risk of uncontrollable shack fires in informal settlements	Threat to human life. Threats to urban livelihoods and increased strain on urban disaster management systems.	Social & Economic Systems
Increased storm severity/ Extreme weather events.	Increased frequency of storm surges	Reduced safety of personnel and increased	Transport infrastructure

		frequency of injury or loss of life	

4.4 PROVINCIAL STATE OF ENVIRONMENT REPORT (2009):

4.4.1 MOTIVATION

Sustainable development and the interdependence between environmental, social and economic forces and resources is fundamental to the thinking behind State of Environment reporting, where environmental issues are monitored and reported from a holistic perspective (DEAT, 2006). This report therefore takes into account the full scope of the term 'environment' and as such, deals with societal, economic and biophysical issues. The Eastern Cape Province has an obligation and the responsibility to manage the natural environment in a sustainable manner as detailed in national legislation and policy.

The Eastern Cape has numerous unique and sensitive environments, many of which are near-pristine and are of high conservation importance. These include the coastal areas (rocky shores, beaches, dune systems, estuaries), freshwater resources (rivers, streams and groundwater), inland forests and mountain ecosystems to name a few.

4.4.2 GROUPING OF KEY ISSUES INTO THEMES

4.4.2.1 THEMES FOR THE 2009 STATE OF THE ENVIRONMENT REPORT

In keeping with the strategic nature of a provincial SOER, themes should be broad categories and specific issues can be reported on under each theme.

All documented issues were grouped into reporting themes, which have in turn become the reporting chapters of this SOER. Themes were not prioritized and are listed as follows:

1) Land
2) Air (Atmosphere and Climate Change)
3) Freshwater
4) Coast and Estuaries
5) Biodiversity
6) Energy and Waste
7) Human Livelihoods
8) Environmental Governance

4.4.3 PROVINCIAL STATE OF ENVIRONMENT REPORT: LAND SUMMARY (2009)

4.4.3.1 Introduction

The Eastern Cape's land coverage constitutes approximately 161 550 km2. The most basic division of land use includes areas of human settlement (urban and rural settlements), productive areas (agriculture and forestry) and natural areas (protected areas, areas under indigenous vegetation, undeveloped coastline, the escarpment of the Southern Drakensberg and associated mountainous areas. The Eastern Cape's landscape is diverse with the most prominent features being the varied coastline from the rocky wildcoast in the east to the sandy shores in the west, the predominantly grassland areas to and the Drakensberg mountains the north and east to the Karoo in the west.

The value of land within the Eastern Cape is insurmountable as it provides the sustenance that supports the many subsistence-based livelihoods, houses the terrestrial ecosystems that support life, and provides raw materials and space for housing and recreation.

Agriculture, predominantly in subsistence form, dominates the majority of land use within the Eastern Cape. Other important land uses are areas of plantation forestry, protected areas and areas of settlement.

In the Eastern Cape, urban expansion, farming and the demand to meet the resources of an increasing population (primarily food production) are all contributing factors leading to a loss of land productivity. Secondary pressures, such as climate change, desertification and alien plant invasion, are further contributing factors.

The consequences of land degradation include declining productivity and diversity of resources to support human livelihoods and commercial activities, as well as reduced biodiversity and loss of ecosystem services, such as water and air quality regulation.

4.4.3.2 Drivers and Pressures

Change in land use patterns is the result of change in human behaviour driven by socio-economic forces. With the growing population and need to provide increased production, increased pressure is being placed on land resources with the ultimate fate of land degradation.

The report lists three tiers in which humans influence land degradation:

Productive land use drivers

The primary form of human influence is the use of land resources for productive purposes: in other words, agriculture, the collection of plant resources for purposes such as fuel, building and, to a much lesser and more localised extent, mineral extraction and water collection.

Agriculture

The Eastern Cape's agricultural economy is well established and most of the province remains under agriculture in one form or another whether commercial or subsistence. In the former South African areas where a formal land tenure system exists with title, farms are predominantly extensive and are large commercial operations. Beef Cattle and sheep farming are common along with goats and game farming in the drier areas towards the west.

In the former homeland areas, agricultural activities are mixed, largely subsistence and communal. These include croplands, vegetables and sheep, goat and cattle grazing lands.

Changing economic forces are largely responsible for encouraging the agricultural exploitation of marginal farming areas and the loss of high-value agricultural land.

Afforestation

Approximately 272 257ha (2%) of the Eastern Cape has been transformed to plantation forestry. The high potential of many areas and the attractive economic returns are encouraging the growth of the commercial forestry sector.

Governments Accelerated Shared Growth Initiative of South Africa's ASGISA plan involves the identification of future suitable forestry areas as part of an economic development and social upliftment programme.

Economic and social land use drivers

Economic and social land use drivers: A secondary form of human influence is the use of land resources for other economic and social purposes that do not directly depend on resource extraction or interference with biotic processes: for example, settlement, infrastructure and recreation.

Population growth and resultant high demand for agricultural produce and land for housing

The Eastern Cape's population growth rate has been estimated at 1.02 %, which translates to approximately 6 500 new people in the province per year. This rising population places further pressure on the environmental resources to sustain the population increase (e.g. food production and land for housing). The rapid increase in demand for agricultural produce has contributed to soil degradation through overuse of agrochemicals, monoculture and intensive grazing pressure.

In addition, suitable land space is required to house the increasing population and to meet current housing backlogs as well as recreation and infrastructure.

The future expansion of towns is also limited by topography, such as mountain slopes, the coastline and river valleys which causes high value agricultural land to be targeted for urban expansion.

Diminishing economic returns from agriculture against more attractive development and tourism opportunities

The Eastern Cape, especially along established urban nodes, has been exposed to a recent development boom with a vast growth in residential development. The attractiveness of the Eastern Cape, with its scenic vistas of mountains, mild climate and diverse landscape, make the area extremely attractive as a tourism destination for holidaymakers. This has provided the opportunity for property investors who have targeted coastal areas and the peripheral areas of inland towns for the development of residential lifestyle estates and tourism ventures. This has increased the land value of properties, especially farms in areas with such development opportunity.

Furthermore, diminishing agricultural returns for farmers as a result of external economic market forces as well as high production costs provides further pressure for farmers to subdivide and sell off portions of their land. Once farms are subdivided, the subdivided units themselves represent economically unsustainable farming units and these are targeted by people seeking a quiet rural lifestyle (small holdings) or alternatively are targeted by property developers who are turning what was, in many cases, high value agricultural land into residential estates.

Tertiary impact land use drivers

A tertiary set of influences is incidental but often significant. It comprises the unintended and often remote impacts of economic activity on land resources: for example, pollution of (sub) surface and atmospheric water resources by industry, alien plant invasion and climate change. Finally, conservation efforts are a form of human influence that is often positive.

Alien plant invasion

The Eastern Cape, particularly along water courses and mountain slopes, is vulnerable to alien plant invasion. Hoffman and Todd (1999) state that alien plant invasion in such areas is the most common problem leading to veld degradation.

Alien invasive plants threaten indigenous plants and animal communities. They can also greatly reduce river flow compared to the more water prudent indigenous varieties.

Invasion by alien plants is facilitated by anthropogenic activities such as:

• Disturbances as a result of vegetation clearing for agriculture and urbanisation (alien plants thrive on disturbed soils as they are competitive colonists); and

• Afforestation (species planted commercially tend to be invasive and spread into unplanted areas).

Global warming and associated climate change

Current climate change scenarios suggest that less rain can be expected in the future with increased variability in rainfall amounts. As far as ambient temperature is concerned, there are predicted increases in response to increasing carbon dioxide concentrations. This may lead to increased desertification and associated loss in productivity.

A typical case in example in which climate change may have influenced the land is the recent portions of the Eastern Cape that were declared official disaster areas in terms of drought. These drought stricken areas These factors are likely to have a profound influence on land degradation accelerating desertification rates and erosion in the future.

4.4.3.3 State

The 2009 SOER reported on:

- Land use (Land cover change)
- Land degradation (Combined Land Degradation Index) including desertification and soil loss
- Desertification
- Soil loss

- Land tenure reform

Land use

The Eastern Cape is one of the three most degraded provinces in the country. Most of the land area of the province is classed as 'Affected Drylands' and it has one of the highest provincial indices of soil degradation, especially within commercial farmland areas. With regards to soil loss those areas most affected are the degraded unimproved grasslands, although the more than half the province shows moderate or high soil loss.

Agriculture has transformed 8% of the natural landscape to cultivated lands, as has afforestation (exotic plantations) by 2. %. By comparison, built-up land only covers 3% of the Eastern Cape area. However, with the recent urban development, this figure is likely to have increased and is not likely to represent peripheral urban development.

By far the majority of the land cover falls within the category Grassland. This area includes most of the areas of the former Transkei and highland interior which are under extensive agriculture, communal grazing and game farming land uses. Land under formal conservation protection is poorly represented within the Eastern Cape with a total of 4.2% (6785 km^2). This listing excludes land under private conservation management (type 3 protected areas).

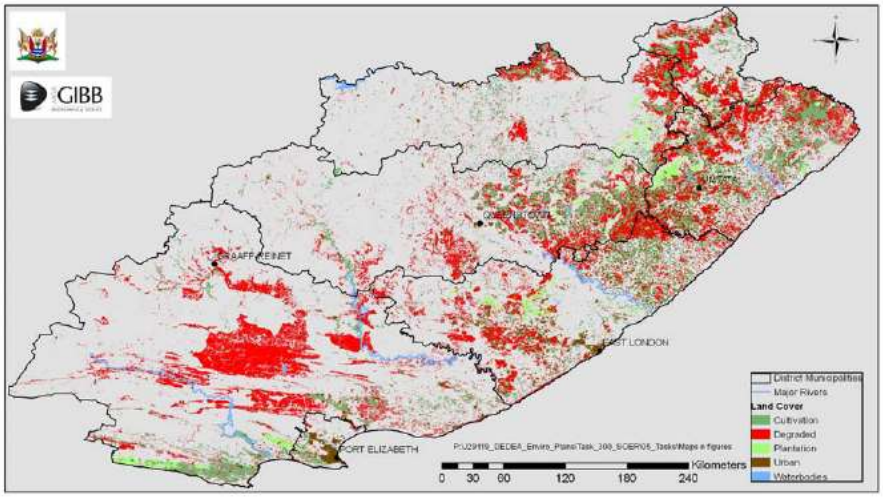

Figure 8: Land cover within the Eastern Cape (ECBCP, 2008)

Land degradation

Land degradation manifests itself in the soil and in the veld. The main types of soil degradation are erosive forms, such as water and wind erosion, and non-erosive forms, such as acidification or salinisation. Sheet erosion is the most common form of soil degradation, with some rill and gully erosion in the southern Cape. Salinisation affects some croplands in the north-east. Veld degradation consists of loss of cover and change in species composition, bush encroachment, deforestation and alien plant invasions.

The Eastern Cape's Soil Degradation Index was approximately 255, the Vegetation Degradation Index in the order of 180. The Combined Degradation Index for the Eastern Cape was in the order 310 which was the third highest ranked province (South African Environmental Outlook, 2006).

The Eastern Cape has a fairly high provincial veld degradation index, with communal farming areas amongst the worst affected. The areas in the vicinity of Komga, East London, Queenstown (Komani), Uitenhage (Kariega) and Herschel have the highest veld degradation index values. In communal farming areas, bush encroachment, change in species composition and alien plant invasions are the most serious veld degradation problems. Agriculturally important alien species include black wattle, prosopis, prickly pear and Nasella tussock. In communal areas where mixed herds of cattle and goats limit bush encroachment, deforestation and loss of plant cover due to overgrazing are of greater concern.

The levels of soil and veld degradation are declining in some commercial farming areas of the Eastern Cape. Reasons for this include good agricultural extension services, farmer study groups, government-subsidised soil conservation works, bush clearing and stock reduction schemes, conversion to game farming, and strict application of agricultural legislation. On the other hand, insufficient access to land, poor infrastructure and a lack of education and finance have resulted in overstocking and poor land management in many communal areas. These conditions should be taken into account when developing sustainable land use policies and programmes to address land degradation in the Eastern Cape (Hoffman and Ashwell, Provincial Fact Sheet on Land Degradation www.sanbi.org/landdeg).

Desertification and soil loss

The Eastern Cape has one of the highest provincial indices of soil degradation. In general, the communal areas are significantly more degraded than the commercial farming areas. Settlement areas with the highest soil degradation index values include Herschel, Qumbu, Mount Fletcher, Engcobo and Middledrift, (Hoffman, 1999).

Cropland, grazing land and forestry areas are all affected by gully and sheet erosion. Wind erosion and salinisation are problems in croplands, particularly in commercial farming areas.

The 2004 SOER used the Erosion Prediction Map of South Africa' which was produced by the National Department of Agriculture in 2003, however there was no updated calculation available in 2009 which made reporting further on the state of change within this report a futile exercise.

Land Tenure and Reform

Land Tenure or ownership presented in the 2009 state of the environment report for the Eastern Cape was has been calculated using cadastral data supplied by the Surveyor General as follows ().

Table 3: Percentage of land ownership in the Eastern Cape (2009)

Tenure	As calculated from the 2009 cadastral from surveyor general
Private	82.3%
Communal	5.7%
State owned	12%

Government's land reform programme has been active in the Eastern Cape with many land claims that have been processed. Data for total claims settled was not available for the 2009 SOER.

4.4.3.4 Impacts

The following table (***Table 4***) illustrates the typical impacts associated with the land degradation drivers within The Eastern Cape:

Table 4: Impacts associated with land degradation drivers in The Eastern Cape

Driver	Main Impact
Farming in marginal areas	Loss of ecosystem integrity Natural habitat loss Increased stress on capacity of natural resource base (e.g. irrigation) Increased use of agrochemicals, fertilizers to boost production Veld degradation Soil degradation
Afforestation	Habitat fragmentation Natural habitat loss Alien plant invasion Reduction in water quantity and quality
Diminishing agricultural returns	Subdivision of agricultural land into uneconomically

	viable units Urban sprawl
Population growth and urban expansion	Loss of agriculturally productive land Increased land conflicts (conservation vs. urban development) Habitat loss
Alien plant invasion	Species loss Veld degradation Reduction in water quantity and quality
Global warming	Species loss Change in rainfall patterns Increased droughts/ flooding Increased weather intensity Desertification

4.4.3.5 Interdependencies

Land issues have an influence on and are influenced by almost all other themes discussed in this report. The following themes are pertinent to land issues:

Biodiversity: The link to biodiversity is both direct and indirect. In The Eastern Cape, cultivated lands, commercial forestry activities and rapid expansion of human settlements result in a loss and fragmentation of natural habitats. The spread of invasive alien vegetation poses a further threat to biodiversity conservation in the municipal area.

Climate Change: The predicted increase in ambient temperatures as well as increased variability in rainfall pattern has an influence on land degradation.

Human Livelihoods: The loss of agricultural land can directly affect the livelihoods of people in the rural areas relying on food and income from agricultural activities.

4.4.4 PROVINCIAL STATE OF ENVIRONMENT REPORT: AIR (ATMOSPHERE AND CLIMATE CHANGE) SUMMARY (2009)

4.4.4.1 Introduction

Climate

The Draft Work in progress: Eastern Cape State of the Environment Report (2nd Edition) November 2009 state that the Eastern Cape is characterized by high spatial and seasonal rainfall variability. Not only does the climate vary according to proximity to the ocean, but also in a West-east direction, getting progressively wetter more eastwards. The Western Cape receives mostly winter rainfall, whereas the KwaZulu-Natal Province receives most of its rainfall in the summer months. The Eastern Cape therefore incorporates aspects of both winter and summer seasonal rainfall. Mean annual precipitation varies considerably across the Eastern Cape, from 300 mm per annum in the west to 1000 mm per annum in the east (Smakhtina, 1998). Eastern Cape rain producing systems include orographic forcing, frontal activity, convective action and tropical storms (Graf, 1988).

Winds and alternating cold and warm fronts thus make for a very variable climate throughout the region. Alternating with the cold westerly winds, which may drop maximum temperatures to as low as 10-15 °C, are hot berg winds from the interior north or north west which rapidly raise temperature to 20-25°C in the winter and to over 35°C in the summer. Winds generally have a cooling or drying effect so that humidity levels are not extremely high. Humidity gradually increases along the northern parts of the coast.

The coastal zones experience very moderate summer and winter temperatures, while further east become more subtropical with summer rainfall but generally windy conditions throughout the year. The interior experiences more extreme conditions and can become very cold in winter, with heavy snowfalls occurring at
times in the mountainous regions between Molteno and Rhodes.

Atmosphere

The atmosphere extends to approximately 600 km above the Earth's surface. It consists of four distinct layers, characterised by specific temperature and chemical properties. Nitrogen (78%) and Oxygen (21%) account for the majority of gases within the atmosphere. Other gases including Argon (1%) and greenhouse gases, such as Carbon Dioxide, Methane, Nitrous Oxide and Chlorofluorocarbons, comprise the remainder of the gases in the atmosphere (Ledley et al. 1999). Without this chemical balance and the resulting greenhouse effect the Earth would be 33°C cooler, therefore uninhabitable. Recent disturbance (pollution) of this chemical balance by the addition of greenhouse gases like Carbon Dioxide and Nitrous Oxide has resulted in what is being termed Global Warming.

The South African atmosphere is not a closed system. It is subject to Global Circulations because of differential heating of the Earth's surface, largely attributed to the poles which receive less direct sunlight, and therefore heat, than the tropics (Pidwirny, 2006). The Eastern Cape is therefore nationally and globally responsible for its anthropogenic gas emissions (e.g. Carbon Dioxide) which influence the chemical composition of the atmosphere.

Relative to national figures the Eastern Cape contributes relatively little carbon dioxide to the atmosphere. Sources include vehicles, forest and veld fires, Industrial Development Zones and associated industry, as well as household energy usage (paraffin and wood). Dairy farming located in the province is also a recognised source of the greenhouse gas, methane.

Activities in the Eastern Cape Province which have been identified as activities impacting on atmospheric quality and climate changes include: Vehicle emissions, Forestry (wild fires in forest, timber milling), Construction and urban development (particle matter) and Industrial Development zones and associated industry.

Selected indicators

- Climate Change
    - Precipitation
    - Air Temperature
- Air Quality
    - Average concentrations of key atmospheric pollutants (SO2, NO2, PM10)
    - Ambient Particulate Matter concentration

Where data specific to the Eastern Cape is lacking, coarse scale projections will be utilised to summarise the state of Air in the Eastern Cape.

4.4.4.2 Drivers and Pressures

Climate Change could pose a considerable danger to the livelihoods of those directly reliant on the natural environment. Atmospheric pollution therefore impacts not only on the health of the atmosphere, but on the eight biomes present in the Eastern Cape as well. Because of this it is essential that we do not resign ourselves, as a population, to the fact that the climate will change. Changing weather patterns result in increased severe weather events (floods, droughts etc.) Rainfall variability influences agriculture (planting routines, seasonal agriculture).

- Current climate change scenarios suggest that less rain can be expected in the future with increased variability in rainfall amounts. As far as ambient temperature is concerned, there are predicted increases in response to increasing carbon dioxide concentrations. This may lead to increased desertification and associated loss in productivity.
- A typical case in example in which climate change may have influenced the land is the recent portions of the Eastern Cape that were declared official disaster areas in terms of drought.
- These factors are likely to have a profound influence on land degradation accelerating desertification rates and erosion in the future.

4.4.4.3 State

To date climate change reporting in the Eastern Cape has been quite sparse when compared to the rest of South Africa and the world. Because of this, where data was lacking the state of climate change was reported on using relevant broad-scale literature to establish some sort of a status quo of present and projected climate change. It looked at Historical trends in precipitation, high intensity events, projected trends, predicted trends in atmospheric circulation over South Africa as well as predicted trends in air temperature.

In conclusion and in the absence of a lot of published data:

It was difficult to discern any differences between rainfall for the last 50 years. It seemed as though standard deviations for inter-annual rainfall have risen for stations along the coastline in the western half of the province, whereas those stations inland show the opposite.

According to Mason et al. (1999) extreme rainfall events can severely impact on society, so changes in the intensity of these events is a concern in the context of climate change. In the light of global warming it is expected that increases in atmospheric moisture would occur. Mason et al. (1999) therefore predict the following:

"Over South Africa, increases in rain per rain day are expected to occur at the same time as decreases in the number of low rainfall days such that the net effect on annual rainfall totals is minimal."

As far as drought is concerned the Eastern Cape was gazetted in 2009 as being a drought disaster area.

Projected trends for the Eastern Cape are listed below (Hewitson, 2000):

- An increase in the annual average temperature of at least 1 °C
- Possible increase in the frequency and intensity of extreme events
- Extension of summer season characteristics
- Reduced recharge rate of groundwater
- Decreased water resources
- Reduced soil moisture
- Temperature impacts on crop activities, crop burn, drought, pests and microbes resulting in yield reductions, and loss of rural livelihoods

There are obvious differences in projections with regards to future climate in the Eastern Cape. Schulze & Perks (2000) state that the climate will change with regards to rainfall in the summer months. Depending on the GCM used, and the input variables, the alteration of summer rainfall could mean either a 25 to 50% increase or a 25% decrease.

Unfortunately, specific projections for the Eastern Cape are unavailable.

District Specific Responses:

Chris Hani District Municiaplity (CHDM) has a Climate Change Response Strategy and Air Quality Monitoring bylaws that are waiting for promulgation are also considered by Emalahleni LM. The DM is the Licensing Authority for Air Emissions Licenses. The Air Quality Act makes it incumbent on local municipalities to monitor ambient air quality within its area of jurisdiction. It is accepted that a permanent air quality officer is required to regularly monitor air pollution and analyse the data in areas with heavy industrial emissions due to high industrial development. However, Emalahleni LM almost has no extensive industrial economy that emits or degrade air quality. This situation does not warrant the appointment of a permanent air quality officer, therefore the municipality is looking at more sustainable solution like partnering with the CHDM and Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) to monitor the air quality. Emalahleni is part of the Chris Hani District Climate Change and Environmental Management Forum and is also participating in the South African Local Government Association (SALGA) forums for Environmental Management and Climate Change Strategy.

4.4.4.4 Interdependencies

Land degradation: The predicted increase in ambient temperatures as well as increased variability in rainfall pattern has an influence on land degradation.

Changes in climatic condition may increase the extent of water-stressed environments, or it may increase the extent to which inappropriate land-uses take place in marginal areas.

Biodiversity: Changes in environmental conditions due to climate change are likely to impact species population and ecosystem dynamics.

The predicted increase in ambient temperatures as well as increased variability in rainfall pattern influences biodiversity patterns and processes

Urban and rural development: Changes in environmental conditions due to climate change may affect population dynamics in the area. It is possible that marginalized populations in rural areas will increase rates of migration to urban areas.

Energy and Waste – Hydro-electricity could contribute to reducing the significant energy demand within the province, especially if flow regimes should change to suit such endeavours in the light of climate change. Air quality in the province is directly related to energy sources and their uses.

- Effluent discharge into rivers degrades their integrity.

Air Quality – Climate change, driven by anthropogenic sources, is inextricably linked to the Eastern Capes water supplies, river and estuary health and overall development.

Hydro-electricity could contribute to reducing the significant energy demand within the province, especially if flow regimes should change to suit such endeavours in the light of climate change.

Air Quality and Climate Change: Especially with regards to energy consumption, the burning of fossil fuels creates greenhouse gases which have contributed to global warming.

4.4.5 PROVICIAL STATE OF ENVIRONMENT REPORT: FRESHWATER SUMMARY (2009)

4.4.5.1 Introduction

This section considers the quality and quantity of water as part of an integrated freshwater system. Any pressures on any element of the freshwater system (such as the integrity of the river banks), will ultimately affect the quality and quantity of water flowing through the system over space and time.

Primary catchments that are within or intersect the extent of the Eastern Cape include the Umzimvubu to the north east of the province, the Great Kei in the central north east, the Upper Orange to the north, the Great Fish in the central south west, the Swartkops and the Sundays rivers in the south west and the Gamtoos to the far south west.

Mean Annual Precipitation for the Eastern Cape is 552mm and the coefficient of variation is 43%. Rainfall varies from 300mm in the west to 1000mm in the east. This variation in MAP contributes to significantly different flow regimes across the province. Mean Annual Runoff is closely related to precipitation and, as is to be expected, varies considerably.

The trend in evaporation potential is opposite to the provincial precipitation trend, decreasing from west to east. In the far west evaporation potential can be as high as 2 600 mm pa, compared to that of the far east, 1 600 mm pa. Areas where evaporation potential exceeds rainfall are water stressed areas (i.e. on average the entire province is water stressed).

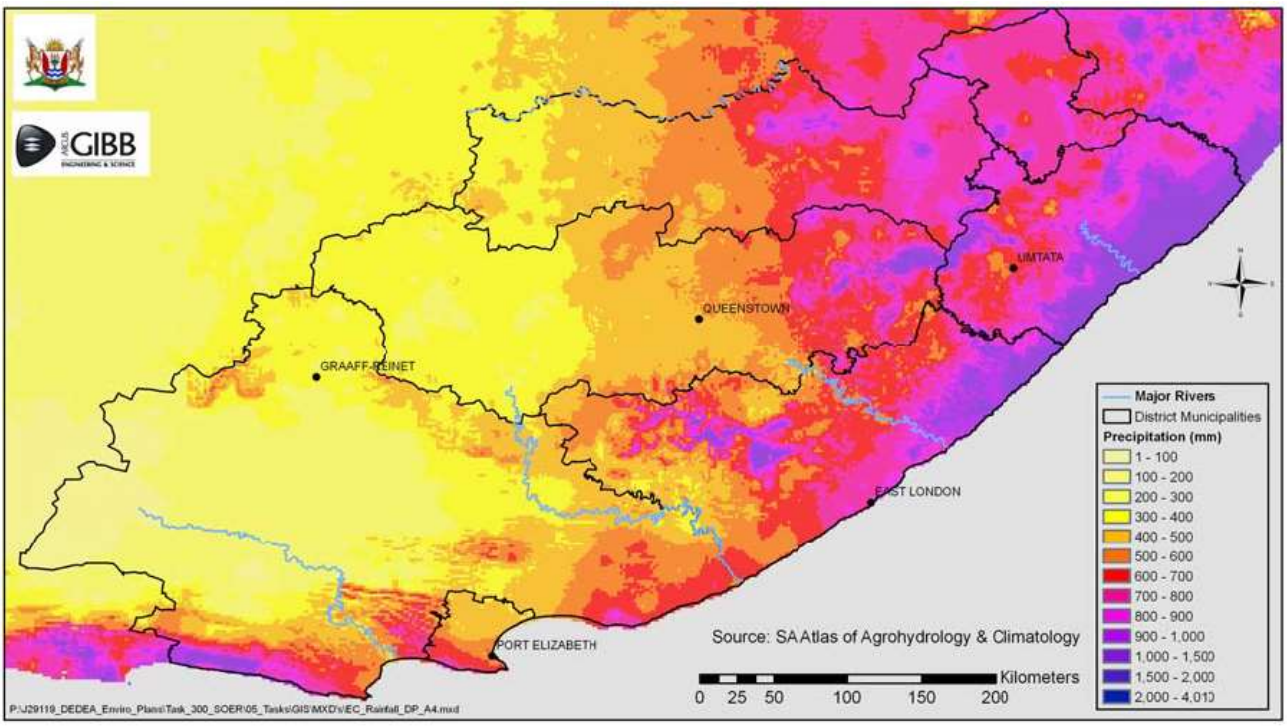

Figure 9: Mean Annual Precipitation for the Eastern Cape

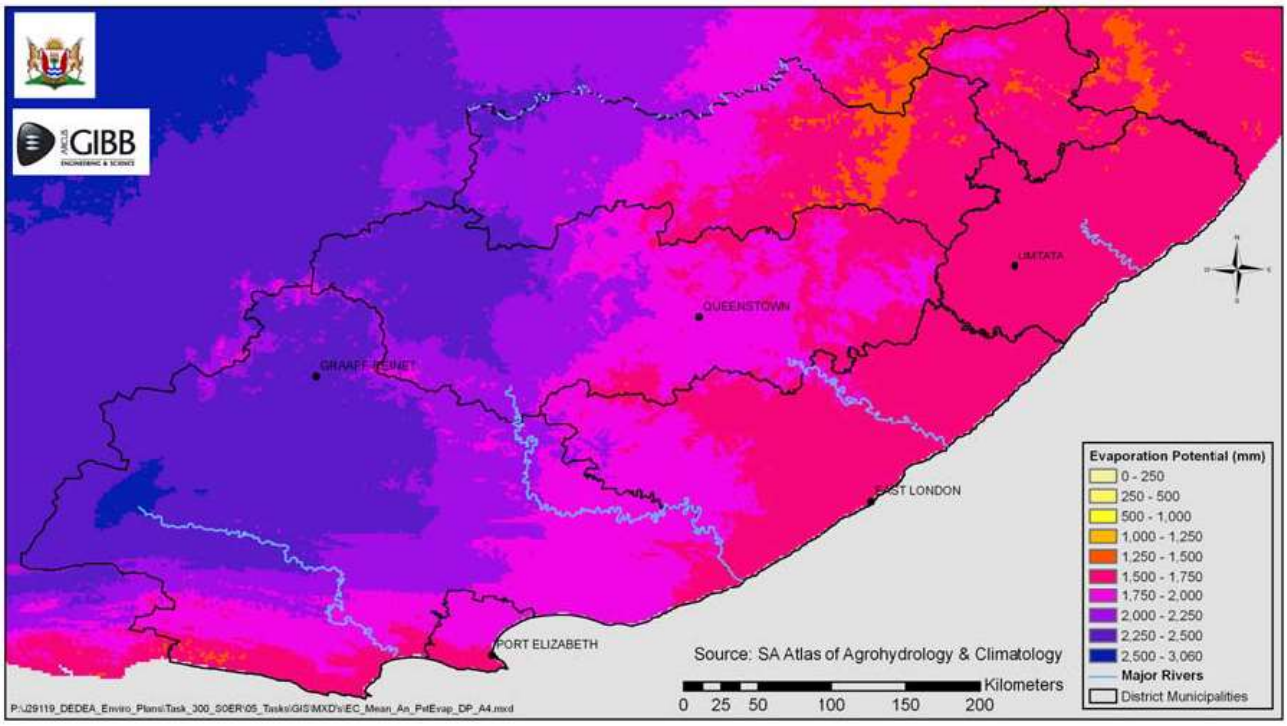

Figure 10: Mean Annual Potential Evaporation for the Eastern Cape

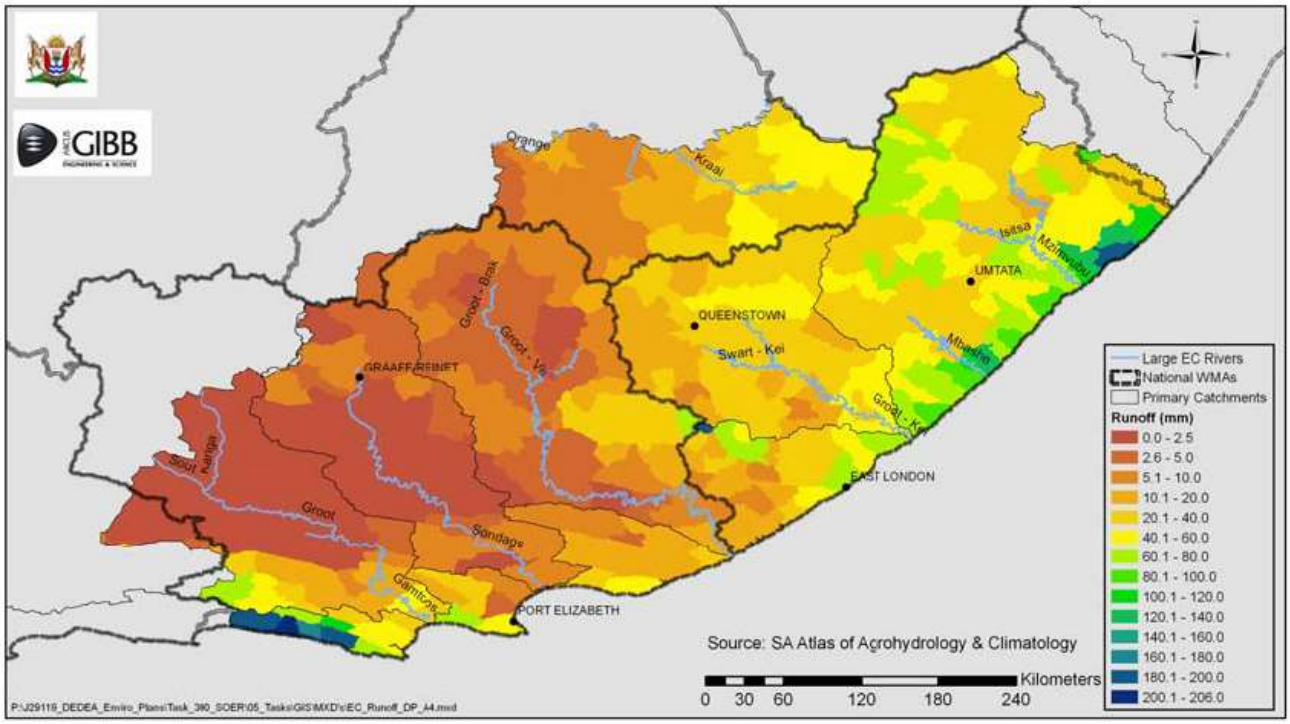

Figure 11: Mean Annual Runoff for WMAs and Primary Catchments within the Eastern Cape Water Supply

Surface Water Resources

The MAR is the average total amount of water flowing from each catchment per year. The Ecological reserve shown in the table indicates the amount set aside to cater for the biological requirements of river and estuarine systems. By law, the Ecological Reserve may not be extracted from the river.

Table 5: Mean Annual Runoff, Ecological Reserve and Dam Storage per WMA – 2000 (Source: DWAF, 2004)

WMA	MAR (million m³/a)	Ecological Reserve (million m³/a)	Storage in Dams (million m³)
Fish to Tsitsikama	2 154	243	739
Mzimvubu to Keiskamma	7 241	1 122	1 115
Gouritz	1 679	325	301
Mvoti to Umzimkulu	4 798	1 160	827
Upper Orange	6 981	1 349	11 711
Total	**22853**	**4199**	**14693**

Groundwater resources

Groundwater plays an especially pivotal role in rural communities where services such as piped water and sanitation have not yet been established. Effective management is heavily reliant on adequate information to ensure responsible guidance. The groundwater data gaps indicate the neglect with which this valuable resource has been treated, and the national groundwater strategy will aim to elevate groundwater to the level of surface water in the context of integrated water resource management.

4.4.5.2 Drivers and Pressures

The inland water resources are under severe pressure from diverse sources as detailed below.

Population growth and urban development

The population growth rate from 2001 to 2008 was 1.02%. The province is nevertheless the third most populous province after Kwazulu Natal and Gauteng. The provincial population is distributed disproportionately between the districts, with the two largest districts, OR Tambo and Amathole, just short of two million inhabitants each

(1.7 million people each respectively). Population growth increases pressure on resource supply, waste management systems and hence the natural environment.

Industrial activities

Industries consume water and are often sources of pollution. According to the ECDC (2009) former 'homeland' areas have been earmarked for development with public spending in these areas rising dramatically. R6.5 billion was allocated to infrastructure development in the Eastern Cape in 2004/2005. This is expected to place increased pressure on the inland water resources in these areas.

Forestry

Approximately 210 905 ha (2%) of the Eastern Capes land surface is covered by plantations. Plantation forestry has been declared a stream-flow reduction activity in terms of the National Water Act (36 of 1998). Plantation forestry occurs in the majority of District Municipalities.

Alien Invasives

Alien invasive plant and animal species, introduced by human actions either accidentally or for commercial purposes, are proving a major threat to the quality and quantity water, as well as to the biodiversity of freshwater systems.

Climate change

Climate change in the Eastern Cape is expected to lead to slightly altered rainfall in the summer months, the alteration of summer rainfall could mean either a 25 to 50% increase or a 25% decrease. Increased variability of rainfall, fewer but heavier precipitation events and increased temperatures and evaporation are also predicted. These effects could work together to increase flooding, but could also reduce base-flow (long term low flow).

Climate change has the capacity to alter groundwater recharge rates, stream flow and dam levels, as well as contribute to ecosystem functioning through desiccation or destruction of riverine habitats.

Eutrophication

Excess nitrates and phosphates stimulate nuisance growths of aquatic plants in water. This is detrimental for plants which do not live on the surface and are therefore prevented from capturing sunlight for important photosynthetic processes.

Waste water discharge

Discharge of waste water into rivers and dams has secondary and even tertiary impacts. The source of the waste water and the chemicals or nutrients it carries will determine its target effect. Eutrophication is an example of a primary impact and secondary driver which may result from the deposition of waste water into rivers.

4.4.5.3 State

Due to the availability of new data and the frequency at which it is reported at, the SOER utilised the following indicators to determine the state:

Surface water

Quantity – Demand and Supply

Excessive water demand leads to over-abstraction of water from rivers and indirectly, wetlands. This in turn means that there is less water available to the rivers and wetlands to maintain their functions and support freshwater ecosystems. Population growth, urban expansion, increased agricultural and industrial activity, forestry and alien plant invasion have contributed to a high levels of water demand. The DWAF is set to release a revised National Water Resource Strategy (NWRS) in 2010/2011 (pers. Comm. Viljoen, 2009). The NWRS provides estimates of the water requirements and availability per sub-WMA. At present (2009) only half of the Eastern Cape's water storage capacity is being utilised. However, the 2009 winter was Gazetted as a state of drought within the Eastern Cape, due to the persistent lack of rain.

Quality – Numerous indicators such as habitat integrity are proxies for quality

Water quality refers to the suitability of water for human consumption, for irrigation and for natural aquatic ecosystems. Just as water management includes transferring water to water scarce areas, so does it mean transferring water to improve the water quality of specific areas.

The following section explain important aspects that need to be considered when assessing water quality.

High salinity can be natural, resulting from the geology which through which the river flows. The Potential sources of pollution include poorly managed or non-compliant solid waste landfill sites, and sources from industrial activity.

Excess nitrates and phosphates are the two major nutrient pollutants stimulating nuisance growths of aquatic plants in water bodies. Over-fertilization reduces habitat integrity and hampers the provision of environmental goods and services (RHP, 2004). Nutrient sources include industrial and sewage effluent and runoff from cultivated lands and pastures where inorganic fertilizers are used.

Faecal contamination refers to the presence of undesirable microbes in water resulting from the discharge of untreated sewage into water bodies. Enteric bacteria of human origin, in particular faecal coliforms, and more specifically Escherichia coli type 1, are commonly used as indicators of the general hygienic quality of water. Exposure to high concentrations of these bacteria carries a serious health risk for people.

DWAF has initiated the Blue Drop project which awards 'Blue Drop Status' to Provinces, District Municipalities and Local Municipalities that meet certain drinking water standards. According to September 2009 information (DWAF, 2009), only the Amathole District Municipality reached 'Blue Drop' status in the Eastern Cape.

Case studies of selected Eastern Cape Rivers

The integrity of freshwater systems is not easily indicated by simple numbers. For example, the "number of days of no flow or flood flow" are difficult to attribute statistical significance to over a five-year period. Water quality and quantity are tightly linked to the integrity of the aquatic environment through which it flows. The better the state of wetlands, rivers and the catchments from which they flow, the more able they are to yield high quality water while absorbing flood events and releasing water more slowly over longer periods of time.

The River Health Programme used the following indicators in reporting on the state of rivers in the Eastern Cape: Index of Habitat Integrity, Geomorphological Index, Riparian Vegetation Index, South African Scoring System and the Fish Assemblage Integrity Index.

Elements of degradation

Table 6 details the river and wetland environmental state and impacts as a result of degradation pressures.

Table 6: Environmental state of selected rivers within the Eastern Cape

Degradation pressure	River and wetland environmental state and impacts
Urban development and rural settlements	Catchment hardening modifies runoff into rivers, with reduced infiltration, greater risk of flooding during heavy rains, and reduced base flow in the drier seasons.
Storage dams	Storage dams interrupt the natural flow regimes of the river, as well as ecosystem and geomorphological processes along the river channel.
Over-abstraction	Over-abstraction reduces the availability of water for ecological processes in the river. It also modifies the natural flow regime, reducing the habitat suitability for instream organisms. Reduced flows also threaten the integrity of estuaries at the river mouth.
Invasive alien plants	Invasive aliens occupy riparian zones, invade wetlands, and choke up tributaries. In so doing, they modify the runoff characteristics of the catchment, out-compete natural vegetation, reduce the habitat available to aquatic organisms and cause deep erosion of river channels and banks.
Invasive alien fish	Invasion by exotic species such as large-mouth bass and rainbow trout have reduced the population of indigenous fish.

Poor agricultural practices	Draining of wetlands for ploughing reduces the ability of a catchment to act as a sponge, absorbing excess water during heavy rains, and releasing it slowly during drier periods. Overgrazing reduces water infiltration in the river catchment.
Industrial pollutants	Industrial development results in loss of terrestrial and aquatic habitats and the consequent decline in biodiversity (fauna and flora). Pollution output of industries is high, leading to water contamination.
Non-point source pollution (fertilizer and pesticide runoff, runoff from roads and informal settlements).	Pollution modifies the water quality of natural aquatic systems. This results in algal blooms and excessive growth of certain vegetation types. This modifies ecosystem interactions within the aquatic environment. Some aquatic species such as the stone-fly (Plecoptera) are directly threatened by changes in the chemical and physical properties of water.

Biodiversity

The state of river health for the Eastern Cape has a cumulative detrimental effect on biological diversity within the river. This trend is identified in the table above. The more modified or degraded the river, the more threatened the habitat and natural species complement of the river ecosystem. **Figure 13** details the conservation status of the rivers within the Eastern Cape as defined by the National Spatial Biodiversity Assessment (Nel et al., 2004). It is clear from **Figure 12** that most of the rivers in the western half of the province are generally critically endangered whereas the majority of rivers in the east are vulnerable.

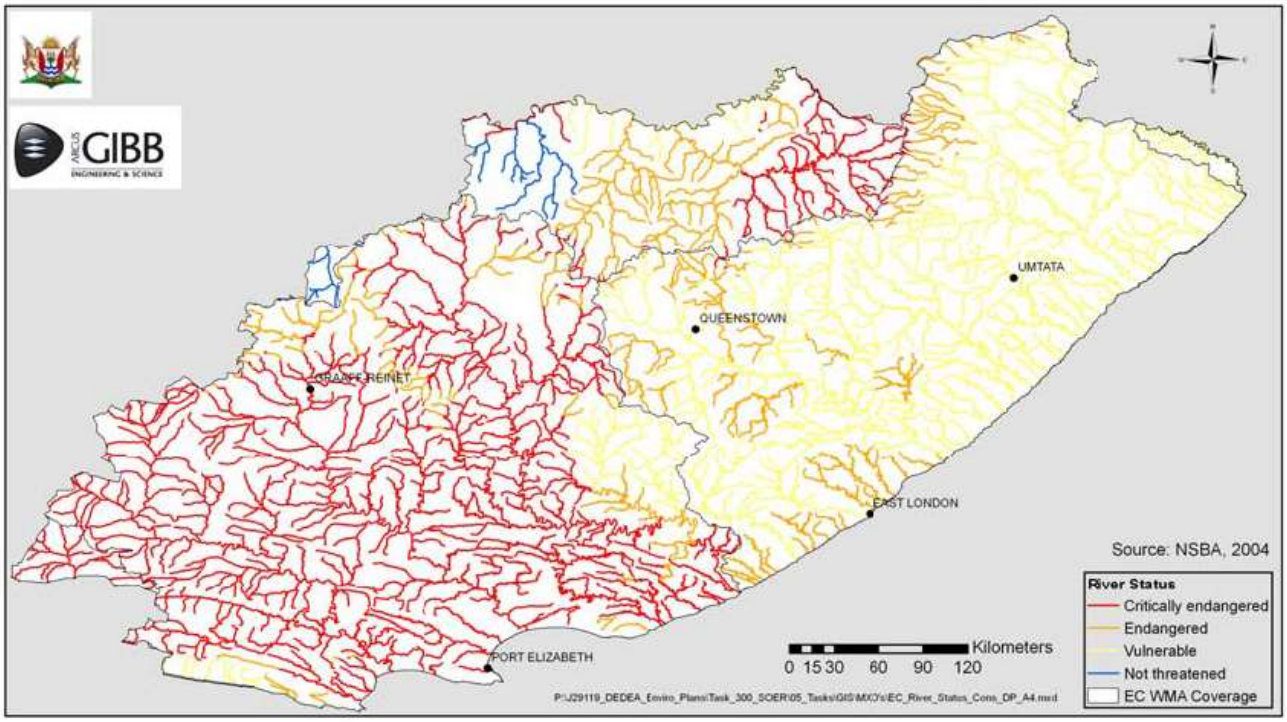

Figure 12: Rivers of the Eastern Cape showing the National Spatial Biodiversity Assessment status of river reaches.

Groundwater

Both quantity and quality of groundwater resources should be taken into account.

In 2003 the DWAF launched the Groundwater Resource Assessment (GRA) Phase 2 Project. This initiative seeks to quantify the groundwater resources of South Africa at a national scale. The GRA II is currently (2009) under review. The lack of information therefore limits reporting on the state of Groundwater.

4.4.5.4 Impacts

The state of inland water resources has a number of impacts for Eastern Cape.

Availability of water

Changes in flow regime due to degraded wetlands, overgrazing, catchment hardening and alien invasion means that there are more floods in the wet season and reduced base-flow in the dry season. A large proportion of the mean annual runoff of a river flows to the sea as floods, reducing the year round availability of water for human use.

Cap on industrial development

The 2000 water availability figures presented by DWAF seem limiting in the face of future industrial growth within the province. Urban development is expected to further deplete current resources. Water may well and truly turn out to be a limiting factor within the province if further in-transfers or alternate sources are not utilised.

Greater vulnerability to droughts and floods

The Eastern Cape has effectively reached its carrying capacity in terms of water availability. Exceeding the carrying capacity of water reserves could lead to serious water shortages during drought years. In contrast, the increased likelihood of flooding due to catchment degradation could threaten marginal communities and developments in low-lying areas.

Loss of ecosystem goods and services

A healthy and intact river and associated riparian ecosystem, wetlands and catchments provides numerous ecological functions. It ensures moderate, year round flows, the break-down of pollutants and pathogens, and reduces suspended sediments, among others. These services reduce the cost of providing healthy potable water within the Eastern Cape. The loss of these goods and services leads to poor quality water.

4.4.5.5 Interdependencies

Coast and Estuaries – the volume, quality and periodicity of water flowing into estuaries affects the environmental state of these systems.

Biodiversity: Loss of biodiversity within inland water ecosystems constitutes a cumulative loss within the combined environment for the region.

Human Livelihoods: Poor quality water affects livelihoods, while limited water availability is likely to constrain economic growth. Limited availability of water affects the ability of municipalities to provide potable water for urban development. Poor quality water, particularly water containing microbial pathogens, is likely to affect the health of people within the province.

Air: Climate change, driven by anthropogenic sources, is inextricably linked to the Eastern Capes water supplies, river and estuary health and overall development.

Energy and Waste: Effluent discharge into rivers degrades their integrity. Hydro-electricity could contribute to reducing the significant energy demand within the province, especially if flow regimes should change to suit such endeavours in the light of climate change.

4.4.6 PROVINCIAL STATE OF ENVIRONMENT REPORT: BIODIVERSITY SUMMERY (2009)

4.4.6.1 Introduction

Biodiversity is important for the Eastern Cape because of the role it plays in maintaining ecosystem functioning. The Eastern Cape is the only South African province with eight of nine South African Biomes and includes twenty-eight named vegetation types, classified by Low & Rebelo (1996). It incorporates five centres of endemism, the largest of which, the Albany Centre of Endemism, extends almost nine million hectares across the province (van Wyk and Smith, 2001). Because endemic centres are thought of as 'islands' their health is of great importance, thus their protection is a priority.

The Eastern Cape forms a transition zone for a great complexity of flora and fauna types, due to the regions transitional climate nature, geomorphology and geology. It is therefore the only province to contain all three of

South Africa's global biodiversity hotspots (Cape Floristic Region, Succulent Karoo and Maputoland-Pondoland-Albany), but also incorporates seven biomes that occur in South Africa.

The Eastern Cape has a rich diversity of terrestrial fauna including many endemic species as a result of the range of habitat types from the Karoo, Drakensberg Mountains, Grasslands, Thicket areas and the coast. Other noteworthy features are the scenic and diverse coastline, the expansive grasslands, the southern Drakensburg Mountains, and the indigenous forests that attract eco-tourists to the area.

Much of the large mammalian fauna is now found in the protected areas and game farms which occur throughout the province.

Biodiversity provides us with ecosystem services like clean water, contributing directly to the economy through industries like fishing and tourism, supporting livelihoods by providing food, medicines and building materials and generally improving our health and wellbeing.

The value of biological diversity has three components:

1. Many species have a direct value through the products that can be harvested, for instance, many medicines used throughout the world have active ingredients extracted from plants and animals.
2. The pollination of agricultural crops by insects is an example of the indirect value where aspects of biodiversity bring economic benefit without the need to consume the resource.
3. There is also an ethical value to the diversity of life. Although it does not always lend itself to economic valuation in monetary terms, we still appreciate the beauty of the rose flower.

Through the human influence, habitat destruction and ill-conceived developments, biodiversity is under threat world-wide.

Biodiversity encompasses more than just species richness. We should ensure that we protect representatives of as many types of communities and ecosystems as possible. By conserving suitable habitat, we are also improving the survival chances of the species and populations contained therein. Living landscapes preserve the option value of biodiversity – the potential to provide benefits in the future. To protect biodiversity effectively, we need to conserve (Driver et al., 2003):

• A representative sample of all biodiversity

• The ecological and evolutionary processes that allow this biodiversity to persist over time

The systematic approach to conservation planning involves setting quantitative conservation targets, for instance the number of hectares of river corridor that need to be set aside to remain undeveloped. Quantitative conservation targets show how much we need to conserve in order to achieve the goal of living landscapes.

Currently there are a number of regional and national conservation planning initiatives overlapping with the province these include: NSBA, DWAF Forest Conservation Planning, Wild Coast Conservation Plan, Pondoland Systematic Conservation Plan, STEP, SKEP, C.A.P.E and Grasslands Programme conservation plans, and the Maloti Drakensberg Transfrontier Project conservation plan, (Berliner & Desmet, 2007).

In order to integrate these initiatives, the Eastern Cape Biodiversity Conservation Plan was compiled in 2007 as a single, user friendly, biodiversity landuse decision support tool for the whole province.

4.4.6.2 Drivers and Pressures

Important driving forces putting pressure on the biodiversity resources of Eastern Cape are:

- Population growth
- The demand for economic growth to provide wealth and job creation
- Demand for housing and associated services for historically disadvantaged people
- Unsustainable extraction of natural resources as a result of poverty or greed
- Poor land use practices promoting soil erosion and infestation by invasive alien plants
- Altered veld fire regimes and runaway fires
- Poor waste and pollution management

- Afforestation
- Emerging biofuels industry
- Climate change
- Lack of understanding (ignorance of the importance of conserving biodiversity)

With a continuous population growth rate, more and more people's basic human needs for food, freshwater and fuel are making unprecedented demands on global and local ecosystems. Beyond the necessities of survival, there is increasing demand of society for more material goods and services.

Ignorance of the importance of conserving biodiversity through lack of understanding should not be underestimated as a contributing factor.

The SOER 2009, summarise the findings of the 2004 SOER of the Eastern Cape which was mainly based on the National Spatial Biodiversity Assessment (NSBA, Drover et al. 2005), stating that the previous report reported on the State of the Biodiversity Environment through the following indicators:

- Habitat transformation
- Extinct, threatened and endemic species per taxonomic group
- Distribution and abundance of selected alien species
- Extent of conserved areas in the province

Data for the Eastern Cape is spaces but the 2009 report build on the 2004 information and indicated the following.

4.4.6.3 State

Habitat Transformation

The National Spatial Biodiversity Assessment (NSBA, Driver et al., 2005) expanded on this data set and used maps of land classes, such as vegetation types or habitat types (e.g. Southern Mistbelt Forest), to represent biodiversity features (pattern and process), habitat transformation, protected areas and future land use pressure, across the nation.

Ecosystem status therefore represents a better indicator of biodiversity as it incorporates habitat transformation, irreversibility, threatened species status, etc. and is therefore used as an indicator in this section.

By using land classes incorporating expert knowledge about biological characteristics as surrogates of biodiversity (Lombard et al., 2003), the NSBA was able to overcome the problem of species-based inventories being hampered by incomplete data (Driver et al., 2003).

In the absence of comprehensive data sets of the occurrence and status of species of conservation concern in the Eastern Cape, the NSBA approach of using land classes as stand-ins for biodiversity is adopted.

The classification of how intact and well-functioning they are is based on four categories (**Table 7**):

Table 7: Definition of ecosystem status categories of land classes

Remaining natural habitat %	Category	Definition
80 - 100	Least threatened	Still largely intact
60 - 80	Vulnerable	Reasonably intact, but nearing the threshold beyond which they will start to lose ecosystem functioning
20 - 60	Endangered	Have lost significant amounts of their original natural habitat, impairing their functioning
0 - 20	Critically endangered	Have so little of the original habitat left that not only their

		functioning has been severely impaired, but species are being lost

The ecosystem status measures the amount of habitat lost in ecosystems (measured as land classes) relative to the conservation targets for those ecosystems. In Eastern Cape 5% of land classes are Endangered or Critically Endangered, with a further 14% Vulnerable to lose ecosystem functioning.

The spatial representation in shows, that the western parts of the Eastern Cape are still largely intact, whereas the eastern areas particularly the former Transkei area and those along the southern area, are under greater threat to lose their ecological integrity.

Only 170 ha of Critically Endangered land classes were revealed in the GIS analysis which represented less than 1% of the Eastern Cape. These were all Mangrove Forests found along some of the estuaries north of the Kei River.

Endangered areas occur in the vicinity of Port Elizabeth and along the central Transkei areas. The entire Wildcoast area is classified as Vulnerable which is further cause for concern.

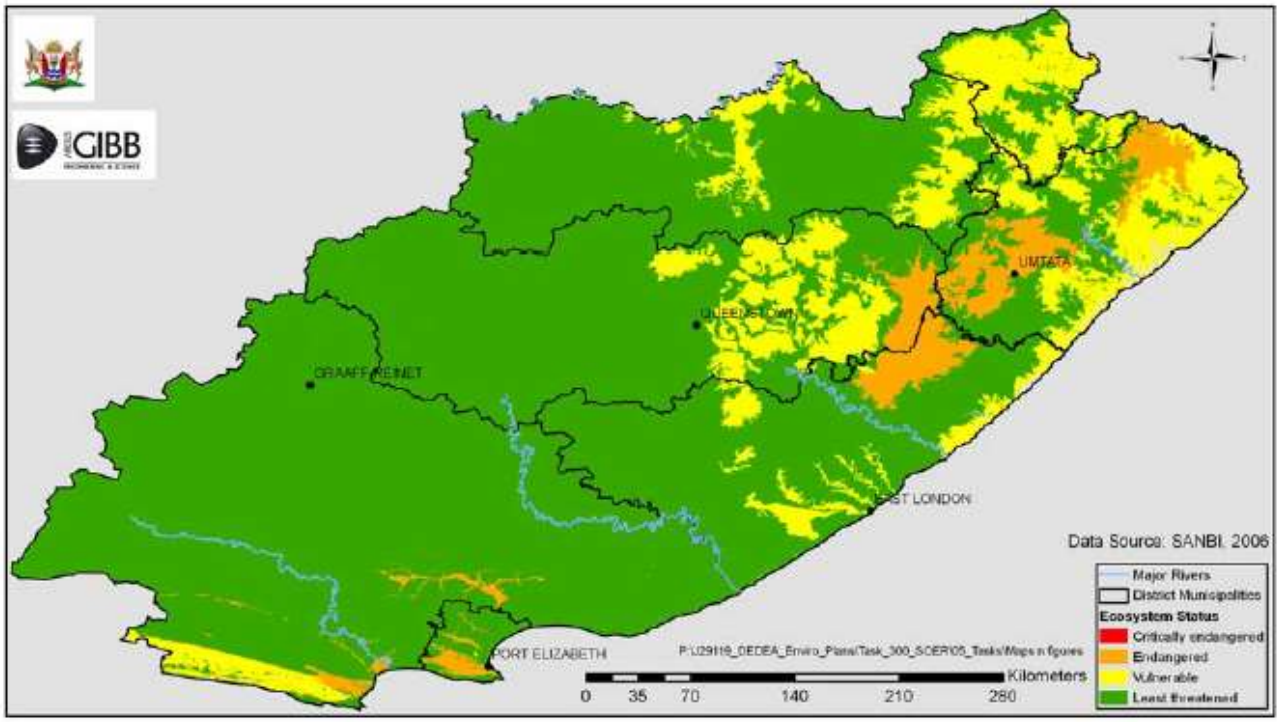

Figure 13: Ecosystem status of the land classes occurring in the Eastern Cape

Extent of formally conserved areas

Baseline information on formally conserved areas falling into Eastern Cape was extracted from the South African National Spatial Biodiversity Assessment (Rouget et al., 2004).

At the time, nearly 6% of land in South Africa was under protection in Type 1 and Type 2 protected areas (Rouget et al., 2004). With a total area of 4.2% under formal type 1 and 2 protection, the Eastern Cape is still well below the national average.

The total area under Type 3 protection amounts to 234,910ha (ECBCP) which is an additional 1.3% of the Eastern Cape under informal conservation. Substantial plans are in progress to expand the protected area network.

Ecosystem protection

There are many types of protected areas and they do not confer equal amounts of protection to the vegetation type/land class in which they are located. National Parks, Provincial Nature Reserves, Local Authority Nature Reserves and DWAF Forest Nature Reserves present the highest level of formal protection. At the other end of the scale are game farms, private game reserves and conservancies that are informal by nature (ungazetted) and do not provide secure long-term protection of biodiversity. Still, for the valuable contributions that they make – albeit at a variable quality – they have been included in the suite of protected areas.

Regional gradients in the protection levels are clearly evident in **Figure 14**. All large protected areas are situated in the mountains in the north and many hardly or poorly conserved land classes are found in the west. Overall, the hardly (27.3%), poorly (40.1%) and not protected (6.8%) areas make up 74.2% of Eastern Cape, with the balance being made up by the moderately and well protected areas.

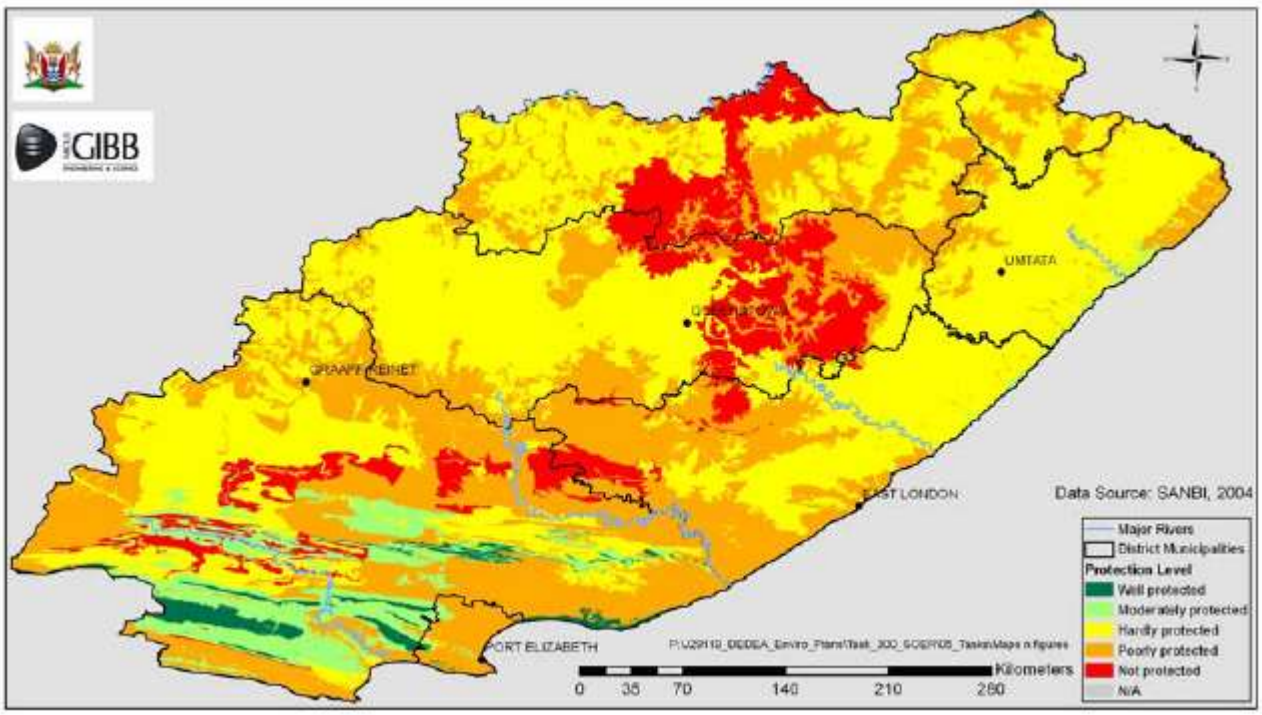

Figure 14: Protection level of land classes in Eastern Cape

Threatened Species per taxonomic group

A search on the IUCN Red List revealed that only twelve species are listed as Threatened. Of concern is that the Black rhinoceros has jumped two categories and is now listed as Critically Endangered. Other noticeable changes are the Oribi, which has moved into the Endangered category and the Black footed cat which is now classified as Vulnerable from Rare.

In summary, there are now three mammal species that fall into the Endangered and Critically Endangered categories whereas previously (2004) there was only one species that fall into this category.

Over 600 bird species are found within the Eastern Cape (Roberts Bird CD, 2002). Sixty-three bird species falling within the Eastern Cape were locally listed as threatened. This represents approximately 10% of all birds occurring within the Eastern Cape. Of these 63 threatened species, 2 are Critically Endangered (Knysna Warbler and the Cape Parrot (http://www.speciesstatus.sanbi.org)), 5 Endangered (Blue Crane, Grey Crowned Crane, Bearded Vulture and the Cape (http://www.speciesstatus.sanbi.org)) and 14 Vulnerable, (Barnes, 2000).

A search on the global red list (IUCN Red List) revealed that of the above species, none are Critically Endangered or Endangered, only 12 are Vulnerable, 15 are Near Threatened and 33 are Near Threatened.

Locally, the SANBI Database lists the Knysna Warbler and the Cape Parrot as Critically Endangered, (http://www.speciesstatus.sanbi.org). Furthermore, the Blue Crane, Grey Crowned Crane, Bearded Vulture and

the Cape Vulture are listed as Endangered (http://www.speciesstatus.sanbi.org), the Egyptian Vulture is listed in SANBI as occurring in the Eastern Cape, but is

regarded as a vagrant with less than 50 sitings since 1945 (http://www.speciesstatus.sanbi.org).

Noticeable changes since 2004 are the Blue Crane and Cape Vulture which are now Endangered from Vulnerable, the Cape Parrot which is now Critically Endangered from Endangered and the Knysna Warbler which has moved up two categories from Vulnerable to Critically Endangered.

The 2004 SOER provided a thorough overview of the 316 threatened plant species as occurring within the Eastern Cape. The overall threatened status of these plants has been revised by SANBI as presented in the 2009 SOER.

Noticeable changes are the increase in the number of species falling within the Critically Endangered (0 –10), Endangered (16 – 33) and Vulnerable (54 –67) Categories.

However, the avian data presented in this report does not add up to the totals given in the tables and is incomplete and contradictory.

An overview of the Freshwater Fish of Southern Africa (Skelton, 2001) revealed two red data fish species that may be found within the freshwater streams and rivers of the Eastern Cape (Eastern Cape Redfin and Eastern Cape Rocky). Alien invasive fish species such as Tilapia, Trout and Bass species are a significant threat to local indigenous species and are prevalent in most freshwater streams and rivers.

4.4.6.4 Impacts

The driving forces listed earlier in this chapter that are placing pressure on the biodiversity resources of the Eastern Cape often act in combination (change in land use frequently goes together with changed fire regimes in fynbos) and so the resulting impacts are impossible to apportion neatly.

This is, of course, a reflection of the multitudes of inter-dependencies of patterns and processes in the natural world. A selection of the most important impacts of the loss of biodiversity must suffice here.

Habitat fragmentation and habitat loss is an important cause of the decline in biodiversity resources. The more specific the food and habitat needs of a species are, the greater its vulnerability to agricultural activity, roads, cities and associated sources of pollution. At the bitter end, the only surviving species will be human commensals (rats, cockroaches etc.) whose habitat requirements correspond to the degraded state associated with human activity. For all species that became extinct in the process the potential to provide benefits in the future - the option value of biodiversity – is lost forever.

Sprawled development is a leading cause of habitat loss and thus biodiversity loss. Sprawl also exacerbates air and water pollution, both of which degrade environments and further reduce biodiversity. New construction often increases erosion of land cleared for development. This in turn increases stream siltation.
As the land area for natural ecosystems shrinks, there is less natural capacity to filter pollutants and detoxify waters and less capacity to cycle nutrients and compost organic wastes. Thus, as sprawl increases, species and ecosystem services decrease.

Ecosystem degradation and subsequent loss of ecosystem services tends to harm poor rural people more than affluent city dwellers. Poor people have limited assets and are more dependent on common property resources (e.g. fire wood), while the wealthy are buffered against loss of ecosystem services by being able to purchase basic necessities and scarce commodities.

Grasslands and Fynbos, important vegetation types in the Eastern Cape, require fires to stimulate seed germination, but the fire frequency is important. Plants that are killed by fire and that depend on re-seeding to survive as species have not enough time to mature and to set seeds if fires occur too often. Conversely, if natural fynbos is prevented from burning because the fire would bring an unacceptably high risk to houses nearby, the fire-dependent plant components it contains will eventually die from senescence.

Weakened immune systems and failure to reproduce are common effects of toxic pollution in a wide array of species. Under the attack from pollution an ecosystem's ability to function breaks down. This is how wetlands become cesspits. Pollution from silt and excess nutrients chokes the life out of aquatic ecosystems, while in-stream dams prevent anadromous fish species from reproducing upstream before returning to the sea.

Global warming represents a profound and emerging threat to biodiversity around the world. As temperatures rise, habitats for many plants and animals will change, depriving them of the homes and niches to which they have adapted.

Small-scale range shifts with profound consequences may also occur. The altitudinal limits of vegetation are broadly determined by the prevailing climate, particularly in relation to thermal characteristics, and altitudinal shifts in these will affect the distribution of animals dependent on these habitats.

4.4.6.5 Interdependencies

In The Eastern Cape, cultivated lands, commercial forestry activities and rapid expansion of human settlements result in a loss and fragmentation of natural habitats. The spread of invasive alien vegetation poses a further threat to biodiversity conservation in the municipal area. The link to biodiversity is both direct and indirect. Of the many inter-dependencies with key themes discussed in this report, the following linkages stand out:

- There is an obvious link to land degradation as it is a driver of biodiversity loss.
- The predicted increase in ambient temperatures as well as increased variability in rainfall pattern influences land degradation and biodiversity patterns and processes.
- Changes in environmental conditions due to climate change are likely to impact species population and ecosystem dynamics.
- Increasing pressure on local authorities to approve applications for proposed developments in urban areas is resulting in greater pressure on undeveloped land in the district.
- Loss of biodiversity within inland water ecosystems constitutes a cumulative loss within the combined environment for the region.
- As areas of great diversity of life, estuaries and the coast make a major contribution to the province's overall biodiversity.

4.4.7 PROVICIAL STATE OF ENVIRONMENT REPORT: ENERGY AND WASTE SUMMARY (2009)

4.4.7.1 Introduction

With an increase in population growth and consumerism, energy consumption and waste generation is on the increase. The Eastern Cape is recognised as a place with a great potential for renewable energy sources and many applications/projects are in progress. Both energy consumption and waste generation have significant environmental impacts and therefore warrant their own reporting theme. Close links Between Energy and Waste and air quality and climate change exist.

There is no energy strategy or policy which monitors the state of energy on a provincial scale. Similarly, the department of Economic Development has recently commissioned an integrated waste management plan and hazardous waste management plan for the province. These plans focus primarily on solid and hazardous waste. Other forms of waste such as sewage and effluent are not reported on.

This report provides a useful avenue to monitor the state of energy and the state of waste on a provincial scale and this chapter explores the trends in energy consumption within the Eastern Cape, as well as waste generation, with a particular focus on solid waste generation.

Energy

Energy is a necessity to all humans and drives all human activities. As population numbers and the standards of living increases, an increase in energy consumption and waste generation is expected. Energy consumption is regarded not only as the consumption of electricity but also the consumption of petroleum products and wood for fuel. Three main forms of energy are recognised. Namely: Fossil fuels; nuclear energy and renewable energy. South Africa relies on non-renewable resources for more than 90% of its energy. According to the Department

of Minerals and Energy Statistics Digest (2006), 89 % of South Africa's energy is generated through the use of fossil fuels. Energy consumption will almost always be associated with a by-product that will be released into the environment.

The environmental impacts associated with electricity production are not directly experienced within the borders of the Eastern Cape since there are no large coal power plants in the province. The Eastern Cape however is a consumer of Eskom electricity, and due to its large rural component, has a high reliability on biofuels for services requiring energy, and is a contributor to the impacts associated with energy consumption on a national or even international scale. Biofuels (e.g. gas, paraffin and wood) are unsustainable in the present form and sustainable methods of utilisation and regeneration must be addressed.

Waste

Waste is the unwanted materials or substances produced by human activities that have the potential to cause pollution when released into the environment. Waste results from all activities of human kind and in the broader sense, includes solid waste, hazardous waste, mining waste, sewage, sludge, wastewater, effluent, ash, etc. The environment becomes the ultimate receptacle for such waste and when not managed and treated effectively, results in pollution of air, soil, water and associated adverse environmental impacts. Increasing waste generation is further cause for concern as landfill space is a limited resource. Illegal dumping is prevalent causing pollution to surface and ground water systems.

4.4.7.2 Drivers and Pressures

The primary driving force behind increased energy consumption as well as increased waste generation is the consumption pattern synonymous with social causes (current population growth, unsustainable consumer culture and lifestyle) and economic causes (industrialisation, affluence and economic standing). Waste generation and energy consumption is almost in direct relation to the growth of the economy (EMISA).

Energy consumption

Drivers associated with increased energy consumption include the following:

- **Increased income:** Eastern Cape net income per individual has increased which ultimately results in increased energy consumption.
- **Industrialisation:** As the level of industrialisation increases the amount of energy and resources utilised increases. This results in increased energy consumption and waste production.
- **Urbanisation and migration of people:** The net migration of people into the Eastern Cape and its cities results in an increased need for housing and urban expansion which results in greater energy consumption through more houses that require electrification, increased travel distances etc.
- **Poorly developed public transport** systems result in increased vehicular traffic, particularly use of cars that are energy inefficient.
- **Changing economic markets:** A shift in the economy from primary sector economic activities (industry) to tertiary sector activities (service orientated) is influencing energy consumption patterns. This shift usually results in less energy consumption.
- **Government's Reconstruction and Development Programme** (RDP) strive to supply all people with basic service including a house and electricity
- **Affordability of electricity:** One quarter of South African city dwellers are considered to be living in "energy poverty" as they cannot afford electricity. Despite electrification, households continue to make use of fossil fuels as energy sources, which pose safety risks from fires, burns and poisonings (SEA, 2006). In addition, the electrification of rural households to the electricity grid is expensive and therefore is less affordable to impoverished rural communities.
- **International pressure on climate change:** Numerous policies and initiatives exist to control the environmental impacts of energy and waste production. These should result positively on the impacts associated with energy and waste and result in a reduction of both.

Waste Generation

Drivers associated with increased waste generation are similar to those listed above. More specific drivers related to waste production include:

- Increased commercial and industrial development translates to more waste being produced by the residential, industrial and commercial sectors.
- Increased housing in urban areas requires increased collection and associated quantities of solid waste as well as increased sewage in waterborne systems where present.
- Increased packaging for products typically results in more packaging waste.
- Lack of awareness towards waste minimisation.

4.4.7.3 State

Selected Indicators

The following indicators can be employed to monitor energy consumption and waste production within the Eastern Cape:

- Energy
  - Energy use within households
  - Number of renewable energy systems feeding the grid
- Solid Waste
  - Waste generation per capita
  - Number of permitted sites
  - Available landfill lifespan
  - Household access to refuse collection
- Sewage
  - Access to formal sanitation (water-borne sewage systems)
  - Number of compliant permitted sewage plants
  - Number of outfalls not receiving treatment

Energy

Between 2001 and 2007 there was a national increase in the percentage of households that utilised electricity for lighting (69.7% - 80.0%), cooking (51.4% - 66.5%) and heating (49.0% - 58.8%). Within the Eastern Cape the majority of households are reliant on electricity as a primary source of energy for cooking, lighting and heating (STATS SA, 2001, 2004, 2007).

The increase in the use of electricity for lighting, cooking and heating, may have resulted from initiatives and policies such as Network Strengthening Projects undertaken by Eskom and Free Basic Electricity Policies launched by the Department of Minerals and Energy in 2003.

Eastern Cape had the highest percentage (61,5%) of municipalities whose proportion of households using electricity for lighting exceeded the provincial average. Some of these municipalities in the Eastern Cape were Amahlathi (67,4%), Camdeboo (98,1%), Inxuba Yethemba (94,1%), and Senqu (78,7%).

Nelson Mandela Metopolitan displayed the highest percentage of households that use electricity for lighting, heating and cooking, while the lowest was displayed by Alfred Nzo and O.R. Tambo, where less than 10% of the households utilised electricity for cooking and heating.

In South Africa energy expenditure constitutes around 15% of the GDP. Energy efficiency is therefore a factor that must be considered. South Africa is one of the world's best potential countries for solar, biomass, microhydro and wind resources, however less than 1% of the total electricity generated in South Africa is based on renewable energy resources (Guidelines for the Development of Renewable Energy Projects in South Africa). The implementation of renewable energy systems (solar, hydro or wind) in industry as well as residents may well have the potential to defer the need for building new power plants.

Data on renewable energy contribution from relevant stakeholders is collected annually so to assess or evaluate progress towards this goal. Data relating specifically to the Eastern Cape is largely unavailable.

Solid Waste

Environmental impacts associated with solid waste are related to the quantities of waste generated, access to services (as this is an indication of possible illegal dumping) as well as the status of disposal sites. Non-permitted disposal sites have many negative environmental impacts, such as surface and ground water contamination, pollution, health risks, etc.

Data for reporting on the state of solid waste has been limited to waste generation per capita, number of permitted landfill sites and household access to refuse collection.

According to General and Hazardous Waste Management Plans; Interim report (GIBB, 2009) Chris Hani District Municipality produced 623 tons of total waste day and 227 300 tons of waste per year, while OR Tambo District Municipality produced 188 tons of total waste day and 68 500 tons of waste per year.
Comparing this waste generation rate to rates suggested by the South

African Environmental Outlook; A report on the state of the environment, waste generation is fairly low and is indicative of a low income level. This is due to a large percentage of the population within the Eastern Cape living in un-serviced rural areas and/or the difficulty of acquiring reliable statistics.

According to StatisticsSA Census 2001 and Community Survey 2007, only 39.3% and 40% of the households respectively within the Eastern Cape received waste removal services.

Of the 113 waste sites identified in the Eastern Cape, only 43, and therefore 38% of them are licensed.

Sewage is one of the main constituents of liquid waste. In 2007 it was estimated that 23.5% of households within the Eastern Cape had no access to toilet system. 38.2% of all households within the Eastern Cape have access to water-borne sewage systems, but the quality of treatment is of further environmental concern, in terms of water quality. The number of compliant sewage plants with the DWAF effluent release standard is therefore a useful indicator in this regard. At the time of writing this report the data was not available, but is on request.

4.4.7.4 Impacts

Table 8 illustrates the typical impacts associated with the energy and waste drivers within the Eastern Cape:

Table 8: Typical impacts associated with energy consumption and waste generation.

	Driver	Main impacts
Energy	Increased Income	Increased consumption Increased depletion of fossil fuels Increased pollution (air quality)
	Increased population	Increased demand for land space Increased pressure on municipal systems (e.g. water, sanitation, electricity etc.) Increased waste generation
Solid waste	Increased waste generation quantities	Increased collection areas Increased waste to landfill Reduction in lifespan of landfills Illegal dumping Increased health risk and pollution
Liquid waste (sewage)	Increased quantities	Increased pressure on treatment facilities Increased health risk and pollution Contamination of ground, surface and coastal water resources

4.4.7.5 Interdependencies

The following linkages are noteworthy:

Air Quality and Climate Change: Especially with regards to energy consumption, the burning of fossil fuels creates greenhouse gases which have contributed to global warming.

Biodiversity: Through pollution from illegal dumping and wastewater disposal, ecosystems are being impacted which are in turn impacting on biodiversity.

Inland Water: Waste-water and pollution are impacting on water quality of freshwater systems.

Coastal and Estuaries: Waste-water and pollution are impacting on water quality of estuarine systems and the in shore coastal waters.

Human livelihoods: Energy and waste generation affect human livelihoods through the impacts on human health and land degradation.

4.4.8 PROVICIAL STATE OF ENVIRONMENT REPORT: HUMAN LIVELIHOODS SUMMARY (2009)

4.4.8.1 Introduction

A livelihood comprises of the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from external stresses and shocks and maintain or enhance its capabilities and assets now and in the future (UNDP, 2007).

Human livelihoods is included as a cross-cutting theme that includes elements of human development and well-being, vulnerability, social protection, poverty, etc.

This theme chapter reports on the state of a combination of poverty, human settlements and other social and economic topics, and is in line with the national reporting theme chapters.

4.4.8.2 Drivers and Pressures

Socio-economic change is itself a driver common to all themes in this State of Environment Report. These are listed below:

Poverty: Poverty directly influences people's dependence on natural resources, their standard of living, consumerism and ultimately their impact on the environment.

Population growth: The population of the Eastern Cape has increased over the last decade. This growth places increased stress on the environment and the capacity of its resources to sustain the population.

Housing: With the increasing population and a high number of people who still do not have adequate shelter, housing is a critical element of human livelihoods.

Health: "Human vulnerability to environmental change is exacerbated by poor health, which predisposes people to disease", DEAT (2006).

Education: Education and environmental awareness, or the lack thereof has been identified as a major issue in terms of environmental management in the Eastern Cape.

Economy: Economic growth has been identified by government as a key objective for providing socio-economic upliftment in the Eastern Cape. (PGDP)

With economic growth the environment is further put under pressure due to increased consumption of natural resources and increased waste production.

4.4.8.3 State

The selected indicators for human livelihoods are as follows:

- Poverty
    - Percentage of people living below the poverty line
    - Household Income

- Employment

- Population Growth
- Housing
  - Type of dwelling
  - Access to services
- Health
  - HIV Status
  - Number of health facilities
  - Incidence of Cholera
  - Incidence of Tuberculosis
- Education
- Economy
  - GDP
- Human Development Index

Poverty

Poverty can be defined in many ways, but always implies that people living in poverty are significantly worse off than their fellow citizens and have less access to resources such as education, transport, health care or social networks.

Poverty often creates a vicious cycle where the conditions under which poor people live lead to bad health, malnutrition or isolation. These effects can diminish productivity and drive poor people further into poverty (Knysna Municipality, 2005).

Percentage of people living below the poverty line

Increasing levels of absolute poverty have been recorded in the Eastern Cape and 61.9% (PGDP, 2009) of the people of the Eastern Cape live below the poverty line of R800 or less a month. Even though poverty is highly evident throughout the Province, large pockets of poverty are found in the OR Tambo, Alfred Nzo and Chris Hani District Municipalities, which include the bulk of the former Transkei.

Monthly household income

Increasing levels of absolute poverty have been recorded in the Eastern Cape and 61.9% (PGDP, 2009) of the people of the Eastern Cape live below the poverty line of R800 or less a month.

Employment

Unemployment can be defined in many ways and can often include the economically inactive who are not actively seeking employment. The overall unemployment rate for the Eastern Cape is 53.3%2 (PGDP 2009). This is well below the national average of 44.7%, (DEAT, 2006).

On a district level, very high rates of unemployment are found in the Alfred Nzo and OR Tambo districts.

Population Growth

According to the 2007 Community Survey conducted by Statistics South Africa the total population of the Eastern Cape Province is 6, 527 747 people. The most recent estimate for mid-2008 is 6 579 300 (Stats SA, 2008). It is estimated that from 2001 to 2007 the growth rate was 0. 65% per annum. The Eastern Cape Province was the third most populated province after KwaZulu Natal and Gauteng in 2001, being home to some 14.4% of the South African population and had a population density of 38 people per square kilometre, which is slightly above the

national average of 37 per square kilometre. Black Africans constituted 86% of the total Eastern Cape population. Women constituted the highest proportion of the population and this was quite evident in the sex ratios where for every 100 women there were 86 men (StatsSA Provincial Profile EC 2004). The provincial population is distributed disproportionately between the districts, with the two largest districts, OR Tambo and Amatole, just short of two million inhabitants each (1.7 million people each respectively). Nelson Mandela Metro represents the next largest concentration of people (1 million people) and Ukhahlamba the least populous (341,312) (StatsSA, 2007).

Housing & Access to Services

South Africa's priorities are to meet the basic needs of all South African's (in terms of water, sanitation, health services, education and housing and infrastructure) to redress disparities in wealth and access to resources, to create employment, to stimulate and sustain economic growth and to improve the quality of human livelihoods of all South Africans.

Type of dwelling

46.8% of the Eastern Cape are housed in a formal house or brick structure. Of interest is the numbers of people that live in informal dwellings which has decreased from 11.2% (2004) to 8% (2009).

Estimated household numbers according to the Census 2007, Chris Hanie 203 041 and OR Tambo 356 085.

Access to Services

In terms of access to water there has been an increase in the percentage of households with access to piped water of an acceptable standard from 63.2% (2004) to 70.9% (2009). Furthermore, more households (3%) are making use of rainwater harvesting which potentially is a more environmentally acceptable form of water use. Of concern is the number of households that still make use of springs, dams and rivers and streams which can have adverse environmental impacts and associated health risk.

Health

In terms of the socio-economic environment, health is an important determinant of quality of life. It also influences a region's resilience, stability and economic potential; because good health enables people to actively participate in their social environment and to work productively. Priority health issues identified for the Eastern Cape are the prevalence of HIV/AIDS, TB, Cholera and access to the primary health facilities.

HIV Status

The Eastern Cape has an HIV status of 29.4% (2007), it is th sixth highest ranked province. In 2006, the Department of Health released national statistics on HIV prevalence. According to this, the highest region was the Nelson Mandela Metro at 31.9%, followed by Amatole at 28.7%, Ukhahlamba at 27.9%, Chris Hani at 27.1%, Alfred Nzo at 25.1 and Cacadu at 22.8%.

Number of health facilities

In 2004 there were 1008 health facilities in the Eastern Cape. 683 clinics made up just over two thirds of the total. Amatole had a total of 271 health facilities followed by Chris Hani 188 and OR Tambo 181 accounted for the highest number of facilities. Ukhahlamba had 67 followed by Alfred Nzo with 62 at the lowest. The national average of healthcare facilities per person in South Africa during 2004 was estimated at 9471 people per facility and the Eastern Cape was estimated at 6349 people per facility.

Incidence of Cholera

Cholera is both an indicator of health and water quality, which is therefore useful to monitor the state of Cholera cases within the province. There were no reported cholera cases from 1994 to 2001. In 2002, 2335 cholera cases with 45 deaths were reported while in 2003 the number increased to 3158 with 38 deaths reported. In 2004 the number of reported cases decreased to 487 with seven deaths.

Incidence of Tuberculosis (TB)

The incidence of TB in the Eastern Cape was 680 per 100,000 in 2007. This high TB case load and the high rate of TB patients who abandon treatment need to be tackled together with HIV and AIDS and other communicable diseases to reduce the burden of disease. The work of the TB tracer teams is crucial and needs to be closely monitored and supported (PGDP 2009).

In South Africa TB has reached epidemic proportions. According to the World Health Organization (WHO), South Africa is ranked as the country with the fourth highest TB burden in the world.

Education

The literacy rate for the Eastern Cape was estimated at 64%. District municipalities with the lowest levels of illiteracy are OR Tambo, Ukhahlamba and Chris Hani. Females in all population groups in the province had higher literacy rates compared to males.

On an individual level a better education means a better income, which leads to a higher standard of living.

Economy

The Eastern Cape is regarded as having the potential to substantially increase its contribution to the national economy with increased national levels of trade. The major sectors in the province are services, followed by manufacturing, with a large portion of the manufacturing sector being focused on the automotive industry. Other sectors include agriculture, textiles, clothing and leather, wool processing, timber and transport, as well as tourism.

According to StatsSA the Eastern Cape recorded an increased economic growth rate of 4.5% in 2005. In 2005 the largest industries in the economy were finance, real estate and business services (19.8%), government services (19.1%), and the manufacturing industry (16.7%) in terms of contribution to the GDP of the region.

Human Development Index (HDI)

The Human Development Index (HDI) is an index that combines measures of life expectancy at birth, standard of living measured as GDP or average household income, and education measured by the adult literacy rate and school enrolment ratios. A higher index indicates a better quality of life and development and vice versa. Average life expectancy, household income and education level are all strongly correlated. Poor people on average perform worse on all three measurements as they have less available resources and less access to services and facilities. The HDI therefore gives a good indication of relative poverty levels in a region and provides an appropriate measure of the many aspects of poverty. The low Human Development Index (HDI) estimates large poverty gaps in the Eastern Cape's districts, which confirm the high poverty rate in the Province. The Eastern Cape had an HDI of 0.53, in 2007. According to this statistic the quality of life in the Eastern Cape is still fairly low and has not improved.

Despite the somewhat bleak picture painted by many of the poverty indicators above changes in the Human Development Index (HDI) between 1996-2001 suggest that as far as life expectancy, literacy and income are concerned the lot of the black population in the Eastern Cape has improved.

4.4.8.4 Impacts

Broad impacts associated with the socio-economic drivers are listed in **Table 9** below.

Table 9: Typical impacts associated with socio-economic drivers

Drivers & Pressures	Impacts
Poverty	• Increased pressure on natural resources. • Increased use of fossil fuels
Population Growth	• Increased urbanisation • Increased waste generation • Increased consumption • Increased land for housing • Increased pressure on services
Housing	• Increased housing backlogs • Possible informal settlement growth

	• Increased pressure on municipalities to supply and maintain services • Increased land take requirements
Health	• Decreased labour force and economic productivity • Increase welfare payments to the sick • Increased pressure on social services • Increased poverty
Education	• Lack of environmental awareness
Economy	• Increased consumption • Increased energy needs

4.4.9 PROVICIAL STATE OF ENVIRONMENT REPORT: ENVIRONMENTAL GOVERNANCE SUMMARY (2009)

4.4.9.1 Introduction

Environmental Governance commonly refers to the way in which authorities, municipalities, non-governmental organisations (NGOs) and the private sector manage the environment and natural resources. It deals with principles and processes applied in decision-making, such as transparency, social equity, justice, accountability, efficiency, effectiveness, inclusivity and representativety.

Provinces are faced with a complexity of legal obligations to safeguard the environment in all decision-making, including provincial planning, land use planning and policy making. Through the Constitution, the National Environmental Management Act, and the Intergovernmental Relations Act, the Eastern Cape provincial government is obliged to take all reasonable measures to manage the environment and its sustainability.

Environmental governance forms one line of the triple bottom line in sustainability accounting. It is thus as important to the individual or private sector business as it is to government. Environmental governance aims to ensure that responsible management is exercised. It is aimed at ensuring that those actions of a company, organ of state, local authority, government department, or NGO which may have a negative effect on the environment are identified and undertaken with due care for the protection of the environment.

The environment, in both its bio-physical and socio-economic interpretations, is a shared resource which forms the foundation of all human existence. In order to safeguard people's access to and use of the environment, now and in the future, it is essential that efforts to manage use of the environment are reported and, where feasible and practical, coordinated.

4.4.9.2 Drivers and Pressures

Important drivers of environmental governance within the Eastern Cape are:

The Constitution of South Africa – Section 24 provides that "everyone has the right to an environment that is not harmful to their health or well-being; to have the environment protected, for the benefit of present and future generations, Sustainable development is defined as "development that meets the needs of present generations without compromising the ability of future generations to meet their own needs." Bruntland, 1987 through reasonable legislative 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."

National Environmental Management Act (NEMA) provides for the preparation and revision of Environmental Implementation Plans (EIP) by provinces, as the means by which the constitutional goals of co-operative governance in the realisation of environmental protection may be achieved. The State of Environment Report constitutes a mechanism for monitoring the implementation of the EIP. Section 2 of NEMA outlines development and decision making principles which are binding on all organs of state.

Factors increasing pressure for strong, ethical environmental governance in the Eastern Cape include:

Health, particularly human public health related issues which require integrated and coordinated effort on the part of authorities, the private sector and the public to maintain adequate environmental quality to prevent public health risks. This has become increasingly pertinent over the past year as the province wide drought and

increasing demand for potable water have exacerbated pressure on water resources across the province. This has resulted in a number of instances of water-borne disease outbreaks or water quality failures being reported in the regional press.

Lack of capacity. The lack of capacity is probably the most significant driver when it comes to environmental management. Financial, human and physical resources are required to implement the function. Such resources are frequently lacking from those departments within the provincial government and municipalities which are responsible for implementing those functions that impact on the environment.

Poor cooperative governance. Communication between various government structures is reportedly poor and results in a misunderstanding in terms of roles and responsibilities, sharing resources and duplication of effort.

Balancing of competing rights and service delivery demands. The rights enshrined within the Constitution are not exclusive. In providing for the fulfilment of a given right decision-makers have to give due consideration to the fulfilment of all the other rights, some of which may compete with the fulfilment of the right under consideration. For example, in fulfilling the right to adequate housing decision-makers must also give consideration to the potentially competing right to have the environment protected for the benefit of both present and future generations.

4.4.9.3 State

In line with advances in thinking regarding State of Environment reporting, and the second edition National SoER the following indicators were used for the Eastern Cape:

Laws and Institutions:

- Provincial legislation pertaining to environment drafted since 2004

Systems and Tools:

- Formal interdepartmental protocols on environmental governance
- IDP commitment to environmental management

Participation in Environmental Governance:

- Access to information
- Number of publicly accessible databases and information management systems

Accountability and Transparency in Governance:

- Provincial budget expenditure on environmental management and biodiversity
- Posts allocated vs. current posts filled
- Compliance with environmental legislation
- Guidelines for public on how to participate in decision-making

Corporate Environmental Governance:

- Number of companies represented in the Eastern Cape listed on the Social

Responsibility Index of the Johannesburg Stock Exchange

- Number of Eastern Cape comcaracterisedpanies that have been certified for ISO 14001

4.4.9.4 Impacts

The impacts of poor environmental governance are far reaching but largely influence the following:

- Delays in service delivery on a number of critical provincial functions due to clashes in provincial policies,

plans, programmes and procedures resulting from misunderstandings and lack of clarity regarding environmental management requirements;
- Uncontrolled and inappropriate development;
- Poor land use planning;
- Uncontrolled resource extraction and utilization;
- Loss of biodiversity;
- Destruction of ecosystem functionality and the ability of the environment to provide ecosystem services essential for human wellbeing (such as water purification, flood attenuation, soil genesis, and pollination);
- Land degradation; and
- Pollution of the environment (e.g. air, water, soil, coast etc.).

4.5 KEY FINDINGS

This State of the Environment report aims to identify key areas in the environment which require intervention and guide provincial environmental planning such that the environment can be managed in a more sustainable way.

There are many pressures on the biophysical environment within the Eastern Cape. These include (but are not limited to):
- Increased development pressure, especially along the coastline, estuaries and rivers;
- Demand for low income housing and associated services;
- Demand for economic growth to provide wealth and job creation;
- Poverty and associated increased human pressures on natural resources;
- Poor operational state of certain waste water treatment infrastructure;
- Poor stormwater management; and
- Illegal industrial effluent discharges and illegal dumping.

The pressures described above have a serious impact on the state and quality of Eastern Cape's natural environment. This results in:
- Polluted water resources, including coastal waters, estuaries, rivers and groundwater;
- Polluted air;
- Loss of biodiversity in sensitive coastal areas, natural forests and other important ecosystems;
- Increased invasion by alien species (invasive plants, fish and terrestrial fauna);
- Erosion; particularly in the peri-urban and rural areas;
- Loss of agriculturally valuable land; and
- Damage to the natural landscape and associated visual pollution, with the resultant loss of important scenic resources.

Looking at the topics listed under the headings Interdependencies, the same topics are repeated time and again, firstly emphasising the links and interactions between these topics but also the most important issues that need to be dealt with within the Province.

The following topics occur more than once as being interdependent on each other and need further investigation:

Biodiversity, Climate Change, Human Livelihoods (poverty), Land degradation, Urban and rural development, Energy and Waste, Air Quality, Inland waters (water quality and quantity), Economics, Waste Management.

4.6 INFORMATION GAPS

The SOER 2009 was the only published SOER available for the Eastern Cape. It is incomplete (a draft in progress) and has a lot of information gaps. However, the information contained in the document is more than 13 years old and many of the identified gaps are no longer valid.

The following were identified in the document as gaps under different topics:

- The ENPAT (2001) land cover database is outdated.
- Fine-scale information on land transformation are as yet only available at a scale utilised for the planning

domain covered by the ECBCP.

- The Hoffman Veld Degradation, Soil Degradation and Combined Land Degradation Indices are outdated and require revision.
- Data regarding desertification and soil loss should be collected frequently as these are possible impacts associated with Climate Change.
- Data regarding desertification and soil loss should be collected frequently as these are possible impacts associated with Climate Change.
- Studies considering the impact of climate change have not been conducted for the Eastern Cape, specifically. More specific studies are required regarding the particular dynamics of climate change for the province.
- Lack of detailed river quality data.
- Lack of synthesised gauging weir statistics.
- Lack of detailed ground water quality data.
- In the absence of comprehensive data sets of the occurrence and status of species of conservation concern in the Eastern Cape, the NSBA approach of using land classes as "stand-ins" for biodiversity was adopted. It would have been informative to track the population dynamics of ecosystem keystone species obtained from actual field data.
- Actual data on electricity consumption on a provincial level is scarce. Data is unavailable on a municipal level.
- Numbers of renewable energy connections into Eskom's national grid within the Eastern Cape is not available.
- Actual data in terms of waste generation, most of the figures used in this report are based in estimation though population figures and resultant extrapolation. This is largely unreliable. A more useful indicator to monitor would be the waste generation quantities entering actual disposal sites.
- The number of compliant sewage plants and degree of treatment before discharge needs to be studied.
- Several topics such as Environmental Governance and Human Livelihoods did not even identify the gaps and only had questions marks.

5 LOCAL DOCUMENTATION / STUDIES

5.1 CHRIS HANI DISTRICT MUNICIPALITY SPATIAL DEVELOPMENT FRAMEWORK REVIEW (2015)

In line with the function of the District Municipality to co-ordinate development activities in the district, the District SDF should be taken as a guide to where planning and development initiatives could best be directed by public and private sector agencies seeking to invest in development initiatives in the district. Therefore, the SDF: -

- Identifies the key spatial development features (trends and dynamics) currently applicable in the Chris Hani
  District Municipality;
- Establishes clearly the objectives of the Chris Hani District Municipality in relation to spatial development in its area of jurisdiction, with particular emphasis on clarifying the principles to be followed in the management of such spatial development in the area;
- Identifies the Municipality's strategies and policies that are adopted to achieve its spatial development objectives. These focus on establishing a hierarchy of settlement and delineating Special Development Areas, which are: -
  - Areas where strategic development intervention is required (areas of particular development potential and/or areas where current development activities represent a development opportunity); and
  - Areas where priority spending is required (areas of special need).
- Sets out basic guidelines for a land use management system in Chris Hani District Municipality.

The main changes to the district SDF of 2010 are as follows: -

- Boundary changes as per the demarcation board are reflected;
- Revised Priority Spatial Issues identified on the basis of a new Analysis as well as the revision of the related Spatial Development Objectives and Strategies, in line with the current CHDM IDP
- A revision of the Development Nodes and Corridors as well as the identified Special Development Areas to align with the inputs of the review of the Regional Economic Development Strategy (REDS);
- The inclusion of information emanating from the Special Economic Zone report
- A consideration of the likely requirements related to the implementation of the Spatial Planning & Land Use Management, Act 16 of 2013 (SPLUMA)

5.1.1 A DEVELOPMENT PERSPECTIVE OF CHRIS HANI DISTRICT

The points below set out some of the most distinctive features of the Chris Hani District taken into consideration in the review of the SDF: -

- It is estimated that the total population of the district in 2015 will reach about 813,473 people (approximately 216,600 households), with the highest population densities located in the former Ciskei and Transkei areas. This reflects a reduction from previous estimates (2001 and 2004) and suggests that the district is experiencing a process of outward migration.
- In essence, the Chris Hani District may be defined as a largely land or primary production-based area, where the most important elements of the district economy are derived from state investment and from the consumption and production patterns of the resident population itself.
- From a spatial development perspective, it is clear that the dominant area for economic activity in the district is the Enoch Mgijima municipal area, where some 48% of the total Gross Domestic Product (GDP) of the district is produced. Within Enoch Mgijima, Queenstown remains the main concentration of activity in the commercial, manufacturing, and services sectors.
- It is clear, too, that the small towns in the district remain important as service centres where the local populace can access retail goods and other services.
- Looking at economic development potential, the Chris Hani Regional Economic Development Strategy (REDS) has endorsed 4 specific clusters (or sectors) for prioritisation in the district, these being:
    - (i) The Agricultural, Agro-Processing and Forestry Sector;
    - (ii) The Manufacturing, Construction and Mining Sector;
    - (iii) Tourism & Hospitality Sector; and
    - (iv) The Services, Retail and Logistics Sector.
- The REDS process has emphasised, however, that the sector that is perceived to present the greatest opportunity to build value, create job opportunities and improve economic development in the district is the broadly defined agricultural and forestry sector with its related value-adding activities.
- The REDS has provided the strategic basis for an Agro-Industrial approach to development in the district, which has also taken form in the conceptualisation of a district Special Economic Zone (SEZ).
- The Chris Hani SEZ is proposed to have its Hub at the Queendustria industrial complex in Queenstown.

5.1.2 DISTRICT-SCALE SETTLEMENT HIERARCHY

The SDF Review has identified an amended hierarchy of settlements in order to guide the DM and LMs in the allocation of appropriate levels of investment in infrastructure and services and to be better able to implement appropriate land use management strategies.

It must be noted that the Hierarchy is defined from a district perspective and relates primarily to a consideration of both current status and function of a centre as well as its prospective future status. This takes into account the priority of Small-Town Regeneration, which forms part of the overall strategic approach of the REDS. The hierarchy includes the following types of settlements: District centre, sub-district service centres, local centres, sub-local centres and rural settlements.

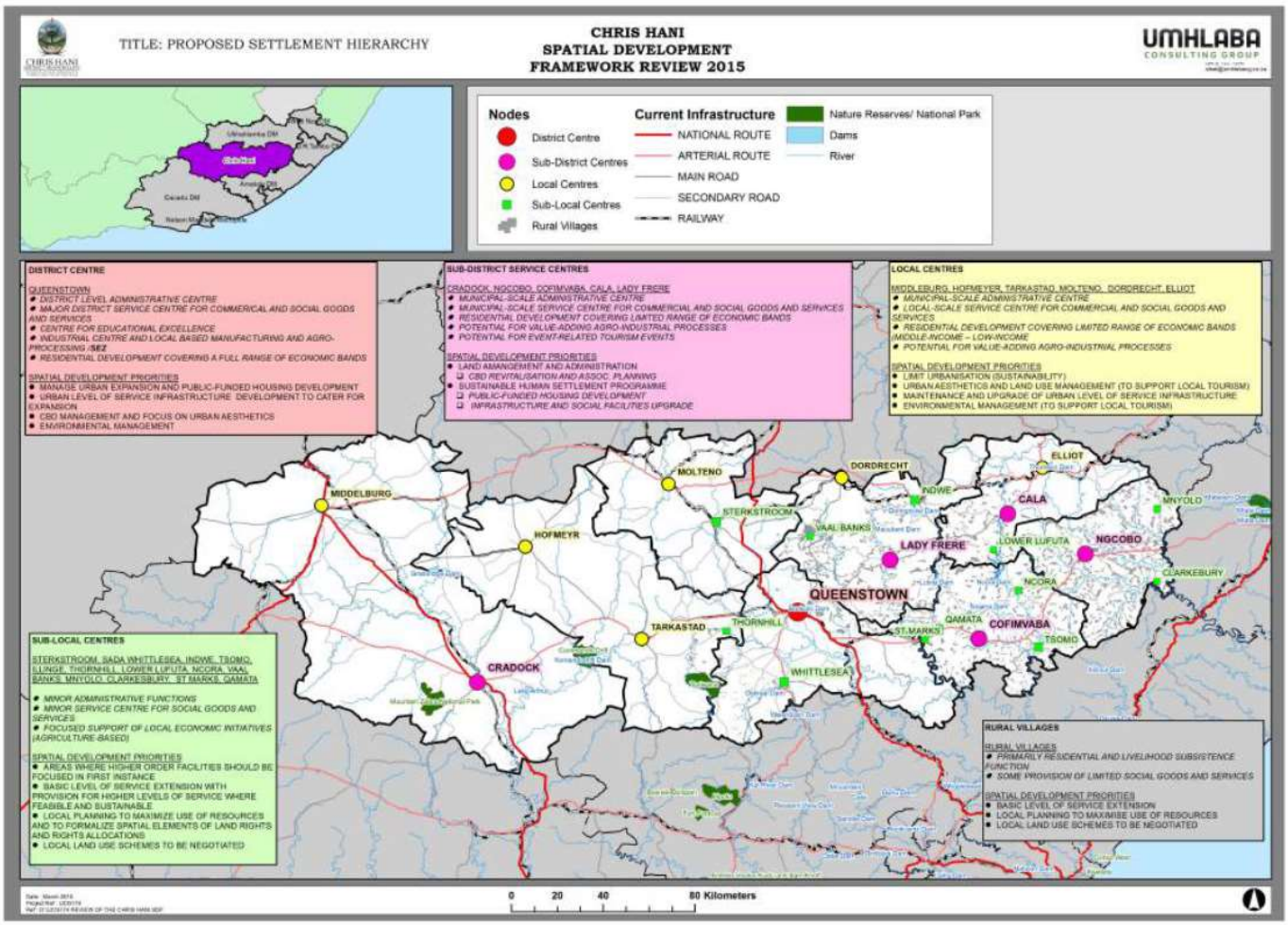

Figure 15: Proposed settlement hierarchy

5.1.3 SPATIAL DEVELOPMENT FRAMEWORK PROPOSALS

In recognition of the need to plan for the maximization of available human and natural resources within a context of achieving sustainability, the CHDM acknowledges that there is a need to focus limited public resources in areas of opportunity in order to achieve maximum impact. From a spatial planning perspective, this means certain structuring elements have been identified to guide future planning and expenditure. These structuring elements are clustered into four main components: -

- The district-scale Settlement Hierarchy;
- Development Corridors aligned with the REDS and the SEZ;
- Special Development Areas defined on the basis of specific development potential and/or development need; and
- Environmental Management Areas

5.1.4 DISTRICT SCALE DEVELOPMENT CORRIDORS

In line with the CHDM REDS and SEZ Key Strategies for economic development, four major corridors have been identified in Chris Hani DM. These corridors form the main “arteries” of the district and connect areas of economic development potential with the key urban settlement centres identified in the District Settlement Hierarchy. They also, for the main part, overlap with the district’s main Tourism Routes.

Table 10: District scale development corridors

Corridor	Description	Key Opportunities (REDS) associated with Corridor
CORRIDOR 1	The R61 from Queenstown through Cofimvaba, Ngcobo to Mthatha	Forestry and agriculture were identified as the two sectors with most economic development potential along this corridor.
CORRIDOR 2	The R56 from Queenstown through Lady Frere and Cala to Elliot	Coal mining and clay-brick making were identified as the two sectors/activities with most economic development potential.
CORRIDOR 3	The N10 from Middelburg through Cradock to Aliwal North	Wool production and wool processing; and chip-board manufacturing were identified as the two activities with most economic development potential.
CORRIDOR 4	The N6 from East London through Queenstown to Aliwal North	The Queendustria SEZ at Queenstown and the Coal belt were identified as two areas with most economic potential in relation to this corridor.

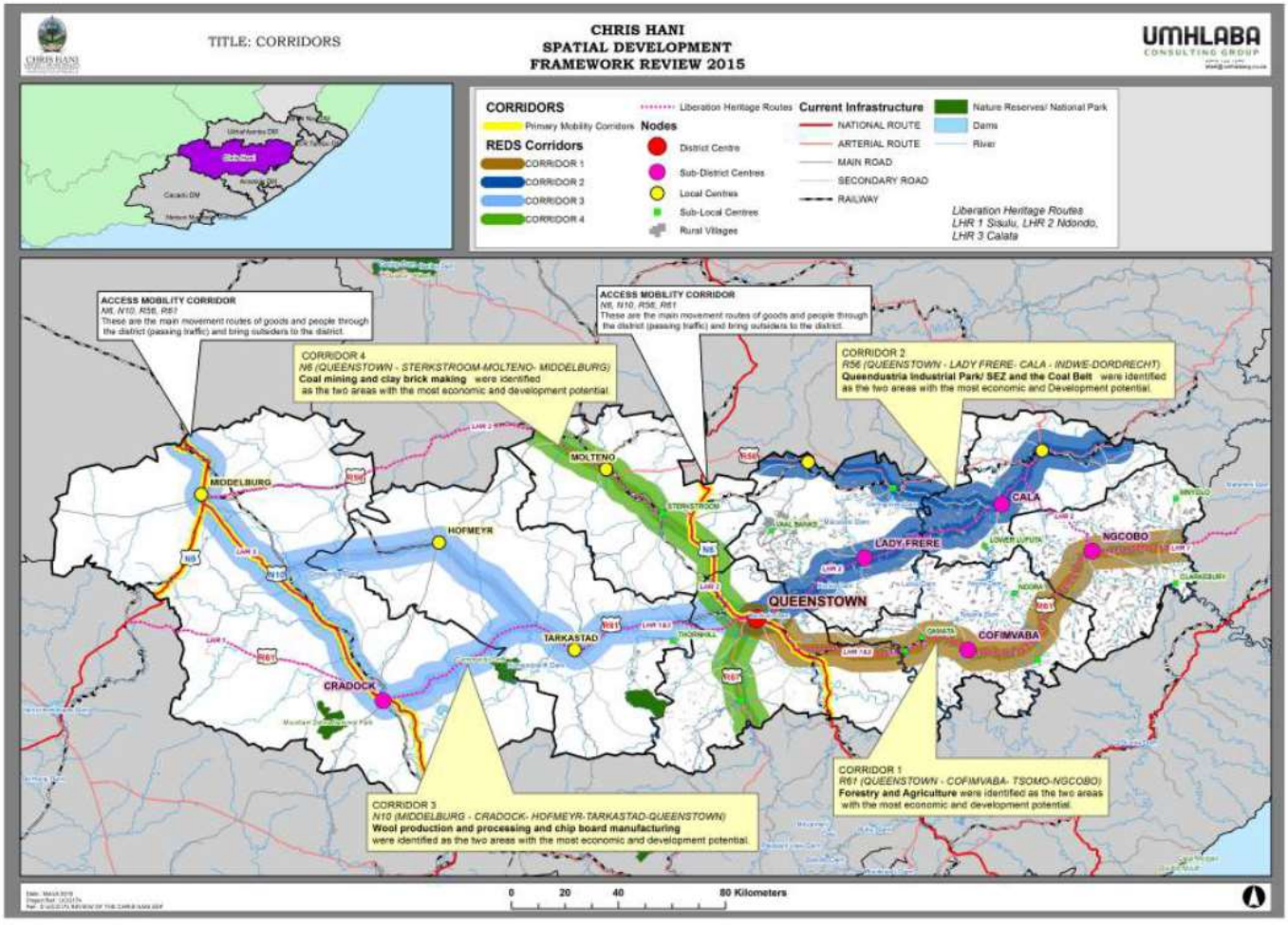

Figure 16: District scale development corridors

It is noted that the REDS specifically links the identification of the above corridors with the notion of targeting the towns (main nodes and smaller urban settlements) linked by these routes for what is termed "regeneration In addition to the notion of targeting the towns along the corridors, these corridors should also be seen in the light of the opportunities that they potentially bring to areas that they pass through. As such, the SDF highlights particular routes that relate to Access and Mobility (movement of people and goods) to, from and within the District as well as the main corridors identified by REDS and related to specific development potentials.

In this regard, the corridors represent key infrastructure that may strengthen and enhance potential value chains as these might relate to a specific cluster of activities (e.g. mining cluster, agricultural cluster, forestry cluster etc.). They thus form a fundamental structural platform for the development of the Chris Hani SEZ, too.

In line with the approach of attempting to direct development according to the Guidelines of the National Spatial Development Perspective, the SDF Review has extended the identification of Special Development Areas in Chris Hani Municipality and has focused on the following categories of SDA:

1. Areas of Local Economic Development Potential

2. Areas of Priority Basic Needs

3. Land Reform & Settlement Zones

5.1.5 MANAGING THE ENVIRONMENT & CLIMATE CHANGE

The final structural component of the overall district SDF relates to the priority of managing the environmental assets and resources of the district to promote sustainability and spatial resilience in the face of land development pressures and the changes being wrought by climate change.

Key elements of the district Environmental Framework are identified as follows:

- The area along the Great Kei River and its tributaries from the Xonxa and Lubisi Dams southwards consists of important valley thicket vegetation. The area north of Ngcobo contains pockets of aframontaine forests. Both these areas are important natural areas, which should be protected.
- The formal protected area network is relatively extensive with the Mountain Zebra National Park (SANP) and the Commando Drift and Tsolwana provincial reserves Formally protected water sources include a number of large water catchments, including the dams:
    - Grassridge, Lake Arthur, Commando Drift, Xonxa, Lubisi and Ncora.
- From a natural resource perspective, the eastern part of Chris Hani District Municipality, the most deprived area within the municipality, has the most potential for agriculture and forestry because of good soils and a relatively high rainfall specifically with regards to:

    - Dryland agriculture for maize production
    - Irrigation and agriculture from the Xonxa Dam, Lubisi Dam and Ncora Dam
    - Forestry in the mountainous areas north of Engcobo

- The western part of the Chris Hani District Municipality is the best endowed with tourism resources such as:
    - Cradock and Middelburg form part of the Karoo Heartland Tourism route whilst Queenstown forms part of the Friendly N6 Tourism Route.
    - Abundant heritage resources in Queenstown, Cradock, Sterkstroom, Molteno, Middelburg and Hofmeyr along the east-west routes from Queenstown namely R61 and R56.
    - The nature reserves along the R61, namely the:
        - Tsolwana and Ntabatemba nature resources
        - The Kommandodrift Dam Nature Reserve
        - The Mountain Zebra National Park
        - The abundance of private game reserves and hunting lodges in the western area.
- The known conservation areas in the Chris Hani District Municipality are listed in the table below. Only two of these conservation areas are under the direct control of a Local Municipality, namely Lawrence de Lange and Longhill (Enoch Mgijima).

Table 11: Known conservation areas in the Chris Hani District Municipality

National Parks	• Mountain Zebra National Park
Provincial Nature Reserves	• Commandodrift • Tsolwana
Municipal Nature Reserves	• Lawrence de Lange

	• Longhill
Private	• Blanco • Striling
Natural Heritage Areas	• Benghoil and Bushy Park • Carnarvon • Mhoge

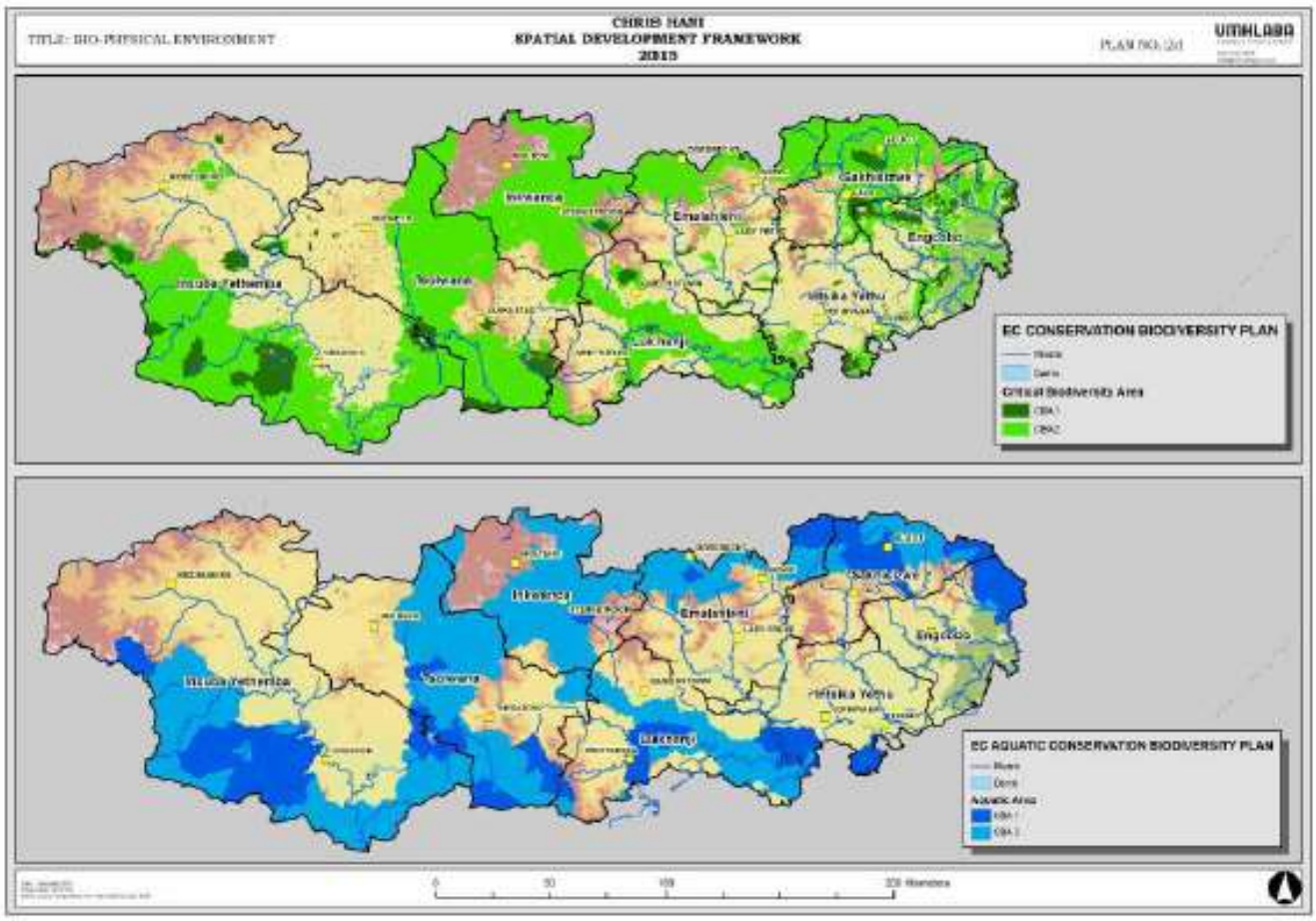

Figure 17: Chris Hani DM Bio-physical environment

5.1.6 LAND USE MANAGEMENT GUIDELINES

The Land Use Management Guidelines contained in the SDF address issues relating to the need for land use management in the district in order to conserve and manage its natural and built environmental assets.

The Guidelines incorporate elements that are seen to contribute towards the goal of achieving a more holistic approach to land use management in the district, as follows: -

- In considering the character of the settlement pattern and typical forms of land use arrangements found in the Chris Hani District, the importance of Land Use Management as an activity that underpins the wise use of resources and contributes directly to economic and environmental sustainability is emphasized;
- Broad input is given on the need to manage relationships and formulate binding agreements and protocols on how to deal with land use management issues in the district. This is a crucial aspect, given the imminent implementation of the Spatial Planning & Land Use Management Act 16 of 2013 (SPLUMA) in 2015.
- Finally, in respect of the concern to ensure a more sustainable approach to urban and rural development, the following is set out: -
    - A proposed framework for categorizing different types of settlement and associating these with typical Levels of Service (LOS) provision is provided, based on previous work done for Land Reform & Settlement

Plans compiled for the Amathole and Chris Hani District Municipalities, 2005;
- Based on the guidelines suggested by the Eastern Cape Biodiversity Conservation Plan, generic land use objectives are incorporated in relation to the different land management classes identified in the Plan; and
- In relation to the hierarchy of settlement set out above, a broad set of guidelines is proposed.

5.1.7 IMPLEMENTATION

The SDF concludes with proposing that land development and planning projects be identified within three key programmes: -

i. A Land Management Programme, which addresses the need to implement projects that will assist the DM and LMs in developing good (wise) land use practices by ensuring an appropriate and user-friendly, district-wide Land Management Information System and setting in place the platform for the implementation of SPLUMA.
ii. A Forward Planning Programme, which concerns itself with ensuring that adequate forward planning takes place to guide and inform land development in LMs and across the district;
iii. A Rural Development & Land Reform Programme, which concerns projects aimed at facilitating and promoting land development and land reform in the rural areas of the district.

Conclusion

This document provides very good spatial data for all the aspect discussed, however it might already be a bit outdated since it dates back to 2015.

5.2 CHRIS HANI DISTRICT MUNICIPALITY INTEGRATED DEVELOPMENT PLAN (IDP) REVIEW 2020-2021

5.2.1 Introduction

The Chris Hani District Municipality (CHDM) has developed and adopted a 5-year IDP (2017-2022).

In addition to the legal requirement obligation in terms of Section 32 of the Local Government: Municipal Systems Act 32 of 2000 for every Municipality to compile an Integrated Development Plan, this Act also requires that:

- the IDP be implemented;
- the Municipality monitors and evaluates its performance with regards to the IDP's implementation;
- The IDP be reviewed annually to effect improvements.
- Section 25 of the Municipal Systems Act deals with the adoption of the IDP and states that:

"Each municipal council must adopt a single, inclusive and strategic plan for the development of the municipality which –

- links, integrates and co-ordinates plans and takes into account proposals for the development of the municipality;
- aligns the resources and capacity of the municipality with the implementation of the plan;
- Forms the policy framework and general basis on which annual budget must be based."

By law the 5-year IDP has to be reviewed annually to accommodate changes as the world changes, meaning the 2017-2022 IDP will be reviewed up to the year 2022. The CHDM Council has adopted an IDP Framework and IDP Process Plan for the development of the IDP Review 2020-2021.

5.2.2 National, Provincial and Regional Planning Framework

All planning frameworks were considered including the NDP 2030, EC-Vision 2030, EC-SDF, Ruling Parties January 08th statement, SONA AND SOPA up to the SODA.

Our Vision and Mission as well as Objectives, Strategies and Programmes are informed by the Development Agenda of the district which is aligned to the National Development Plan 2030 as these programmes seek to address the three challenges that South Africa in general face, which are *Inequality, Poverty* and *Job Creation*. The NDP 2030 seeks to help us to chart a new course. It focuses on putting the things in place that people need to grasp, opportunities such as education and public transport and to broaden the opportunities through economic growth and the availability of jobs. CHDM through the IPED department also focuses on Economic and Social Growth which flows from the Constitution of RSA Sec 152 and Sec 153, the section refers to promotion of Economic and Social Growth.

This IDP Review of 2020-2021 seeks to address exactly those three challenges. Furthermore, the CHDM believes that these objectives, strategies and indicators would lead them to focus on the same principles of "Back to Basics" through the concept of District Development Model.

Vision:

"Leaders in sustainable economic growth and improved quality of life"

Mission:

"To co-ordinate governance and quality service for vibrant communities"

Values:

C = Commitment

H = Humanity

R = Respect

I = Integrity

S = Sincerity

H = Honesty

A = Accountability

N = Nurturing

I = Innovative

In an effort to realise the institutional vision, CHDM has developed 5 Broad Strategic Objective for a period of 5-years and these are the ones that were adopted in the 2017-2022 IDP and are to continue as such even in the 2020 - 2021 IDP Review as aligned to the National key performance areas (KPA's). These are a product of various engagements including Departmental sessions, IDP Sessions held during the period. This is a way of responding to key issues confronting the municipality and as said are aligned to the 5 National KPA's in the 5-year Local Government Strategic Agenda.

CHDM 5 KEY BROAD STRATEGIC OBJECTIVES LINKED TO 5 KPA's

1) To establish and maintain a skilled labour force guided by policies to function optimally towards the delivery of services to Communities.
2) To ensure provision of Municipal Health, Environmental Management and Basic Services in a well-structured, efficient and integrated manner.
3) To ensure development and implementation of regional economic strategies and effective Spatial Planning and Land Use Management approaches as drivers for economies of scale and social cohesion.
4) To Ensure an Effective, Efficient and Coordinated Financial Management that enables CHDM to deliver its mandate.
5) To create an Efficient, Effective, Accountable and Performance-oriented Administration.

A District Framework Plan was formulated and adopted by Council on 28th August 2019 to serve as a guide to all of the local municipalities within the CHDM area of jurisdiction, in the preparation of their respective Process Plans. In brief, the District Framework Plan outlines the time frames of scheduled events/activities, structures involved and their respective roles and responsibilities.

Project area

This section gives an overview of the CHDM and the 6 local municipalities, in terms of their socio-economic context as well as services available.

Socio-economic context

Population

Population statistics is important when analysing an economy, as the population growth directly and indirectly impacts employment and unemployment, as well as other economic indicators such as economic growth and per capita income. The total population of a region is the total number of people within that region measured in the middle of the year. Total population can be categorised according to the population group, as well as the sub-categories of age and gender. With 849 000 people, the Chris Hani District Municipality housed 1.5% of South Africa's total population or 12.0% of the total population in the Eastern Cape Province in 2017. Between 2007 and 2017 the population growth averaged 0.58% per annum.

The Inxuba Yethemba Local Municipality's population increased the most, with an average annual growth rate of 1.03%, the Enoch Mgijima Local Municipality had the second highest growth rate in terms of its population, with an average annual growth rate of 1.02%. The Intsika Yethu Local Municipality had the lowest average annual growth rate of 0.09% relative to the other within the Chris Hani District Municipality.

The population groups include African (93.92%), White (1.84%), Coloured (3.97%) and Asian (0.27%), where the Asian group includes all people originating from Asia, India and China.

Chris Hani District Municipality's male/female ratio was 93.5 males per 100 females, in total there were 439 000 (51.69%) females and 410 000 (48.31%) males in 2017.

The age subcategory divides the population into 5-year cohorts, e.g. 0-4, 5-9, 10-13, etc. The largest portion of the population is within the babies and kids (0-14 years) age categories with a total number of 282 000 or 33.2% of the total population. The age category with the second largest number of people is the young working age (25-44 years) age category with a total portion of 26.8%, followed by the teenagers and youth (15-24 years) age category with 147 000 people. The age category with the least number of people is the retired / old age (65 years and older) age category with only 70 400 people.

Population density measures the concentration of people in a region. To calculate this, the population of a region is divided by the area size of that region. The output is presented as the number of people per square kilometre.

In 2017, with an average of 23.3 people per square kilometre, Chris Hani District Municipality had a lower population density than the average of the Eastern Cape (41.9 people per square kilometre).

A household is either a group of people who live together and provide themselves jointly with food and/or other essentials for living, or it is a single person living on his/her own. An individual is considered part of a household if he/she spends at least four nights a week within the household. To categorise a household according to population group, the population group to which the head of the household belongs, is used.

If the number of households is growing at a faster rate than that of the population it means that the average household size is decreasing, and vice versa. In 2017, the Chris Hani District Municipality comprised of 230 000 households. This equates to an average annual growth rate of 1.46% in the number of households from 2007 to 2017. With an average annual growth rate of 0.58% in the total population, the average household size in the Chris Hani District Municipality is by implication decreasing. This is confirmed by the data where the average household size in 2007 decreased from approximately 4 individuals per household to 3.7 persons per household in 2017.

The per capita annual income in Chris Hani District Municipality is R 36,000 and is lower than both the National Total (R 57,300) and of the Eastern Cape Province (R 40,300) per capita income.

Infrastructure and services

Drawing on the household infrastructure data of a region is of essential value in economic planning and social development. Assessing household infrastructure involves the measurement of four indicators:

- Access to dwelling units
- Access to proper sanitation
- Access to running water
- Access to refuse removal
- Access to electricity

A household is considered "serviced" if it has access to all four of these basic services. If not, the household is considered to be part of the backlog. The way access to a given service is defined (and how to accurately measure that specific definition over time) gives rise to some distinct problems.

The next few sections offer an overview of the household infrastructure of the Chris Hani District Municipality between 2017 and 2007.

Chris Hani District Municipality had a total number of 43 200 (18.80% of total households) very formal dwelling units, a total of 92 200 (40.08% of total households) formal dwelling units and a total number of 31 900 (13.85% of total households) informal dwelling units.

Water

The Chris Hani District Municipality is a Water Services Authority in all local Municipalities within the district in terms of powers and functions as developed by Municipal Structures Act, 117 of 1998. It therefore tasked with addressing a water services backlog. Water supply in larger towns is treated and subject to operational and compliance monitoring while there are small and remote rural communities whose supplies are seldom monitored. The district has 26 Water Treatment Works and out that, four are Boreholes and two are packaging plants.

Regular water quality testing at each of the water treatment works in the District is completed by operators as part of their daily routine. The results are recorded at each plant and are forwarded to the District for processing, interpretation and remedial action taken (if required). Monitoring of water quality at the point of consumption is undertaken by Environmental Health Practioners (EHPs) employed by each municipality in the District.

The DM is a legislated WSA for its entire area of jurisdiction hence it has completed an assessment of alternative water service provision mechanism, as required by Section 78 of Municipal Systems Act. CHDM shares its borders with Ukhahlamba, O.R.Tambo, Amathole and Cacadu of which some villages that are under jurisdiction of CHDM gets some water from those District Municipalities. An example of villages using water resources from other distrcicts are villages at Tsomo as some are under Amathole and others under Chris Hani and importance of inter municipal planning has worked as the area is serviced by Chris Hani although it’s under Amathole District Municipality And vice versa.

All its 6 local municipalities were Water Service Providers but CHDM Council has resolved to take back the function of Water Provision due to various challenged experienced and this has in fact been agreed upon and a Council resolution is in place in that regard.

A household is categorised according to its main access to water, as follows: Regional/local water scheme, Borehole and spring, Water tank, Dam/pool/stagnant water, River/stream and other main access to water methods. No formal piped water includes households that obtain water via water carriers and tankers, rain water, boreholes, dams, rivers and springs.

Chris Hani District Municipality had a total number of 43 400 (or 18.88%) households with piped water inside the dwelling, a total of 49 300 (21.44%) households had piped water inside the yard and a total number of 46 000 (19.98%) households had no formal piped water.

The regions within Chris Hani District Municipality with the highest number of households with piped water inside the dwelling is Enoch Mgijima Local Municipality with 22 600 or a share of 52.18%. The region with the lowest number of households with piped water inside the dwelling is Emalahleni Local Municipality with a total of 1 590 or a share of 3.67%.

Sanitation

The district has sixteen Waste Water Treatment works and five of that are Pond and one is a packaging plant Sanitation can be divided into specific types of sanitation to which a household has access. We use the following categories:

- No toilet - No access to any of the toilet systems explained below.
- Bucket system - A top structure with a seat over a bucket. The bucket is periodically removed and the contents disposed of. (Note: this system is widely used but poses health risks to the collectors. Most authorities are actively attempting to discontinue the use of these buckets in their local regions).
- Pit toilet - A top structure over a pit.
- Ventilation improved pit - A pit toilet but with a fly screen and vented by a pipe. Depending on soil conditions, the pit may be lined.
- Flush toilet - Waste is flushed into an enclosed tank, thus preventing the waste to flow into the surrounding environment. The tanks need to be emptied or the contents pumped elsewhere.

Chris Hani District Municipality had a total number of 88 700 flush toilets (38.58% of total households), 75 700 Ventilation Improved Pit (VIP) (32.92% of total households) and 30 200 (13.15%) of total household's pit toilets.

The region within Chris Hani with the highest number of flush toilets is Enoch Mgijima Local Municipality with 48 700 or a share of 54.90% of the flush toilets within Chris Hani. The region with the lowest number of flush toilets is Intsika Yethu Local Municipality with a total of 3 140 or a share of 3.54% of the total flush toilets.

Electricity

Households are divided into 3 electricity usage categories: Households using electricity for cooking, Households using electricity for heating, households using electricity for lighting. Household using solar power are included as part of households with an electrical connection.

Chris Hani District Municipality had a total number of 13 500 (5.85%) households with electricity for lighting only, a total of 195 000 (84.84%) households had electricity for lighting and other purposes and a total number of 21 400 9.31%) households did not use electricity.

When looking at the number of households with no electrical connection over time, it can be seen that in 2007 the households without an electrical connection in Chris Hani District Municipality was 66 100, this decreased at 10.66% per annum to 21 400 in 2017.

Solid Waste

A distinction is made between formal and informal refuse removal. When refuse is removed by the local authorities, it is referred to as formal refuse removal. Informal refuse removal is where either the household or the community disposes of the waste, or where there is no refuse removal at all. A further breakdown is used in terms of the frequency by which the refuge is taken away, thus leading to the following categories:

- Removed weekly by authority
- Removed less often than weekly by authority
- Removed by community members

• Personal removal / (own dump)

• No refuse removal

Chris Hani District Municipality had a total number of 67 000 (29.12%) households which had their refuse removed weekly by the authority, a total of 4 050 (1.76%) households had their refuse removed less often than weekly by the authority and a total number of 136 000 (59.25%) households which had to remove their refuse personally (own dump).

Comparing the number of households in Chris Hani District Municipality with no formal refuse removal, in 2007 (148 000), to those in 2017 (159 000), there was an annual increase of 0.68%, keeping in mind that the population and the number of households in the DM also increased with 0,58% and 1.46% respectively.

Chris Hani District Municipality is not performing the task of refuse removal but provides support to the 6 Local Municipalities (Enoch Mgijima, Sakhisizwe, Inxuba Yethemba, Engcobo, Emalahleni and Intsika Yethu local municipalities) in order to ensure that these functions are improved. The local municipalities provide high quality standards of waste management services considering their rural nature and economic stress. Waste is collected on a daily basis in town and in urban residential areas and townships the waste is collected twice a week.

There are refuse receptacles in a form of skips and rubbish bins in towns and the refuse removal vehicles, tractors and trucks are not in a good condition and most of the available fleet is dilapidated, therefore maintenance is problematic. Specialized vehicles for waste collection are required in the Local Municipalities and maintenance of waste infrastructure requires an urgent intervention. The waste is disposed in the landfill sites which are managed at a local municipal level and compliance in landfill sites within the District remains an area of concern as there is non-compliance in most of the sites.

CHDM assisted 3 local municipalities by developing their Integrated Waste Management Plans (IWMP's) whilst Intsika Yethu LM, Engcobo LM and Emalahleni LM had already developed their IWMP's. This means that all local municipalities within CHDM have Integrated Waste Management Plans whereby 4 plan still need to be endorsed by the MEC responsible for Environmental Affairs in the Province. The District IWMP was under review in the 2019/2020 financial year and was expected to be tabled to Council for adoption. Through CHDM's partnership with the Department of Environment, Forestry & Fisheries (DEFF previously known as Department of Environmental Affairs - DEA) , Ezibeleni Multi recycling facility, two transfer stations at Ilinge and Lessyton in Enoch Mgijima and one recycling facility in Elliot within Sakhisizwe are assisting on Waste Management programmes that are being implemented in the District. These programmes mainly focus on waste collection, recycling & sorting of waste as well as landfill sites management.

Cemeteries

There are several municipal cemeteries in the district that satisfy the existing service demand but there is urgent need to expand current capacity and ensure that all communities have access to adequate burial facilities.

Cemeteries also need to be secured in order to ensure preservation of heritage and prevent vandalism of graves and tombstones. Almost all the rural settlements in the district have cemeteries of various sizes, shapes and capacities. These rural cemeteries are informally managed by the local communities. They are also located in places the communities find fit, meaning that no proper geo-technical investigations have been carried out to ascertain their suitability in terms of underground water contamination.

Sport Facilities

There are a number of sport facilities within the district. Many sport clubs and codes have a proud tradition and have been going for many years within the district. However, there is a significant lack of sports and recreational facilities within the District, especially in the former homeland areas.

Libraries

Although there are 23 libraries in the district, there is still a significant lack of libraries within the District, resulting in school children and other learners being unable to access information they require for their studies. It is noted, however, that some progress is being made in this regard. Intsika Yethu Municipality with DSRAC has built the library in Cofimvaba Town for the purposes of assisting learners with information. Secondly Through the

liberation Heritage programme another library has been built at Sabalele Village with the collaboration of Chris Hani District Municipality and DSRAC, the library is packed with books to assist the learners around the area of Sabalele. Engcobo still does not have a library.

Health

This section aims to present information on primary health care infrastructure available in Chris Hani DM. There are currently 141 clinics and 10 hospitals within the district municipality. Some of the health facilities within the district require maintenance and upgrading. There are also challenges which are faced by health facilities in the district. They are as follows:

- Poor infrastructure i.e. shortage of water supply, poor road network to access the facilities, lack of telecommunication network due mountainous topography
- Shortage of nurses and doctors

Education

Educating is important to the economic growth in a country and the development of its industries, providing a trained workforce and skilled professionals required.

The education measure represents the highest level of education of an individual, using the 15 years and older age category. (According to the United Nations definition of education, one is an adult when 15 years or older. Furthermore, the age of 15 is also the legal age at which children may leave school in South Africa).

Within Chris Hani District Municipality, the number of people without any schooling decreased from 2007 to 2017 with an average annual rate of 3.70%, while the number of people within the 'matric only' category, increased from 49,600 to 80,300. The number of people with 'matric and a certificate/diploma' increased with an average annual rate of 3.60%, with the number of people with a 'matric and a Bachelor's' degree increasing with an average annual rate of 4.84%. Overall improvement in the level of education is visible with an increase in the number of people with 'matric' or higher education.

Academic institutions in the district include a satellite campus of the Walter Sisulu University which is based in Queenstown and Whittlesea. There is TVET College (Ikhala TVET College) in Queenstown and Ezibeleni. The municipality is also endowed with a number of good primary and secondary schools as well as pre-primary schools.

Roads and storm water

The road network in the Chris Hani District consists of a hierarchy of national, provincial and municipal roads. Two national routes pass through the Chris Hani District in a north-south direction i.e. the N10 and N6. The local Trunk and Main roads link the larger towns and villages and mostly run in an east-west direction. The best example is the R61, which runs from Cradock in the west through Komani to Mthatha in the east. Only 707 km of the total network of nearly 8 900 km in Chris Hani is surfaced.

The overall condition of the road network in the Province and in the Chris Hani District has not improved, mainly due to insufficient funds for maintenance and inherited backlogs. Gravel roads require regular maintenance especially with heavy rains and high traffic volumes as can be seen in the photograph above. From an economic point of view, gravel roads suppress economic development since they lead to high vehicle operating costs and often lead to the damage of crops transported.

SANRAL covers a majority of the paved road network system (1 202.06 kms) in the Chris Hani Municipality as compared to the EC DRPW (336.6 kms). In addition, EC DRWP has a large proportion of unpaved roads that cover a distance of 7963.0 kms. With reference to local municipalities, the Enoch Mgijima Local Municipality has the most paved road network system (235.2 kms) as compared to the others; Emalahleni LM (13.7 kms), Engcobo LM (13.4 kms), IntsikaYethu LM (6.7 kms), InxubaYethemba LM (109.9 kms) and Sakhisizwe LM (14.9 kms). However, there is a significant increase in the number of unpaved road network systems in the same local municipalities with IntsikaYethu LM having the highest number (1699.3 kms).

Water resources

Surface Hydrology

The CHDM falls within four river systems:

- The Great Fish River draining the central / western area southwards;
- The Kei River draining the central / eastern area southwards;
- The Mbashe River draining the eastern area southwards;
- The Orange River draining to the North.

Chris Hani is characterized by a number of major dams, which serve the towns and the various irrigation schemes. The major dams in Chris Hani are:

- The Grassridge Dam between Cradock and Middelburg used as a balancing dam
- The Lake Arthur and Commandodrift Dams near Cradock used for irrigation
- The Xonxa, Lubisi and Ncora Dams between Lady Frere and Ngcobo used for irrigation.
- Xonxa Dam is currently used to support Enoch Mgijima, Emalahleni with water as it has been founded that it has a potential to do that, so water is sourced from there to Queenstown as Enoch Mgijima area has been discovered to be challenged.

Surface Water Yield

Of these the Fish and Kei Rivers are the most significant rivers in terms of the catchment areas in the CHDM. The total surface water available in the district has been estimated from the Eastern Cape Water Resources Assessment as follows:

- Potential maximum yield (including dams and transfers) = 1013.5 mm^3 / annum
- Probable total consumption and losses = 775.8 mm^3 / annum
- Available surface water resource = 237.7 mm^3 / annum

Across the whole district, there is a positive surface water balance and that approximately 23,4% of the potential yield is still available for use, providing drought conditions do not exist. It is however worth noting that the resource is concentrated at the major dams and rivers and as would be expected is not readily or cheaply accessible to all potential users located a distance from these resources.

Water Quality

Municipal Health encompass the following services as detailed in the Constitution of the RSA, part B of schedule 4, and National Health Act, 61 of 2003:

Monitoring water quality and availability, including mapping of water sources. Enforcement of laws and regulations related to water quality management. Ensuring water safety and acceptability in respect of quality (microbiological, physical and chemical), and access to an adequate quantity for domestic use as well as in respect of the quality of water for recreational, industrial, food production and any other human and animal use. Ensuring that water supplies are readily accessible to communities and to the planning, design, management and health surveillance. Ensuring monitoring of and effective waste water treatment and water pollution control, including the collection treatment and safe disposal of sewage and other water borne waste and surveillance of the quality of surface water (including the sea) and ground water. Advocacy on proper and safe water usage and waste water disposal. Water sampling and testing in the field and examination and analysis in a laboratory.

Drainage systems and Biodiversity

The main drainage systems are the tributaries of the Great Fish, Great Kei Rivers and Mbashe river systems, which drain into the Indian Ocean. The western section of Chris Hani District Municipality consists mostly of mixed Nama Karoo veld whilst the eastern section consists mostly of moist upland grassland. What is important

from a conservation aspect is the valley thicket occurring along the Kei and Mbashe River systems and the pockets of afromantane forest occurring north of Ngcobo.

Only two of the known conservation areas in the Chris Hani District Municipality are under the direct control of the municipality, namely Lawrence de Lange and Longhill (Enoch Mgijima). In addition, a National Park (Mountain Zebra National Park), a number of private nature reserves (i.e. Blanco) and three natural heritage areas (i.e. Benghoil & Bushy Park, Carnarvon and Mhoge) are located, at least in part, within the Municipality.

The formal protected area network is relatively extensive including the Mountain Zebra National Park (SANP) and the Commando Drift and Tsolwana provincial reserves. The early selection of protected reserves in the CHDM was based on ad hoc decisions to protect specific mammals rather than objective criteria based on biodiversity mapping. Control of all indigenous forests in the Eastern Cape including the CHDM, was handed over to the Directorate of Nature Conservation of the Eastern Cape Province authorities in 1996, and management plans for these forests are still in preparation. Formally protected water sources include a number of large water catchments, including the dams: Grassridge, Lake Arthur, Commando Drift, Xonxa, Lubisi and Ncora.

Wetlands

Most of the wetlands occur in the Inxuba Yethemba municipality followed by the Emalahleni and Enoch Mgijima areas (4 in each). The Engcobo municipality only have one listed wetland. Wetlands occur in the catchments above the Commando Drift, Elands drift, Grassridge, Lake Arthur and Xonxa Dams.

A number of wetlands are located upstream of the dam immediately west of Dordrecht and above what appears to be the Thrift Dam on the Black Kei, although not marked as such on the topographical map (3226BC). All the riparian wetlands are located within Eastern Mixed Nama Karoo vegetation, with the exception of three found within Moist Upland Grassland (Lemoenfontein, Qumanco and Snowdale-Success) and four within Southeastern Mountain Grassland (Clarke's Siding, Dordrecht Town, Driefontein 188 and Geluksvlei). Springs are an important source of water in the district. They are also used for recreational purposes such as at the Cradock Spa. A number of endorhic pan wetlands occur in the district, two each in the Enoch Mgijima (Coldstream pan, Die Pan wetland complex) and Inxuba Yethemba (Helderwater pan, Rooikop) municipalities and one in the Enoch Mgijima municipality (Rotterdam wetland complex).

The Helderwater pan, Rooikop wetland and Rotterdam wetland complex are located within Eastern Mixed Nama Karoo, whereas the Coldstream pan and Die Pan wetland complex are found within South-eastern Mountain Grassland.

Artificial Wetlands in the form of dams, excavations, solar salt extraction works and wastewater treatment works occur to varying extents throughout the district. Solar salt extraction works have the most restricted distribution, being limited to an area west of Hofmeyr. They are all therefore located within the Enoch Mgijima LM, within the Eastern Mixed Nama Karoo. Although they have been classified here as artificial wetlands they are largely based on existing features, namely Landpan, Middelpan and Soutpan.

Agricultural resources

Agriculture forms one of the key potential growth sectors in the CHDM. The Integrated Agricultural Strategy was developed in 2008 prioritised the following sectors for investment:

- Agro – processing e.g. cheese production
- Livestock farming particularly Goats, Sheep and Cattle
- High Value crop production e.g. hydroponics and bio-fuels
- Advantage of Irrigation schemes

The Competitive Advantage for the district points to the broadly defined agricultural sector as the one with the most potential to contribute to job creation, promoting of livelihoods opportunities and contributing to sustained social and economic growth and development.

The prioritisation of a particular sector implies:

- Dedicated allocation of resources
- Strategic decisions on the distribution of limited resources and funds
- Clear publicly stated focus
- Spin off benefits for other sectors
- Prioritisation within the sector

Whilst crop production and agro-processing sector remain important areas of intervention within the District, the present cost of transport to high volume markets will most likely render local production uncompetitive until substantial economies of scale and consistent quality can be achieved.

Furthermore, the current business model of irrigations schemes has been reviewed in order to ensure the establishment of professional management, encouragement of entrepreneurship, and inclusion of integrated business development support. This sector is of political significance and has the potential to contribute to regional food security, service local markets and social development. This remains an important strategic area of focus for the CHDM and requires a detailed and specific intervention.

The two sub-sectors within the broadly defined Agriculture sector that have the strongest comparative advantage and which are best positioned to result in job creation and improvement in livelihood opportunities are:

- Timber production and processing
- Livestock production and processing

The timber and livestock production and processing sub-sectors are already positioned to significantly contribute to the economic growth and development of the District. These two sub-sectors require “special” attention and are to become the focus of a special purpose vehicle or a regional economic development agency.

The Chris Hani District Municipality is richly endowed with a number of forest plantation resources. Most of these forest plantations are found in Intsika Yethu and Engcobo Local Municipalities and are owned by DAFF. There are also some woodlots and few hectares of category-A plantations (Pine stands) in Sakhisizwe Municipality. The Forestry development in the district is informed by the Regional Development Strategy which highlights matters around forestry. A Forestry Strategy has been developed for the first time as the area has potential and id rich in forestry.

Despite the existence of raw material, land for afforestation and market opportunities, the forestry sector in Chris Hani District Municipality remained uninspiring, with very little significance to and impact on the economy of the region. In order to address this and to take advantage of a number of opportunities that the sector presents, specifically in relation to SMME promotion and community empowerment, Chris Hani Municipality and the Local Municipalities have prioritized forestry as one of the sectors that are key to economic development of the region.

The livestock value chain extends across all corridors in the District, with particular points of focus around the strengthening / establishment of strategically located public goods investments (e.g. abattoirs, tanneries and other value adding facilities.

Livestock farming is an important source of income for both commercial and communal farming. The western part of the region is increasingly turning to game farming especially in the areas around Komani, Cradock, Tarkastad and Molteno. The District Municipality has engaged in partnerships with National Wool Growers Association (NWGA) to improve the quality of wool sheep, develop Wool Growers Associations, train farmers on livestock and veld management and build appropriate infrastructure such as shearing sheds and fences.

The greatest challenge to livestock production remains low skills level, access to land, poor veld and livestock management, limited access to market, limited access to financial and credit access by emerging farmers due in part to insecure land tenure, limited mentoring and information from DRDAR and dilapidated and insufficient infrastructure such as roads, fencing, stock dams and dipping tanks.

Geotechnical considerations

Geology, soils and landform

The District consists mainly of Beaufort sediments intruded by Dolerite. These comprise Shale, Mudstone and Sandstone. The soils in the District area are mainly from the Beaufort and Molteno series of the Karoo sequence. As a result, the soils are poorly developed, shallow or duplex (rocky), which are mostly not suitable for crop production. In the valleys, however, deeper soils do occur. In the Fish River Valley as an example, there are 15 soil forms of which the Hutton, Clovelly and Oakleaf forms (Binomial Classification) are dominant.

Soil salinity is, however, a major problem in the irrigation areas in the Cradock, Hofmeyr and Tarkastad Districts. The soils of the more arid areas of the study area are generally shallow and consist mainly of the Mispah, Glenrosa and Swartland forms. In the flood plains, watercourses and plains, deeper soils of the Oakleaf, Dundee and Valsrivier form are more common.

Air Quality

The Chris Hani DM Air Quality Management Plan (AQMP) describes some background to emission sources and the baseline emissions inventory for the data that is available in the Chris Hani DM. An assessment of the current ambient air quality in the Chris Hani DM is undertaken through this emissions inventory.

Emission Sources

This section contains background information about the different sectors identified in the Chris Hani DM that emit criteria pollutants. These sectors include waste treatment and disposal, agricultural activities, biomass burning (veld fires), domestic fuel burning; denuded land, mining, landfills, vehicle tailpipe emissions and some industrial operations.

Heritage Resources

Chris Hani district municipality has embarked on a tourism development initiative of promoting tourism through the identification of heritage sites such as places of importance, tombs, caves, and places with special, aesthetic, historic, scientific and environmental values. One hundred and two sites were identified, categorized according to their nature, namely whether they are human generated structures or natural artefacts. Out of these, the Chris Hani Liberation heritage route has identified iconic sites and a booklet has been printed containing these sites.

Achievements of CHDM LHR Heritage Route to Date:

- 56 Icons identified and described in Icon Site Guide
- In addition to the Icon Site Guide, a Site Inventory of all Heritage Sites, including non-Liberation Heritage Sites has been developed and is currently in circulation
- Mapping of Icon Sites has been done
- Three Routes defined and described: Sisulu, Calata and Ndondo
- Institutional Framework put in Place (Reference Group at District Level; 8 Steering Committees at Local Municipality level.)
- Heritage Awareness enhanced at grass-roots level through processes of Icon identification, prioritisation and documentation.
- Community Facilitators have been trained, and are thoroughly familiar with the Heritage processes generally and the Heritage resources of the LMs more specifically
- Promotional DVD Has been developed and distributed
- 56 Information sign boards for Icon Sites been developed and erected
- Directional Signage for 40 Icon sites have been erected
- Directional Signboards – 9 National Sites; 13 Provincial Sites
- Training of Tour Guides and Tourism Personnel
- Promotional Material for Tour Guides (One-Day Packages)
- Construction of a giant Statue of Chris Hani at Sabalele Village which is his birth place

Environmental Management

Chris Hani District Municipality has produced an Environmental Management Plan (EMP) which was adopted by Council in 2013-2014 and has been aligned to the current council (2017-2022) in order to point out areas of concern. The plan is reviewed for compliance and alignment annually so as to address current situations. The plan highlights areas of the environment which should be conserved and protected.

Animal and vegetation species and cover are mapped and identified. In addition, present and future environmental problems are identified per local municipality as well as all renewable resources. It highlights that:

- The DM appoint dedicated environmental staff which has since been done
- The DM develop an integrated environmental management system
- The DM implement pollution control measures such as air pollution monitoring stations
- The DM assist to develop the capacity of its LM's to deal with environmental issues
- The DM undertake environmental impact assessments (EIA's) for all of its current and future project which is done currently by the municipality on all its projects that require EIA

However, the District Municipality has been struggling to finance the implementation of this plan especially regarding pollution control mechanisms.

The Environmental Management mandate is underpinned by the Constitution and all other relevant legislation and policies. The Environmental Management unit is mandated to give effect to Section 24 of the Constitution which is further realized by the National Environmental Management Act 107 of 1998, wherein it is stated 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 legislative and other measures that prevent pollution and ecological degradation, ensuring conservation and ecologically sustainable development and use of natural resources.

Critical to this unit is the development of Environmental Planning Tools (i.e. Environmental Management Plan, Climate Change Strategy etc.). These planning tools were developed in collaboration with all other interested and affected stakeholders. The strategic documents were adopted by Council in June 2018 and seek to address adaptation & mitigation measures in an attempt to conserve the natural resources that exist within the district.

Climate Change

Climate change is defined as the statistical significant and lasting change in the characteristics of the climate system. Besides natural processes, climate change may result from human activities, as is the case with the current climate change concerns. The major concern as a significant of climate change is the increased emission of greenhouse gases, e.g. Carbon Dioxide, Methane, Nitrous oxide and Halocarbon gases that contain fluorine, chlorine and bromine – mainly used in aerosols.

The Impact of Climate Change and International Efforts to deal with the Challenge:

A key characteristic of the current climate change is global warming which refers to the general increase in surface temperatures across the world. The main concern and urgency about dealing with climate change is that the process is irreversible. Scientific evidence gathered from different research activities around the world strongly indicate that the climate is changing and the main contributor to these changes are human activities.

The use of fossil fuel, e.g. coal, in energy generation is one of the major producers of greenhouse gases which are destroying the atmosphere resulting in the increase in surface temperature due to ozone depletion. Other factors that contribute to the climate change include the use of aerosols, cement manufacture, animal agriculture and deforestation.

Some of the noticeable effects from climate change in South Africa include the change in the type, distribution and coverage of vegetation which has affected agricultural activities, especially in rural areas like Chris Hani District Municipality (CHDM) and areas with semi-desert especially the Eastern Cape Province. South Africa is already experiencing some effects of change in climate such as the recent extreme weather patterns e.g. very hot and cold seasons and heavy rains and flooding, with droughts hitting other parts of the country, these do not follow the known or anticipated climatic conditions.

South Africa is a water scarce country, and this natural resource is seriously threatened by the current global warming that characterizes climate change. At provincial and local government levels including District like CHDM, this will require more collaboration in seeking solutions and adapting so that the contributing factors to this phenomenon are reduced.

It is within this background and within the context of South Africa's experiences and unique conditions that it has been deemed fit to develop and spearhead the programme on Climate Change within our CHDM, as part of a District wide adaptation strategy. The Department of Environment, Forestry & Fisheries is in the process of finalizing that Climate Change Bill which will further assist the Country in addressing issues of Climate Change.

CHDM is involved in the process of developing the Climate Change Bill as it is an Interested & Affected party. The District Climate Change Strategy is aligned to the requirements provided for in the Draft Climate Change Bill. The Climate Change Strategy also promotes the involvement of communities and schools in climate change related projects implemented by Government. CHDM, the Department of Economic Development, Environmental Affairs & Tourism (DEDEAT) and Wildlife Environment Society of South Africa (WESSA) are currently rolling out a sustainable resource management project in schools, using the robust integrated biogas and algal sanitation system linked to agro-ecological food garden production, that is linked to a number of positive social, financial and local economic impacts.

5.3 SAKHISIZWE LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN (IDP) REVIEW (2021/2022)

MUNICIPAL OVERVIEW

The Sakhisizwe Local Municipal Area consists of 9 Wards as reflected in the map below. The main administrative centre is located in Cala (Ward 5). Khowa (Ward 1) serves as a secondary administrative centre with some offices like Budget and Treasury located there.

With 66 200 people, the Sakhisizwe Local Municipality housed 0.1% of South Africa's total population in 2018. Between 2008 and 2018 the population growth averaged 0.42% per annum which is significant lower than the growth rate of South Africa as a whole (1.61%). Compared to Chris Hani's average annual growth rate (0.67%), the growth rate in Sakhisizwe's population at 0.42% was close to half than that of the district municipality.

Sakhisizwe Local Municipality's male/female split in population was 95.5 males per 100 females in 2018. The Sakhisizwe Local Municipality appears to be a fairly stable population with the share of female population (51.16%).

In 2018, the Sakhisizwe Local Municipality's population consisted of 97.89% African (64 800), 1.06% White (702), 0.79% Coloured (525) and 0.25% Asian (168) people.

Economic Corridors/Nodes

Development Corridors

Development corridors include transport routes linking various parts of the municipality and the district, usually associated with the movement of people, goods and services between nodes. They have the potential to accommodate mixed land uses, agriculture, forestry, tourism and mining activities.

Mobility routes, for example, tend to focus on transporting people, goods and services between nodes. They can also perform as commercial activity routes where retail land use tends to be consolidated along the main transport routes. The major roads especially "district roads" normally with economic activities in the municipality are classified as primary, secondary and tertiary corridors.

Key transportation and accessibility corridors in the Sakhisizwe LM, which need improvement include:

- R393 from Cala – Khowa (Elliot);

- R56 from Khowa (Elliot) – Maclear in Elundini LM;
- R410 from Queenstown (Komani) – Upper Lufuta – Cala; and
- R58 linking R393 to Dordrecht.

In addition to these main corridors, there is a network of smaller minor roads linking various farming and rural commercial activity areas within the municipality.

Corridor Economic Opportunity

North-East Corridor (Corridor 2)

Agriculture, agro-processing and forestry are still the most dominant sectors along corridor 2, although there is need to clearly understand the value chain combinations. There are a number of primary agricultural products produced along the corridor which are converted into semi or finished products in other areas outside or along the corridors. There is also evidence of reduplication of activities that need to be reversed or corrected. Although the application of value chain analysis is debatable in service sectors, there is need to explore on how best the corridor can take advantage of a numerous economic opportunities dotted along the corridor. There is also a potential of building value chain combinations in manufacturing and mining sector along the corridor with Queenstown and its infrastructure technology and road networks playing as the hub of transforming primary goods into secondary goods.

Corridor 2-North West Corridor Opportunities

In Sakhisizwe, communication infrastructure is modest, with operational rail facilities and an air transport facility. In terms of quality of life, the corridor has adequate access to water supply, electricity, shelter, education and health facilities.

On economic infrastructure, it is fairly developed within the in Sakhisizwe.

An analysis of the economy of Emalahleni LM indicates that the local economy has a comparative advantage in agriculture and according to study conducted by ARC for Ruliv the following agricultural potential has been identified – cattle (beef), sheep farming, maize production, sorghum, irrigation potential for a further 5500 hectares at Xonxa and Lubisi Dams as well as irrigation at the Guba Farms, fresh water fish production in the Doring River Dam, Aloe juice industry and other local projects (beekeeping and mushrooms). Besides agriculture, the municipality has a comparative advantage in retail, community services, tourism, mining and manufacturing. The area has high agriculture expansion potentials, especially in wool and irrigation schemes.

The Sakhisizwe Municipality claims a range of leading products, including sheep, goats, cattle, sunflower and maize. Additional products identified as sustainable include a full range of grain, nuts, fruit and vegetables, as well as fodder and processed meat. Forestry and tourism are other important sectors.

In Sakhisizwe land identified as suitable for forestry is under-utilised, presenting high potential for further agricultural development, particularly for dry land maize, potatoes and beans as well as irrigated maize. Potential exists for local production and marketing of vegetables, while high grazing potential favours livestock farming.

In terms of tourism development, Sakhisizwe falls within the “Friendly N6” tourism region and is closely tied to the Maloti (Lesotho) Route, geared at tourism opportunities around the theme of Xhosa culture, while the landscape of the area is identified as an opportunity for game and eco-tourism.

In mining, there is an untapped mineral resource planned for exploitation near Indwe, namely low grade coal deposits. There is a need for the local municipality to develop a mining sector plan that will try to untap the potential of this sector. There is also an urgent need to improve the state of the roads around the local municipality in order to aid development of all the sectors, since good road network are prerequisites of development

This corridor has huge forestry resources (existing and potential) in the District and forestry has a potential to become one of the most productive sectors in the local economy of the corridor with approximately 9 679 hectares of land under forestry in Sakhisiswe local municipality. Currently new afforestation potential within the two municipalities within the corridor amount to 88 406 hectares.

There is a charcoal manufacturing plant in Sakhisizwe LM which uses gum and wattle as raw material. Mondi has established in the area, having bought out many farms and planted them to timber in Sakhisizwe, although their regional offices and staff are housed in neighbouring Ugie (Elundini).

On the Sector Performance the greatest contributor to the GGP within the corridor is the community and social services sector which employs about 33% of the workforce on average. In Sakhisizwe LM, private households and agricultural sectors employ 21% and 17% respectively. Besides these two the following are the key drivers of the local municipality: cultural tourism, construction, transport and storage, and finance and insurance.

Development Nodes

The District Spatial Development Framework (2009/2010) has identified a hierarchy of development nodes in order to guide the DM and LMs in the allocation of appropriate level of investment in infrastructure and services as well as the implementation of land use management strategies. Within the parameters of the proposed hierarchy of nodes, the SDF endorses the REDS strategy of targeting the regeneration of towns (service centres) located along the major corridors in the District, but with the caveat that the Principle of Investment in realistic opportunity should prevail and investment should follow feasibility study outcome in all cases, rather than a blanket prescript, as reflected in the Table below:

Urban Nodes		
Node Type	**Location**	**Spatial Development Priorities**
Level 3 Major Development Node	Queenstown Retail, Industrial and Admin. Node Centre of Excellence for Education Experiencing population influx	Managed urban expansion and public-funded housing development Infrastructure development to cater for expansion CBD Management and focus on urban aesthetics Environmental Management (Game Reserve)
Level 2 Major Centres	Cradock, Ngcobo, Cofimvaba, Lady Frere, Cala Retail and service nodes Administrative and social facilities serving surrounding rural areas	Land Management & Administration (CBD Revitalization and associated planning) Sustainable Human Settlement Programme (*Public-funded housing development)* *(Infrastructure and social facilities upgrade*)
Level 2 Minor Settlements	Middelburg, Hofmeyer, Molteno, Tarkastad, Khowa, Dordrecht, Sterkstroom, Sads/Whittlesea, Tsomo, Ilinge Smaller retail and service nodes Administrative and social facilities serving surrounding rural areas	Limited urbanization (sustainability) Urban aesthetics and land use management (tourism) Maintenance and upgrade of infrastructure

		Environmental Management (tourism)
Level 1 Minor Settlements	Minor Settlements	Basic level of service extension Local planning to maximize use of resources Local land use schemes to be negotiated
Rural Nodes		
Node Type	**Location**	**Spatial Development Priorities**
Level 2 Rural Node	Thornhill, Lower Lufuta, Ncora, Clarkesbury	Areas where higher order facilities should be focused Local planning to maximize use of resources Local land use schemes to be negotiated
Level 1 Rural Villages	Rural Villages	Basic level of service extension Local planning to maximize use of resources Local land use schemes to be negotiated

Land Reform, Rural Development and other Development Priorities

The following are key priorities and strategic development goals of SLM in 2017/2022

1) Service Delivery

- Strategic Goal: Eradicate backlogs in order to improve access to basic infrastructure and services and ensure proper operations and maintenance by 2022
- Intended outcome: Sustainable delivery of improved services to all households (in line with the term of council, 2017 – 2022) 2) Local Economic Development
- Strategic Goal: Create an enabling environment that promotes the development of the local economy and facilitate job creation
- Intended outcome: Improved municipal economic viability (in line with term of council, 2017 – 2022).

2) Financial Viability

- Strategic Goal:

To improve overall financial management in the municipality by developing and implementing appropriate financial management policies, procedures and systems

- Intended outcome: Improved financial management and accountability (in line with terms of council, 2017 – 2022)

3) Good Governance & Public Participation

- Strategic Goal: Promote a culture of public participation and good governance.
- Intended outcome: Entrenched culture of accountability and clean governance (in line with term of council, 2017 - 2022)

4) Municipal Institutional Development & Transformation

- Strategic Goal: Improve organizational cohesion and effectiveness.
- Intended Outcome: Improved organizational stability and sustainability (in line with the term of council, 2017 – 2022)
- Ensure a fully functional, responsible, accountable and responsive administration by 2022.

5) Spatial Planning and Land Use management

- Strategic Goal: Improve overall use and management of land and environment
- Intended Outcome: Sustainable planning and use of Land resource and care for the environment

The municipality is not a housing authority and therefore their role is often limited to administrative support like processing of beneficiary applications for subsidized housing linked to rural development and land reform initiatives.

The Development Impact Perspective: In this perspective the municipality will need to assess whether the desired development impact in the municipal area is being achieved. This perspective will constitute the development priorities for the municipal area and indicators that tell us whether the desired development outcomes are being achieved. It will be difficult to isolate development outcomes for which the municipality is solely accountable. It is expected that the development priorities and indicators, will often lie within the shared accountability of the municipality, other spheres of government and civil society. The measurement of developmental outcomes in the municipal area will be useful in telling us whether our policies and strategies are having the desired development impact.

Water and Sanitation

Provision and governance of water and sanitation services in all our areas is a competence of the district municipality. We only play a facilitating role as Sakhisizwe municipality.

The backlog for basic water supply is 46% which is a slight improvement over 48% in 2011. Sanitation backlogs remain high (51%) so much so that our municipality will not be able to meet the goal of wiping our backlog for household access to basic level of sanitation (VIP toilet). 13% of households are served with below RDP level VIPs and another 26% still uses chemical toilets while 10% received no access to the service at all.

Waste and Environmental Management

Environmental Management

Sakhisizwe LM is assigned power and function for air quality management but is currently unable to fulfil this mandate due to lack of skills and staff with environmental management capacity. We hope to remedy this situation as soon as our operational budgets allow.

In the meantime, SLM will rely on support from other spheres of government (CHDM, DoEA and NGOs) to assist with planning, monitoring and production of state of environment reports as required by NEMA.

Climate Change: Sakhisizwe area experiences warm moist summers; cold dry winters and snow during the winter months. Some parts of the area also experience thunder for about 60 days a year.

EIAs – our PMU has identified all projects in our capital programme that will require EIAs and have set in place a process to ensure compliance during implementation. Support from the Department of Environmental Affairs on this regard will also be sourced as and when required.

The following are general ***environmental challenges*** facing Sakhisizwe LM:

Funding and Policing: Since this is largely a competence of other spheres of government it is difficult for our council to properly budget and provide resources for the required policing (by-laws and enforcement staff) of environmental transgressions. However, through a partnership arrangement with CHDM our municipality will be allocated dedicated public health inspectors who shall initially also be extended to undertake certain environmental management activities on our behalf. The staff will be located in our local offices.

Capacity Challenges: due to lack of internal capacity and human resource provision in our current structure, we are unable to undertake important functions of environmental planning and monitoring. Often, we react to disasters because we do not have appropriate plans to forecast and implement preventative interventions.

Lack of provision for green spaces: our towns are characterised by dire lack of public and recreational parks. The former land allocated to these activities has unfortunately been taken over by speculative development in Cala town and poor maintenance in Khowa town centre. Local inhabitants do not have descent areas where they can take their families for a picnic or kids to play.

Flooding & Soil Erosion: Due to prevalent terrestrial summer rains often accompanied by storms and thunder and coupled with weakened soil cover, flooding and erosion is common. The flooding problem is also compounded by our prevailing mountainous and high gradient sloping topography.

Drought: due to long periods of nil rain and poor protection of rain water gained during summer rains the areas of Sakhisizwe experience periodic droughts which in turn leads to degeneration of environmental assets as activities like overgrazing become unavoidable.

Decaying urban aesthetics: due to poorly organized refuse collection and waste management programmes coupled with lack of enforcement of local by-laws for town planning, our CBD is characterised by litter and remains from burst water mains. The town of Sakhisizwe is in a state of gradual urban decay and need urgent attention.

Roaming animals: due to broken and sometimes non-existent fences along grazing areas and abutting villages to main roads, roaming animals on our roads and even town streets are common phenomena. These animals are often responsible for accidents on our roads.

Natural Environment Analysis

Topography: The Sakhisizwe municipal area comprises gently undulating “table land” forming the Drakensberg foothills. Elevations in the area range between 750m to 2600m above sea level. The soil types vary according to topography. The low-lying area is characterized by soils with high clay content (highly erodible) and the surrounding hills consist of strong litho-soils. Size of municipality is 2556 km².

Vegetation: The vegetation of the area is composed of sweet and sour Grassveld. Trees and shrubs occur on sheltered sites, rocky hills and ridges. Dohne Sourveld is the most common transitional forest and shrub type and the sweet grass is dominated by Redgrass Themeda triandra. Unimproved Grassland make up (76%), with Cultivated Dry land (9%), Degraded Unimproved Grassland (6%), Forests Plantations (2.5%), Thicket Bush land (2.2%) and Built Up Areas (1 %) making up the balance.

Environmental Development Constraints: Overgrazing - poor farming practices, lack of stock rotation control. This in-turn leads to degradation of vegetation, soil erosion and increase in invader plants.

Invader plant species - especially wattle along drainage features. Infrastructure services (lack or poor positioning thereof) - including cemeteries, insufficient sanitation systems, waste disposal and the potential impact on ground and surface water sources.

Waste

A distinction is made between formal and informal refuse removal. When refuse is removed by the local authorities, it is referred to as formal refuse removal. Informal refuse removal is where either the household or the community disposes of the waste, or where there is no refuse removal at all. A further breakdown is used in terms of the frequency by which the refuge is taken away, thus leading to the following categories:

- Removed weekly by authority

- Removed less often than weekly by authority
- Removed by community members
- Personal removal / (own dump)
- No refuse removal

Sakhisizwe Local Municipality had a total number of 2 460 (13.57%) households which had their refuse removed weekly by the authority, a total of 225 (1.24%) households had their refuse removed less often than weekly by the authority and a total number of 12 500 (68.75%) households which had to remove their refuse personally (own dump).

Refuse collection is a primary competence of the SLM. Currently the municipality is providing this service to largely few urban based households and businesses. Similarly, for cleansing and street cleaning, only the urban centres of Sakhisizwe receives this service.

The main challenge for rendering both these services is aging infrastructure that is prone to regular breakdowns and unplanned stoppages. Further, expansion to rural and outlying rural areas is difficult to achieve under such circumstances. In these areas households are either using own mechanism to dispose of their waste and refuse or dump illegally anywhere which leads to degradation and costly damages to our environment.

A landfill site is being prepared to accommodate waste and refuse collected in Cala and Khowa by SLM. This is located near Cala Town and is operational. In Khowa we have been funded by environmental affairs for establishment of Khowa transfer site and currently construction is underway.

The municipality is also engaged local economic development opportunities by promoting and supporting implementation of recycling projects linked to the landfill site, Backlog for provision of refuse removal remains high.

The unfortunate lack of provision in rural areas creates an unfair urban bias and spatial inequalities when comparing rural to urban household's access to refuse collection service. The section below uses Global insight statistics of 2010 to give an indication of coverage for refuse collection by household access to a level of service within Sakhisizwe municipality.

Sakhisizwe LM is not an authority for waste management. The CHDM is responsible for developing policy and guiding plan (IWMP) in our areas. As Sakhisizwe is contributing by collaborating the DM on the implementation of the adopted plan as well as participating in influencing priorities during planning. To this extend, we are committed to adapt the existing CHDM IWMP and customise it for our own context during 2014 in order to guide our interventions and waste management activities.

In terms of infrastructure for waste management, they currently operate 2 landfill sites (permitted in terms of NEMA) in Cala and Khowa. The site in Cala which is to be utilised as the primary dumping place is being upgraded to meet required standards and will be in full operation soon.

The municipality has identified as a priority, the need to conduct community awareness campaigns aimed at promoting the following objectives:

- Sensitivity to environmental impact arising from illegal and improperly disposed waste
- Sorting of waste at household source to enable smooth implementation of planned recycling interventions
- Community mobilization toward improved culture of effective waste management
- Empowerment of local operators and enterprises in the waste sector
- Dissemination of information to empower communities and entities involved in waste management
- Coordinating the implementation of the adopted CHDM IWMP programmes

Culture and Tourism

The District has a rich history and natural resources and the scenic beauty of the Province provides valuable products for the tourism and wildlife industry, with potential to generate considerable economic revenue from

nature reserves, game farms and hunting lodges. These resources are untapped and are not adequately budgeted for within the District and local municipalities. The District has access to a number of major routes, the friendly N6 and the N10 which link the District with East London, Bloemfontein and Port Elizabeth and the R61 linking Queenstown with Mthatha and the Wild Coast.

As indicated earlier the region's emergence as a malaria free game farming and nature reserve location has contributed to tourism revenue, a trend that looks set to continue. The growth of this sector may crowd in private sector investment and support the emergence of supporting industry and services. The District has one national park (Mountain Zebra National Park), two nature reserves in Enoch Mgijima, two game reserves (Tsolwana, Lawrence De Lange) and private game reserves and game farms.

There are also new establishments that include the promotion of heritage sites. The friendly N6 provides an opportunity for tourism development as it links the wild coast and sunshine coast to the hinterland. In addition to this opportunity there are many Anglo-Boer War memorials, places related to struggle heroes and Bushmen paintings. The District is currently focusing its tourism activities on branding and marketing the various activities available. In addition, cultural and heritage sites are being marketed through the Great Karoo biosphere concept and creating linkages to the Madiba heritage route through the development of a Chris Hani Liberation Heritage route. A tourism centre will also be developed in Queenstown. These plans will be expressed in the local municipal tourism sector plans and the District tourism plan.

One hundred and two sites were identified in the Chris Hani District Municipal area, categorized according to their nature, namely whether they are human generated structures or natural artefacts. Out of these, the Chris Hani Liberation heritage route has identified iconic sites and a booklet has been printed containing these sites.

5.4 EMALAHLENI LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN (IDP) (2021/2022) REVIEW

MUNICIPAL OVERVIEW

Emalahleni is a category B municipality situated within the Chris Hani District of the Eastern Cape Province. It consists of the three main urban nodes being the towns of Cacadu, Indwe and Dordrecht surrounded by a large rural settlement s and many surrounding villages.

Economic Corridors/Nodes

Development Nodes

Nodes are generally described as areas of mixed land use development, usually having a high intensity of activities involving retail, traffic, office, industry and residential land uses. These are the places where most interaction takes place between people and organizations, enabling most efficient transactions and exchange of goods and services. Nodes are usually located at nodal interchanges to provide maximum access and usually act as catalysts for new growth and development. The analysis of trends and development opportunities establishes a clear spatial pattern for the Vaalbank Development Node study area.

The proposed nodes are captured in the table below and illustrated on the plan below to show the spatial locations of the nodes.

Type	Area	Function
Rural Nodes	Lower Vaalbank	• A proposed Rural Service Node according to the CSIR threshold should allow a travel distance of 5km/1hour travel by foot to access its public facilities. • Areas where medium order community facilities can be bundled in order to ensure that a greater number of rural residents are served in a more efficient and effective way.

		• Ideally, these and future rural service centres are located in close proximity to public transport routes to ensure maximum accessibility to facilities. • Local planning to maximize use of resources. • Local land use schemes to be negotiated.
Business Node	Vaalbank Intersection Business Node	• Proposed Business Hub. • Local land use Schemes to be negotiated.
Mixed Development Node	Mngungu Qwugqwarhu Bhogo-A Mgqukhwebe- A Gcina-G Swartwater Dum-Dum Sidwadweni	• A proposed Mixed Development Node according to the CSIR threshold should allow a travel distance of 5km/1hour travel by foot to access its public facilities.

Development nodes are considered as those towns where a number of functions which are believed to be urban are found, it is where there is activity and there is infrastructure to support it; such as – Residential, Commercial, Retail buildings. They are located on transport routes to provide new growth and development.

As such, they are areas where the following should be prioritised: Appropriate levels of development investment in infrastructure and appropriate land use management to promote preferred development outcomes. Municipalities need to identify nodes in order to allocate appropriate levels of investment in infrastructure and

NODE	NAME	ROLE	SPATIAL DEVELOPMENT PRIORITIES
PRIMARY URBAN DEVELOPMENT NODE (Sub-District Service Centre)	CACADU TOWN (Formerly known as Cacadu)	❑ Main Retail, Commercial, Industrial & Administration (Govern. Services) Node ❑ Main Centre for Social Services ❑ Residential Function for permanent and temporary residents ❑ Potential for agro-industrial processes ❑ Promote diversity of tourism: leisure, heritage ❑ Key linkage to Komani (Queenstown) – Main regional centre in the District.	▪ Managed urban expansion and Public Funded Housing Expansion ▪ Urban – Rural interface design and management ▪ Infrastructure development and maintenance to support businesses and residential property ▪ Business Centre Management and focus on Urban Aesthetics ▪ Improved pedestrian and vehicular linkages between suburbs in town and between towns (key economic towns/nodes). Prioritise linkage to higher order nodes. ▪ Social facilities: Focus on Education/Health and ECDC's, cemeteries. ▪ Environmental management and conservation
SECONDARY URBAN DEVELOPMENT NODES (Local Service Centres)	DORDRECHT & INDWE	❑ Local-scale retail, industrial and administration nodes ❑ Service centres to rural areas ❑ Cater for permanent and temporary residents ❑ Potential for value- ❑ adding agro-industrial mining processes ❑ Potential for tourism services and facilities	▪ Managed urban expansion and Public Funded Housing Expansion ▪ Infrastructure development to support business, tourism and residential expansion potential ▪ Business Centre Management and focus on Urban Aesthetics ▪ Improved pedestrian and vehicular linkages between suburbs in town ▪ Social facilities: Focus on Education/Health and ECDC's, cemeteries/agricultural schools. ▪ Environmental management and conservation
RURAL NODES (Sub-Local Service Centres)	VAALBANKS, XONXA, NDONGA, MACHUBENI, CUMAKALA	❑ Commercial and Social Facilities serving surrounding rural areas	▪ Basic level of service provision and extension ▪ Augmentation and upgrade of existing commercial / agricultural infrastructure ▪ Local planning to maximise use of resources ▪ Appropriate land use management and Administration: Local land use schemes to be negotiated. ▪ Environmental Management is critical ▪ Community engagement: participatory planning and project programmes
Rural Settlements	ALL OTHER RURAL SETTLEMENT	❑ Providing residents with necessary infrastructure and services	▪ Ensure proper access to higher order nodes to access higher order services and facilities ▪ Ensure necessary basic services, infrastructure and social facilities. ▪ Planned settlement edges for expansion ▪ Environmental Management is critical
Mobility Routes	❑ R393 (Queenstown –Cacadu Town – Cala) ❑ R392 (Dordrecht – Queenstown) ❑ R56 (N6 – Dordrecht –Indwe –Elliot)		▪ These routes carry passing traffic and provide access between local areas in Emalahleni and centres further afield. ▪ Spatial Planning Priority is to manage settlement development along the Primary and Secondary Movement corridors to mitigate impacts of settlement on the road
Municipal Activity/ link Corridor	❑ Vaal Banks –Cacadu Town (former - Cacadu) ❑ Cacadu Town –Xonxa –R61 ❑ Cacadu Town – Machubeni –Indwe ❑ Cacadu Town -Zingqolweni		▪ Linking areas of development potential to Movement Corridors and Urban centres
Development Corridor	❑ North -East Corridor		▪ Corridor of district and municipal-level economic importance
Special Routes (Tourism)	❑ Farm-stay Route (Queenstown –Dordrecht- Indwe – Cacadu Town (former Lady Frere)– Queenstown) ❑ Liberation Route (R393)		▪ Routes of District and Regional Economic Importance. ▪ Upgrade and Improve accessibility to promote tourism potential / initiatives in the area

services and to be able to implement appropriate land use management strategies. The following classes of nodes have been identified and/or are proposed for Emalahleni LM:

Development Corridors

The notion of development corridors, both as structuring elements to guide spatial planning, as well as special development areas with specific types of development potential, has been well established internationally.

Typically, development corridors have been identified as roads or other transport routes along which existing and/or potential land developments at a higher than average intensity (can) occur.

The term "Transport corridors" be adopted in future because it places emphasis on the transportation activity, which is critical for economic clusters to grow in both urban and rural environments Within the Vaalbank Development Node, there is one "transport corridor", namely, the R392 from Queenstown to Dordrecht which is proposed as the main Transport Corridor in the Conceptual Framework.

Land Reform, Rural Development and other Development Priorities

Integration of service delivery between national, provincial and local government is critical to ensure focussed service delivery and, in this regard, various measures were implemented to align IDPs, provincial and national strategies around priority spatial interventions. In this regard, the following national priorities form the basis of all integration initiatives:

- Creating jobs;
- Enhancing education and skill development;
- Improving Health services;
- Rural development and agriculture; and
- Fighting crime and corruption.

To achieve these priorities integration mechanisms are in place to ensure integrated planning and execution of various development programs. The focus will be to strengthen the link between policy priorities and expenditure thereby ensuring the achievement of the national, provincial and local objectives.

Water and Sanitation

Water and sanitation are also still a huge problem which needs our intervention as the Emalahleni Municipal Council as well as Chris Hani District Municipal Council as the water authority and provider.

Water Infrastructure Overview

With regards to water schemes and the provision of water infrastructure, the low population levels in the district make the provision of sufficient access to water and sanitation challenging. The vast distances and small catchment areas are major obstacles to the achievement of economies of scale.

In terms of the current state of water treatment plants, in the CHDM currently has 14 water treatment plants across the district with Enoch Mgijima and Emalahleni having seven and three respectively. The western half of the district is characterised with vast distances between towns and only a few settlements which are mostly provided with services on or above RDP level.

The majority of the eastern sections show that they are mostly on or below RDP level.

Households by Access to Water

A household is categorized according to its main access to water, as follows: Regional/local water scheme, Borehole and spring, Water tank, Dam/pool/stagnant water, River/stream and other main access to water methods. No formal piped water includes households that obtain water via water carriers and tankers, rain water, boreholes, dams, rivers and springs.

When looking at the water backlog (number of households below RDP-level) over time, it can be seen that in 2005 the number of households below the RDP-level were 97 700 within Chris Hani District Municipality, this decreased annually at 1.22% per annum to 86 400 in 2015.

Households by Type of Sanitation

Sanitation can be divided into specific types of sanitation to which a household has access. We use the following categories:

No toilet - No access to any of the toilet systems explained below.

Bucket system - A top structure with a seat over a bucket. The bucket is periodically removed and the contents disposed of. (Note: this system is widely used but poses health risks to the collectors. Most authorities are actively attempting to discontinue the use of these buckets in their local regions).

Pit toilet - A top structure over a pit.

Ventilation improved pit - A pit toilet but with a fly screen and vented by a pipe. Depending on soil

conditions, the pit may be lined.

Flush toilet - Waste is flushed into an enclosed tank, thus preventing the waste to flow into the surrounding environment. The tanks need to be emptied or the contents pumped elsewhere.

Chris Hani District Municipality had a total number of 68 400 flush toilets (31.34% of total households), 73 200 Ventilation Improved Pit (VIP) (33.56% of total households) and 30 000 (13.76%) of total households with pit toilets.

Waste and Environmental Management

The region within Chris Hani with the highest number of flush toilets is Enoch Mgijima local municipality with 38 900 or a share of 56.92% of the flush toilets within Chris Hani. When looking at the sanitation backlog (number of households without hygienic toilets) over time, it can be seen that in 2005 the number of Households without any hygienic toilets in Chris Hani District Municipality was 131 000, this decreased annually at a rate of 5.22% to 76 600 in 2015.

Environmental Management

The Municipality has a dedicated official for Environmental Management and related functions. An integrated environmental management framework has been developed and approved by Council. Awareness Campaigns are conducted for waste management and environmental preservation. National Green days are celebrated on an annual basis. Chris Hani DM adopted a District focused Environmental Management Plan which was reviewed to ensure relevance to its material conditions. The municipality through the District Environmental Management Forum has established relations with DEDAT for climate change and environment (biodiversity, wetlands, enforcement of environmental legislation).

An internal analysis on the strengths, weaknesses, opportunities and threats on environmental management was done and the below table presents the findings:

Strengths	**Weaknesses**
Availability of Spatial Development Framework Greening and land care initiatives Availability of Environmental Management Framework DEA, CHDM, DEDEAT EPIP funding	Limited availability of environmental personnel within the organization to deal with or address environmental issue
Opportunities	**Threats**
Support from SALGA on Environmental Management Programs. CHDM integrated Environmental Management Plan Support from CHDM, DEA and DEDEAT	Climate Change impacts and air quality Land degradation Alien Invasive Species

Tourism Environment and Climate Change Forum	

Environmental Management Framework

The Constitution and other legislations places an obligation on local government to provide services in an environmentally sustainable manner. Local Government has a duty to protect the 'environmental rights of its citizens. The Constitutions further contains two critical objects relating specifically to local government in achieving sustainable development which are:

- To ensure the provision of services in a sustainable manner
- To promote a safe and healthy environment

In response to this, the municipality has developed an Environmental Management Framework phase one which is a study of the biophysical and socio-cultural systems of geographically defined areas to reveal where specific activities may best be practiced and to offer performance standards for maintaining appropriate use of such land and environment. The plan is emphatic in its desired state on the following:

Freshwater ecosystem, water quality, air quality, agriculture, heritage, biodiversity. Ecology, geology, landscaping/ characteristics and genus/Loci, resource economics, town planning. Land Degradation and its rehabilitation are also discussed in length providing the status quo and the desired state.

A logical spatially demarcated area is defined by an EMF some being sensitive, requiring specific management intervention to ensure its future environmental integrity gets allocated through the process, some being assets or identified as heritage and historical importance Management Guidelines are proposed looking at specific provisions applied in the management of each individual attribute or activity associated with the respective Management Zones.

The municipality is staffed with one practitioner, staff for maintenance of parks and open spaces. Chris Hani District Municipality (Environmental Health Practitioners), DEA and DEDEAT (environmental officers) have assigned officials to collaborate with the municipality on all environmental matters within their ambit.

Waste

The municipality is responsible for waste management service which encompasses street cleansing, collection, transportation, disposal of solid waste and management of landfill sites. Integrated Waste Management Plan was developed and adopted by Council on the 27 October 2016. The Department of Economic Development, Environment and Tourism endorsed the IWMP on the 16 June 2017 and is currently awaiting further endorsement from the Department of Cooperative Governance and Traditional Affairs.

The Council approved and DEDEAT endorsed IWMP is aiming at optimizing waste management by maximizing efficiency, and minimizing associated environmental impacts and financial costs. It makes projections on future requirements, set objectives, identified system components. Alternative methods/ approaches for meeting legal requirements were as well identified. Implementation of the IWMP is reviewed annually. Lack of funds for projects and operations of the section necessitate that the Waste Management Section continuously source funds and resources externally.

The unit for waste management is staffed with the Manager Waste and environment, Senior Superintendent Waste and Environment, three supervisors for waste management, TLB operator, and street cleansing personnel. The Waste Management Officer was designated by the Mayor in the year 2018 and the designation letter was submitted to DEDEAT and DEA.

Landfill Site Management (See attached IWMP)

Emalahleni LM has two registered transfer stations, which are at 85% complete in terms of construction.

The Municipality has obtained a closure permit for the Old Lady Frere site and Dordrecht Site. The Department of Economic Development, Environmental Affairs and Tourism allocated an amount of R1.6 Million in 2014/2015 financial year to ensure compliance of the sites to the Norms and Standards and an additional R3 million was be allocated in the 2018/2019 financial year. A portion of this has been used for the construction of a Material Recovery Facility at Indwe in 2019/2020 financial year. Fencing of Cacadu Landfill site to restrict uncontrolled access was done and construction of the guard house has been completed.

The Municipality has also obtained a permit to construct and operate a Regional Landfill Site in Cacadu which has since not yielded positive results. The municipality will restart the process and prioritize public participation and identification of alternative sites before authorization. Indwe has a registered transfer station and a portion of the site was declared an illegal dumping area that needs to be rehabilitated.

The municipality is in the process of sourcing funds for the closure and rehabilitation. This development also entails the construction of Transfer Station at Indwe, Dordrecht and Cacadu. There is dedicated staff for Landfill Site Management through the EPWP initiatives implemented by the municipality.

The municipality takes advantage of the available Roads and Storm water plant and the new procured TLB for the management of landfill sites. Volume of waste are recorded daily and registered to SAWIS to comply with minimum requirements of NEMWA.

Refuse Collection

The Municipality is currently collecting refuse in all urban and township areas at least once per week and plans are in place to extend the refuse removal service to Cacadu extension. The CBD and major retailers are serviced more frequently with some businesses being serviced on a daily basis even though they are not charged accordingly; plans are in process to align the billing with the services rendered. Business plans have been developed to solicit funds to acquire two refuse caged trucks. A combination of tractor trailer system for refuse collection is currently utilized by the municipality. Solid waste recycling – certain items of solid waste can be collected to recycling and could potentially be sold thereby creating employment for residents.

Culture and Tourism

The municipality is a mountainous area with waterfalls and rocks which are known as Glen Grey Waterfalls that are situated in Bhozwana Village.

Indwe has a Doring Dam which has a potential of water sport activities. Along the dam, there is a self-catering facility called Indwe Resort with 12 chalets and a dilapidated conference facility. The municipality is in the process of seeking investors to develop the facility and solicit funding for the improvement of the conference facility.

In Dordrecht area there are mountains that have hiking trails and also accommodation facility which is called Kloof conservancy and it is along Hossep dam that has broken due to natural disasters. Currently the accommodation facility is dilapidated.

In Cacadu area, before Indwe River to Sakhisizwe municipality, the municipality has a cultural village known as Abathembu Calabash; that is offering accommodation to tourists and a conference facility. Along R396, 5kms before Nonesi neck to Enoch Mgijima Municipality, there is Queen Nonesi cultural village that is still under construction, which will offer accommodation and a conference facility.

Municipality is currently assisting in resuscitation of community trust which will run operations at Queen Nonesi Cultural village after completion. The municipality has facilitated an establishment of Local Tourism Organization (LTO) which is composed of three community based organizations (Cacadu, Indwe and Dordrecht) for the purpose of interaction and consultation on tourism initiatives. There are 180 beds in the municipal area which are in the B & B's and cultural villages. The municipality provides capacity building Tourism establishment owners on grading. The legislative framework for this is Tourism Act No 3 of 2014.

The scope for the development of the Local tourism sector within the Municipal area is vast but is hampered by the level of infrastructure development.

The areas that have been identified with potential for tourism development include but are not limited to:

- Aqua sport linked to existing Dams (Xonxa & Lubisi)
- Cultural tourism linked to the Liberation and Heritage Route
- Craft produce
- Rock art promotion and beneficiation
- Museum – Dordrecht

There are areas where Bushmen paintings exist which have the potential to be developed into tourist attractions. The municipal area has cultural groups that are performing locally, nationally and internationally, selling authentic culture of Emalahleni. The cultural groups are located at Ngqoko, Mackay's neck, Tsembeyi and Dordrecht.

The municipality has an arts and craft centre that has been established for purposes of manufacturing and marketing of bead work and Xhosa traditional attire to local and national tourists. The centre is located along Indwe Road in Cacadu town.

Qonda Hoho and Luvuyo Lerumo are the political heroes that were buried at Qoqodala Village and monuments were built on their graves. The main objective is to restore the contribution played by these freedom fighters in the late 1980s. Emalahleni has got Queen Nonesi Cultural village which is named after the Abathembu Queen and is also situated on the feet of Nonesi's Pass. There is also Abathembu Cultural Calabash at Hala No 2 under Chief Ngangomhlaba Matanzima Trust. The main objective of this is to restore the culture of Abathembu as their heritage. The Act which is regulating this is National Heritage Act No 25 of 1999.

5.5 ENGCOBO LOCAL INTEGRATED DEVELOPMENT PLAN (IDP) REVIEW (2021/2022)

MUNICIPAL OVERVIEW

The 2021/2022 IDP Review builds on the planning and development priorities agreed upon in the fourth-generation IDP, approved municipal sector plans and will define the Municipality's MTREF and SDBIP throughout its implementation timeframe.

Municipalities operate in an ever-changing environment which poses unique challenges that have an impact on the day to day running of a municipality. The Council and Administration of the Engcobo Local Municipality have a clear understanding of the negative and positive impact that the external environment has on the Municipality's capacity to deliver and maintain service standards. The SWOT analysis intends to give a brief overview of the municipal environment. The Municipality through the implementation of its Integrated Development Plan will capitalise on its strengths, compensate for its weaknesses, exploit opportunities and will strive to contain or reverse its threats.

Engcobo Local Municipality is located in the Chris Hani District of the Eastern Cape, the second largest province in terms of land coverage on the south-eastern seaboard of South Africa. Engcobo consists of 20 wards, extends over 2 258,78km² with a population of 155 513, and constitutes 19,6% of the total population of the district, as per the Census 2011 information.

The Engcobo local Municipality as per the 2016 Statistics from Stats SA, has an average total population of 162 014. It is currently a category B municipality, located within the Chris Hani District Municipality. The Engcobo Municipality covers an average of 2485.8 square kilometres. The Demographic profiling provides an analysis of the main characteristics of a targeted population group. It highlights the structure of the population in terms of distribution by age, size and other critical characteristics. A demographic profile then makes it easier to conduct proper socio-economic analysis of a region.

Economic Corridors/Nodes

Development Corridors

- Primary movement corridor (R61), - the East Corridor of importance to both the municipality and district linking the Engcobo to Queenstown and Mthatha.

- Secondary movement corridors (R58 Elliot – Ngcobo & R408 Engcobo – N2 –Dutywa). These routes carry passing traffic and provide access between local areas in Engcobo and other centres.

- Link corridors - Access Roads linking Ngcobo (R61) to the Secondary Nodes of Mnyolo, Coglan, Clarkesbury, Mjanyane and Hala. Linking areas of development potential to Movement Corridors and Ngcobo.

The identified development corridors are given in the table below

TYPE	AREA/DESCRIPTION OF LOCALITY	FUNCTION
Primary Movement Corridor	• R61 (Queenstown –Ngcobo – • Mthatha)	These routes carry passing traffic and provide access between local areas in Engcobo and centres further a field
Secondary Movement Corridor	• R58 (Elliot - Ngcobo) • R408 (Ngcobo –N2 –Dutywa)	These routes carry passing traffic and provide access between local areas in Engcobo and centres further a field
Municipal Activity/ Link Corridor	• Access Roads linking Ngcobo (R61) to the Secondary Nodes of Mnyolo, Coglan, • Clarkesbury and Mjanyane	Linking areas of development potential to Movement Corridors and Ngcobo
Development Corridor	• East Corridor (R61)	Corridor of district and municipal-level economic importance

Development Nodes

In accordance with the requirements of legislation governing municipal planning, the Engcobo Local Municipality reviewed its 2010 Spatial Development Framework (SDF). The main changes to the SDF of 2015/16 are as follows:

- Boundary changes as per the demarcation board are reflected.

- Revised Priority Spatial Issues identified on the basis of a new Analysis as well as the revision of the related Spatial Development Objectives and Strategies, in line with the current Engcobo IDP.

- A revision of the Development Nodes with the identification of additional secondary nodes and the inclusion of the concept of rural settlement edges.

- Updating the proposals in the town of Engcobo in line with the Engcobo Local Spatial Development Framework.

- consideration of the requirements related to the implementation of the Spatial Planning & Land Use Management, Act 16 of 2013 (SPLUMA).

<u>Land Reform, Rural Development and other Development Priorities</u>

The Engcobo Local municipality has significant problems in addressing service delivery backlogs and promoting development within its area of jurisdiction, this is evident in the number of community protests that the municipality has experienced throughout the year. There are still a number of key development challenges that face the municipal area and its people, these are discussed below:

- The facilitation of land development through the more active participation of the municipality in the land development process, especially through public-private partnerships.

Land-use management has two main underlying rationales. The first is the widely felt resistance to the idea of uncontrolled land development and the second is the commonly expressed wish by particular sectors in society to promote various types of desirable land development.

The resistance to uncontrolled development is motivated by:

- Environmental concerns: uncontrolled development of land can have adverse effects on natural habitats, cultural landscapes and air and water quality.
- Health and safety concerns: uncontrolled development can lead to overcrowding and unsafe building construction. Certain land uses can also be detrimental to the health and safety of neighbours.
- Efficiency of infrastructure provision and traffic management: increasingly it has become clear that the where the granting of development permissions is not coupled with the provision of adequate infrastructure and traffic management the consequences can be severe. Similarly, where infrastructure is provided, generally at high financial cost, without taking into account likely and relevant land-use and settlement patterns the opportunity costs to society are very high.
- Determination of property values for purposes of rating: the market value of land is the basis on which property valuation is determined and the extent and nature of the development permitted on the land is a key factor in that determination.
- Aesthetic concerns: the control of land development enables government to prescribe certain design parameters for buildings.
- The wish to promote desirable development is also driven by a number of different concerns:
- The land development needs of the market seldom match precisely the social and political needs of government: government may well want to promote a type of land development in an area that the market neglects. It then has to take certain steps to facilitate that development or provide incentives.

Investment promotion: changing the applicable land-use management instruments is often seen as a prerequisite for attracting certain types of investment to certain areas. This can take the form of both relaxing controls in those areas and increasing controls in other are Huge backlogs in the delivery of basic services (water, electricity, sanitation).

Land and property management

In terms of the Municipal Finance Management Act municipalities are obliged to manage the assets under its control, section 78 of the Act specifically stipulates that senior management should take all reasonable steps within their respective areas of responsibility to ensure, inter alia, “that assets of the municipality are managed effectively and maintained to the extent necessary to derive maximum benefits from these assets both in providing basic infrastructure and generating revenue.

An immovable capital assets management and maintenance information system is in place and this is a comprehensive system which incorporates collection of all data related to municipal owned properties, verification of new and existing data, quality control and skills transfer. It also incorporates all property valuations that have obtained through the General Valuations as well as all maintenance and expenditure carried out on each municipal property.

- Challenges with the maintenance and development of basic road and storm-water infrastructure
- Housing backlog due to land claims and land invasions
- High unemployment and poverty
- Concentration of private investment in the primary node with minor investment on other nodes
- Inadequate revenue collection
- Low recovery of amounts owed for rendering of municipal services from consumer debtors.
- Land invasions and land claims
- Lack of funding for key projects

Land Reform & Settlement Zones are areas identified in the course of a participatory process with LMs. These Zones reflected areas that are identified as requiring specific forms of planning and development interventions in the interests of furthering land and agrarian reform and managed settlement development processes.

Water and Sanitation

There are high backlogs in the provision of Water and Sanitation services (55% and 76% of households un-served respectively).

Rural areas have often lagged behind urban centres when comparing their share of benefits for development in our municipality. This has been caused by historic reasons wherein services were delivered to areas with already developed networks and reticulated service distribution systems (e.g. waterborne sanitation, refuse collection and electricity connections). This has led to urban-rural inequalities. To deal with this challenge the municipality has identified rural development as a new development priority with emphasis on the following:

- Planning for improved household access to basic services

Leveraging the District municipality on rural service infrastructure installation

- Facilitation and mobilization of resources to achieve integrated delivery of government services via one-stop service centres to rural areas
- Coordination of poverty alleviation interventions and livelihood support
- Integration of settlements to mainstream economic participation and contribution. Main focuses here being on agriculture, farming, cultural tourism and agro-processing initiatives
- Improved access to community involvement in decision making through war rooms and other tools.

Waste and Environmental Management

Environmental Management

The following were identified as high-risk areas where development is discouraged.

- Topography: Slopes with a gradient greater than 1:5. This is due to the ecological impacts which may result e.g. soil erosion; slope failure etc.
- Rivers/ Water Source: Development within the 1:100 year flood line or within 100m of the high flood level. Development within 50m of riverbank; with 100m being the preferred distance.
- Vegetation: Afromontane Forest, Specific Grassland areas, Areas containing Plants and

Vegetation of Conservation Importance

- Wetland Areas
- Heritage Sites: Rock Art Sites
- Other Areas: The habitat of endangers animals and birds e.g. the Wattle Crane and Cape Parrot
- Municipal Public Open Space.

Waste

The high percentage of households / properties (86 %) that use their own refuse dump or have no form of rubbish disposal (14 %) is of serious concern.

Particularly where density of people is increasing in the built up zone along the R61 route within the study area. The environmental impact is of concern and Engcobo LM needs to establish a regional solid waste disposal site as a priority.

Culture and Tourism

The Tourism Cluster

- Conserve and develop bushman paintings and developing a bushman painting trail To develop the waterfalls for tourist visits i.e. parking area, ablution facilities etc.
- Develop dams for fishing and camping/overnight facilities
- A Tourism Centre within Hero's Park
- Tourism facilities and conference centre at Xuka

5.6 ENOCH MGIJIMA LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN (IDP) (2020/2021) REVIEW

MUNICIPAL OVERVIEW

Enoch Mgijima Local Municipality is situated within the Chris Hani District in the central part of the Eastern Cape Province, it covers Area: 13 584km². It was established by the amalgamation of the Tsolwana, Inkwanca and Lukhanji Local Municipalities in August 2016. The municipality is made up of former Transitional Local Councils (TLCs), Transitional Regional Councils (TRCs), urban centres, townships and rural villages.

Enoch Mgijima municipal area is an economic hub, due to its strategic position in the Chris Hani District Municipality. It is positioned in the middle of the national corridors to the Gauteng, Western Cape, KwaZulu-Natal, Northern Cape and Free State provinces. Parts of the municipality are developed with the relevant infrastructure so that modes of transport such as railway, road and a small airport are available to be utilized. Other parts of the region are experiencing a low economic growth rate, with high levels of unemployment and poverty in the towns.

The area has a rich historical background dating back to the 18th century, with a number of monuments and key places of interest.

The main cities or towns include: Hofmeyr, Molteno, Queenstown, Sada, Sterkstroom, Tarkastad, Whittlesea Main Economic Sectors: Agriculture, general government services, finance and business, wholesale, retail and catering, community services.

Economic Corridors/Nodes

The concept of Development Nodes (Primary, Secondary and Rural Development Nodes) are categorised as those towns or places where a significant number of functions commonly deemed to be urban are found. These functions would include public administration facilities/institutions, business activities, social and recreational facilities and other existing or potential economic enterprises (including tourism-related enterprises). Such nodes are often located on main transport routes to provide maximum access and act as catalysts for new growth and development. As such, they are areas where the following should be prioritised: -

- Appropriate levels of development investment in infrastructure.
- Appropriate land use management to promote preferred development outcomes.

The EMLM Spatial Development Framework makes use of six spatial structuring elements, as follows:

The concept of an Urban / Settlement Edges

The Spatial Development Framework proposes that an Urban Edge be defined for urban settlement / nodal areas, in an effort to consolidate the urban area, direct infrastructure development priorities and achieve a more compact settlement pattern. The areas beyond the urban edge are defined as rural, which implies a lower density settlement pattern with basic infrastructure and social facilities.

Rural settlements in the municipal areas will also need to have settlement edges drawn to indicate the extent of area dedicated to non-agricultural / settlements development. The focus will then fall on providing basic infrastructure and social services in line with government policy directives. This process should include verification of the current extent of the settlement footprint and determining extent of settlement area considered as suitable for development for predominantly residential purposes.

The concept of Mobility Corridors

An efficient and accessible transportation network is vital for successful spatial development, especially where a strong rural economy exists and where rural residents depend on social and economic services located in urban and rural nodes (where access to higher level goods and services in rural areas are limited).

Mobility corridors are those routes that have particular importance for moving people and goods at Regional and Municipal level.

The concept of Activity Corridors

Due to high accessibility and visibility of land along main transport (mobility) routes, such areas are ideal for locating higher order business, commercial and services developments. Provided that the impact of the activity focus is adequately managed by way of direct access restrictions to the mobility route and introduction of dedicated service lanes, such corridors can ensure improved access to residents.

The concept of Priority Environmental Management areas

The environmental conservation and management areas in EMLM comprise nature reserves, river / flood plains, wetlands, steep slopes in excess of 1 in 5 gradients and fragile or vulnerable ecosystems.

The concept of Strategic Development Areas

These can be separated in terms of strategic priority needs and strategic priority assets / opportunities. The aim is to identify areas of development need (i.e. areas where settlement, infrastructure or tenure backlogs persist) or areas of development potential, where the allocation of resources and spending will be prioritised. This supports the phased approach to development, targeting areas of greatest potential (or need) first as promoted in the National Spatial Development Perspective and the Eastern Cape Provincial Spatial Development Plan.

The plan identifies designated areas where focussed interventions are required to:

- Improve marginalised areas - incremental upgrading approaches to development and management.
    - Rural settlements – incrementally introduce land management, planning and upgrade
    - Small Towns – rural centres. Shrinking local economic function with mostly residential function. Promote economic development and job creation (livelihoods strategies). Social services should be improved to promote areas where people can not only live, but access amenities such as jobs, schooling, healthcare and recreation.

The Proposed Economic Corridors

The shape and form of local economic development within Enoch Mgijima LM will adopt an approach for ease of development and coordination.

The areas have been identified as follows: -

a) N6 Komani area (Ezibeleni, Mlungisi, Gwatyu, Lessyton, Macibini, Mthwaku/Boloto, Gwatyu,
b) Tilden, Parts of RA 60, adjacent commercial farms
c) R61 Komani -Tarkastad and Hofmeyr, of Ntabethemba & adjacent farms
d) R58 Komani - Sterkstroom area, Molteno area Adjacent farms
e) R67 Komani- Whittlesea area (Hewu, Diphala/Kolomana, parts of RA60

Enoch Mgijima municipal area is an economic hub, due to its strategic position in the Chris Hani District Municipality. It is positioned in the middle of the national corridors to the Gauteng, Western Cape, KwaZulu-Natal, Northern Cape and Free State provinces.

Land Reform, Rural Development and other Development Priorities

Enoch Mgijima Municipality is supporting the PGDP as such the municipality has identified industrialization, agriculture and rural development as well as tourism development as its strategic focus areas. The municipality will achieve the goal of economic development and job creation, whose outcome will be sustainable growth, poverty alleviation and better life for all by coordinating sustainable social and economic developmental initiatives. It will also do so by creating a conducive environment for business investment and growth for job creation.

One of the municipality's focus areas on local economic development is rural development and agrarian reform.

Rural Development and Agrarian reform is the main program in the economic development in the municipality although the potential in this area is still unlocked. The municipality is required to develop Agriculture and Rural Development Strategy although the LED unit has already developed the Rural Development concept that is able to serve as a guide the municipality in all agricultural related programmes in rural nodes.

Water and Sanitation

Drought, reduced runoff, increased evaporation, and an increase in flood events will impact on both water quality and quantity. There is less water for both human consumption and agriculture due toeffects of climate change within the municipality. The increasing temperatures have resulted in high evaporation rate, water levels decreasing, Berry Dam and Bonkolo Dam have been affected due to severe drought. CHDM is responsible to check for water quality.

A household is categorised according to its main access to water, as follows: Regional/local water scheme, Borehole and spring, Water tank, Dam/pool/stagnant water, River/stream and other main access to water methods. No formal piped water includes households that obtain water via water carriers and tankers, rainwater, boreholes, dams, rivers and springs.

Enoch Mgijima Local Municipality had a total number of 26 400 (or 36.72%) households with piped water inside the dwelling, a total of 15 900 (22.05%) households had piped water inside the yard and a total number of 8 400 (11.67%) households had no formal piped water. The regions within Chris Hani District Municipality with the highest number of households with piped water inside the dwelling is Enoch Mgijima local municipality with 26 400 or a share of 52.74% of the households with piped water inside the dwelling within Chris Hani District Municipality.

When looking at the water backlog (number of households below RDP-level) over time, it can be seen that in 2006 the number of households below the RDP-level were 13 800 within Enoch Mgijima Local Municipality, this decreased annually at -0.81% per annum to 12 700 in 2016.

Sanitation

In areas like Mlungisi and in the CBD, there has been burst of sewage pipes which a health hazard. Komani has a poor storm water drainage system, there is no maintenance plans Managing decreased water quality in ecosystem:

Implementation of an Expanded Public Works Programme (EPWP) and Community Work Programme (CWP) plan by June 2019. Both projects will be implemented in Enoch Mgijima LM in Ward 12 (Mlungisi Area) and Ward 6 (Ezibeleni Area) and will be Grant Funded.

Sanitation can be divided into specific types of sanitation to which a household has access. We use the following categories:

- No toilet - No access to any of the toilet systems explained below.
- Bucket system - A top structure with a seat over a bucket. The bucket is periodically removed, and the contents disposed of. (Note: this system is widely used but poses health risks to the collectors. Most

authorities are actively attempting to discontinue the use of these buckets in their local regions).
- Pit toilet - A top structure over a pit.
- Ventilation improved pit - A pit toilet but with a fly screen and vented by a pipe. Depending on soil conditions, the pit may be lined.
- Flush toilet - Waste is flushed into an enclosed tank, thus preventing the waste to flow into the surrounding environment. The tanks need to be emptied or the contents pumped elsewhere.

Enoch Mgijima Local Municipality had a total number of 46 000 flush toilets (63.99% of total households), 16 100 Ventilation Improved Pit (VIP) (22.40% of total households) and 5 160 (7.17%) of total households' pit toilets. The region within Chris Hani with the highest number of flush toilets is Enoch Mgijima local municipality with 46 000 or a share of 55.18% of the flush toilets within Chris Hani.

When looking at the sanitation backlog (number of households without hygienic toilets) over time, it can be seen that in 2006 the number of Households without any hygienic toilets in Enoch Mgijima Local Municipality was 25 500, this decreased annually at a rate of -9.14% to 9 790 in 2016.

Waste and Environmental Management

Environmental Management

The concept of Priority Environmental Management areas

The environmental conservation and management areas in EMLM comprise nature reserves, river / flood plains, wetlands, steep slopes in excess of 1 in 5 gradients and fragile or vulnerable ecosystems.

Waste

The Municipality is legally responsible for rendering refuse removal service within its area of jurisdiction and this includes residential areas; industrial areas; business areas and streets within the CBD. The municipality collects waste according varying waste collection schedules. Waste is then deposited in the respective waste collection centres located just outside the urban nodes of Komani, Tarkastad, Molteno, Hofmeyr, Whittlesea, Ezibeleni and Sterkstroom. The municipality is not providing formal refuse removal in rural nodes. As part of the Green economy, waste management and recycling are very important.

Landfill sites within Enoch Mgijima Municipality

Area	No of landfill sites	Status
Queenstown/Ezibeleni/ Mlungisi	1	Licensed
Whittlesea	1	Licensed for closure
Molteno	1	Licensed
Sterkstroom	1	Licensed
Tarkastad	1	Licensed
Hofmeyr	1	Licensed for closure

Integrated Waste Management Plan (IWMP)

Chris Hani District Municipality funded the project for the development of IWMP. The municipality has a draft IWMP to be adopted by Council in 2019/20 financial year.

The waste management section is currently rendering the following services:

- Refuse removal-once a week to all households in the urban nodes.
- Businesses on per agreed schedule.
- Street cleaning seven (7) days a week including a night shift service.
- Open areas, pavements cleaning and rehabilitation of illegal dumping sites
- Landfill site-management through collection of waste dumped on the landfill site.

Medical waste

Enoch Mgijima LM has several medical facilities that generate medical waste within their municipal area. There are also several doctors working within the municipal area that generate small amounts of medical waste. The Municipality is presently not experiencing any significant problems with medical waste being disposed of at any of the Municipal landfill sites. The Provincial Department of Health has contracted Compass Waste Company for the medical waste management in hospitals and the local clinics. The municipality is responsible for monitoring waste removal.

Culture and Tourism

Enoch Mgijima municipality has got a number of resources which need to be identified and used wisely to attract tourists for economic development as well as identification of heritage sites. Potential Tourism.

Tourism can be defined as the non-commercial organisation plus operation of vacations and visits to a place of interest. Whether you visit a relative or friend, travel for business purposes, go on holiday or on medical and religious trips - these are all included in tourism.

In Enoch Mgijima Local Municipality, the Business, relative to the other tourism, recorded the highest average annual growth rate from 2006 (13 100) to 2016 (13 200) at 0.09%. Visits to friends and relatives recorded the highest number of visits in 2016 at 44 600, with an average annual growth rate of -6.74%.

Komani has two Public Gardens and seven parks that are maintained by the municipality and several community parks.

Game Reserves includes: The Lawrence de Lange Game Reserve and the Tsolwana Game Reserve. There are also two dams, namely the Bonkolo dam and the Berry dam with picnic areas.

Ilinge has a rich liberation heritage history. The area has been a home too many to many banned and ex- Robben Island and exiles across the political lines. The municipality must consider declaring a heritage site. A collaborative effort by government departments in this regard is crucial for the holistic development of the area.

Komani area has a distinct feature in the whole of South Africa because of music and jazz history. Its musicians have played part in the Cultural Boycott, in protest plays like King Corn, others earning titles like Mother Africa and getting recognition at home and abroad.

5.7 INXUBA YETHEMBA LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN (IDP) (2017-2022) REVIEW

MUNICIPAL OVERVIEW

Inxuba Yethemba Municipality is situated in the Chris Hani District Municipality in the Eastern Cape Province. It is approximately 240km north of Nelson Mandela Metro. It is comprised of the former Middelburg EC and Cradock Local and Rural councils with their urban centres situated 100km apart. Cradock consists of suburb of Cradock, Lingelihle and Michausdal communities, whilst Middelburg has the Middelburg suburb with Kwanonzame Lusaka, and Midros communities.

The two urban centres of Cradock and Middelburg are fairly similar with well-developed CBD's and fair infrastructure whilst a lot still needs to be done in the former previously disadvantaged communities. The rural areas of both towns are mostly commercial farms, with small settlements in rural areas of Fish River, Mortimer and Rosmead.

The N10 National Road which is the vital economic link between Port Elizabeth and the North runs through Cradock and Middelburg. The economy of the area is largely based on agriculture and tourism with small and medium enterprises, formal sector like government departments and finance and commercial institutions.

The municipal area stretches over a geographical area of 11 663 square kilometers comprising of a potentially arable area with a slope ranging from 0º to 12º, with the rest of slope above 12º being mountainous area that is not arable.

The area is characterized by harsh climatic conditions with day temperatures averaging between 20ºC and 40ºC and night temperatures between - 5ºC and 16ºC. The average annual rainfall is between 200mm and 300mm with north westerly and westerly winds being more prevalent.

Most of the municipal area is covered with shrub land and low fynbos. The veld type is typical Karoo vegetation which is ideal for stock farming. Inxuba Yethemba falls within the Great Fish River drainage system and its many tributaries. Cradock receives its water from the Gariep dam through a transfer scheme which is managed by the Department of Water Affairs and Forestry whilst Middelburg on the other hand solely depends on its ground water. The present drought has thus a detrimental effect on water sources in Middelburg.

Inxuba Yethemba experienced extreme flood damage during the 70's and they still pose a potential danger. Veld fires are most common causing a threat to the agricultural sector. Drought is another major risk in the agricultural sector, which is important for the economy of the area.

Economic Corridors/Nodes

The following will be the objectives guiding Inxuba Yethemba Spatial Development Plan:

• To identify main nodes of activity and those with potential.

One of Inxuba Yethemba LM's strengths is that it is located on main transport corridor between Gauteng and Port Elizabeth provides easy access to national and international markets.

Land Reform, Rural Development and other Development Priorities

Inxuba Yethemba LM's vision is:

A coherent developmental municipality putting people first and providing a better life for all its citizens. Its mission states:

Inxuba Yethemba Municipality Commits itself to unity, putting people first and providing a better life by :-

- Promoting social and economic development
- Ensuring Effective community participation
- Providing and maintaining affordable services
- Effectively and Efficiently utilising all available resources

Central to the strategies is Back to Basics Approach:-

- Service delivery and basic infrastructure
- Local economic development
- Financial Viability
- Institutional Development and Municipal transformation
- Good governance and Public Participation

Objectives and Strategies for each of the development priorities in each key sector are tabled for easy reference

The Action Programme ensures a co-ordination between Integrated Development Planning and Municipal Performance Management by providing an overview of the major activities and projects in the Municipality which result from the IDP. The action programme further establishes a basis for monitoring of progress by indicating time frames for implementation of identified projects.

The following activities was included:

Land reform:

- Accommodation of evicted farm labourers.
- Establishment of an "information desk" where information regarding policies of Department of Land Affairs, can be obtained.
- Residents on commonage land assisted, to ensure sustainable development.

The following will be one of the objectives guiding Inxuba Yethemba Spatial Development Plan:

- To set out development priorities from a spatial point of view.

Water and Sanitation

The data shows households by level of access to water in Inxuba Yethemba from 2006 to 2016.

- Inxuba Yethemba, has about 70% piped water inside dwelling. A fair distribution of piped water in the yard and a few households with no formal piped water.
- Chris Hani and Eastern Cape,have a fairly shared amount of dwellings with piped water inside, in the yards and communal piped water(less than 200m from dwelling) About 25% of the dwellings have not formal piped water.
- National Total, has over 40% piped water inside dwelling, a few dwellings with piped water in the yards. Minimal units with communal piped water (less than 200m from dwelling) and no formal water.

The IYM is not a Water Service Authorty nor a Water Service Provider as such all matters relating to Water Provision are a function of the District Municipality.

Inxuba Yethemba has a majority of flush toilets and minimal VIP, pit toilets or no toilets. The data shows the sanitation backlog in Inxuba Yethemba from 2006 to 2016. Clearly indicating a downward trend. IYM is not a Water Service Authority therefore the responsibility of Sanitation remains with the water Service Authority in this case being Chris Hani District Municipality.

Waste and Environmental Management

Environmental Management

Purpose of the Integrated Environmental Programme is to strike a balance between protecting the natural environment and development initiatives. This contributes to a healthy environment by ensuring that critical environmental issues are adequately addressed.

The Action Programme ensures a co-ordination between Integrated Development Planning and Municipal Performance Management by providing an overview of the major activities and projects in the Municipality which result from the IDP. The action programme further establishes a basis for monitoring of progress by indicating time frames for implementation of identified projects.

The following activities was included:

Sustainability

- Protecting the environmental resources such as vegetation and environmentally sensitive areas, during future development.
- Ensuring that sufficient natural resources such as water and land are available for future expansion.
- Ensuring economical, affordable services.
- Creating and investor friendly environment.

Waste

The Municipality of Inxuba Yethemba as mandated by the Constitution of South Africa has to reduce recycle, minimize and remove refuse in each household. This function is to ensure that all inhabitants of Inxuba Yethemba Municipality are living in a safe and healthy environment. The role of the Municipality is to provide machinery, equipment, human resource and allocate a budget in each financial year to render this service effectively. The National Waste Management strategy encourages that municipalities involve all stakeholders that are within their communities to form an integrated waste management forum.

The main role players in the integrated waste management system are the municipality, Department of Environmental Affairs & Tourism, Chris Hani District Municipality, community based organizations, schools, private recyclers, and consultants that are implementers of waste buy back centres.

Waste Management Includes:

- refuse removal
- solid waste disposal
- landfills
- street cleaning
- waste recycling

The refuse collection functions of the municipality are administered as follows and include:

- The removal of household and business refuse industrial waste and medical waste, street sweeping of the central business zone and peripheries. This also includes the management of solid waste disposal side.

These services include the urban areas, but do not take account of resident which resides within the rural areas of the municipality.

The municipality has a mandate to:

- Provide services to all its inhabitants

The strategic objectives of this function are to:

- Ensuring a clean environment, well-kept natural open spaces, maintain build environment.
- Removal of refuse from households and business premises is done once a week throughout the municipality. Each household is supplied with a refuse bag on a weekly basis.

<u>Culture and Tourism</u>

The following is extracted from the IYM Responsible Tourism Sector Plan (2008). The supply of tourism products and services in IYM are nature-based and heritage tourism products. IYM has wildlife, scenic beauty, warm hospitality, business opportunities, culture, heritage and history, but it needs to be further developed.

Tourist attractions can be divided into four main elements:

- Natural Attractions
- Built Attractions
- Cultural Attractions
- Social Attractions

The tourist attractions in the IYM have been analysed in the Tourism Strategy according to these categories. The IYM has a reasonable selection of accommodation available to the visitor, both in Middelburg and Cradock. These include country hotels, town-based guest houses and B&Bs, guest farms (farm stays), guest cottages, game

farms, lodges and camping / caravan sites. In each type, there is a reasonable selection of different establishments.

5.8 INTSIKA YETHU LOCAL MUNICIPALITY REVISED INTEGRATED DEVELOPMENT PLAN (IDP) (2020/2021) REVIEW

MUNICIPAL OVERVIEW

Intsika Yethu Municipality is a Category B municipality (Area: 2 711km²) situated within the Chris Hani District Municipality in the Eastern Cape Province. It is bordered by Sakhisizwe to the north, the Amathole District to the south, Engcobo to the east, and Emalahleni and Enoch Mgijima to the west. The municipality is one of six municipalities in the district, accounting for 8% of its geographical area. Intsika Yethu is an isiXhosa name meaning 'our pillars'. The main Cities or Towns in Intsika Yethu Municipality are Cofimvaba, and Tsomo. Cofimvaba is the main sitting of the council. Tsomo unit is managed by a unit manager that is reporting to the Municipal manager. There are employees from departments that are housed at Tsomo unit which are include Corporate Services, Community Services, Infrastructure, BTO and the MMs office. The main economic sectors are community services, tradeand agriculture.

With 153 000 people, the Intsika Yethu Municipality housed 0.3% of South Africa's total population in 2016. Compared to Chris Hani's average annual growth rate (0.46%), the growth rate in Intsika Yethu's population at -0.04% was significant lower than that of the district municipality.

The implementation of the previous IDP budget have yielded a good relationship between the municipality and its residents and continues to minimise community protests. The municipality might have limited resources, but it continues to update the communities about IDP progress and the intentions as the municipality, through ward councillors, ward committees and outreach programmes.

Mostly of the IDP and Budget is more focused on infrastructure development, construction of access roads, construction of bridges, youth programmes, vulnerable groups, erection of high-mast lights, electrification of villages, will assist in improving lives of the people and strengthen the relationship with the communities.

The continuous interactions with the communities have played an essential role in the identification and prioritisation of projects and developing the communities. That has resulted in the development of progressive, community driven and inclusive Integrated Development Plan with a budget that seeks to cater the needs of our people.

Economic Corridors/Nodes

Development Corridors

According to the IYM SDF, 2013, the municipality is underdeveloped and in order to assist the municipality in its task to prioritize spatial planning and investment decisions, the following Spatial Structuring Elements, adopted from the IYMSDF (2010) are applicable:

a) Development nodes.

b) Development corridors.

c) Special priority development areas.

d) Strategic development zones

The sub-directorate for Spatial Development Planning is responsible for spatial development and land use planning and management. Its functions and activities are guided by various plans and statutes which are summarised in the following table:

#	Structure/Sector Plan	Status
1	Town Planning Tribunal	The municipality shared the tribunal with CHDM, Engcobo, Sakhisizwe & Emalahleni LM. Municipality has begun a process of establishing its own tribunal and has elected members and trained them.
2	IYM SDF	Needs to be reviewed and aligned with SPLUMA, etc.
3	Comprehensive Rural Development Programme	No document guiding this function. Will be included in the New SDF.
4	Local Spatial Development Frameworks	Developed for St Marks and Ncora
5	Development Precincts with Plans	• Current plans include relocating the containers in town close by ESKOM and the Car Wash and the sites have been demarcated but they have not yet been allocated. • Planned development of a shopping complex at the Main Road with plans already approved by the Municipality. • Planned development of a Science Centre by the Department of Science and Technology. • Planned development of Medium Houses at Ward 14. • Planned development of a Multi-Purpose Centre at Tsomo.
6	By-laws on National Building Regulations	Developed and adopted by Council
7	By-laws on Town Planning/Land Use	Developed and adopted by Council
8	By-laws on Outdoor Advertising	Developed and adopted by Council
9	National Building Regulations	Municipality is guided by the National Building Act
10	Land Use Management Scheme	No document in place
11	Geographical Information System	Municipality has a licenced GIS
12	CBD Revitalisation Programme	Awaiting appointment of a service provider to develop the plan.

Spatial Constraints

The following is a summary of spatial constraints facing the municipality: -

a) Spatial perspective of the municipality not fully implemented and understood by all the relevant stakeholders external and internal.

b) Projects and programmes are not implemented according to the spatial plan.

c) Un-coordinated allocation of land outside the commonage areas, thus effecting service delivery.

d) Land invasions.

e) Capacity shortfalls in infrastructure provisions (water and sanitation) for future growth of both towns.

f) Inability to extend the current urban edge due to land rights issues.

Spatial Opportunities

The following is a summary of spatial opportunities available to the municipality: -

a) Densification of existing settlements throughout IYM

b) Promotion of activities that enhance the agricultural economy of IYM

c) Growth of existing and earmarked nodes

d) Development of housing along the R61 development corridor.

e) Transformation of our towns from being residential nature to being business focused.

f) Promotion of mixed use opportunities surrounding the CBD's.

Necessity for Spatial Restructuring

The following needs to happen to effect spatial restructuring: -

a) Comprehensive transformation of our towns to make them more sustainable;

b) Creation of sustainable human settlements that are within or within proximity of our towns

Development Nodes

According to the alignment of the PDSP, the following nodes were identified:

Nodes	
Node	**Area/Locality**
Primary Local Centre	Cofimvaba
Secondary Local Centre	Tsomo
Primary Sub-Local Centre	Ncora, Qamata, St Marks
Secondary Sub-Local Centre	Ntshingeni, Lubisi, Sabalele
Tourism Nodes	Lubisi Dam And Ncora Dam

<u>Land Reform, Rural Development and other Development Priorities</u>

The Special Priority Needs Areas

The SDF identifies the following special priority needs areas within IYM:

a) Priority basic needs areas

These are areas that have the greatest needs, requiring special need for investment in order to upgrade levels of services (water supply, sanitation, roads & stormwater, electricity, etc) and also social facilities

b) Proposed development zones

In terms of the Chris Hani District Land Reform and Settlement Plan, six development zones (Cofimvaba & surrounding areas, Tsomo, Ntshingeni, Bilatye & Qamata, Lubisi Cluster, Ncora area) have been identified. These zones require spatial planning and land use management control. Details are contained in the IYMSDF (2013).

c) Strategic development zones.

These are areas with specific economic development potential, requiring strategic targeted investment and are as follows:

- Greenfields Development Zone
- Cluster Development Support Zone
- Tourism Development Zone
- SMME/Manufacturing Zone.

Integrated Development

Without a credible Land Asset Register IYM has relied on its valuation roll to identify land potentially available for development throughout the municipal area. A current General Valuation Roll for implementation form July of 2019 will provided a credible basis for which IYM has been considering future land development. The imminent completion of a more updated SDF will further inform the municipality in this regard.

With regards to addressing land degradation and revitalisation, the municipality currently lacks an existing plan in this regard, but is undertaking work to address this issue. It has been prioritised and provided for as part of the high-level service delivery targets identified later in this document. Consideration is being given towards the development of a plan in this regard.

One of the challenges in this regard has been that of land invasion. Although IYM does not have any formal mechanisms in place in the event of land invasions, its past experience has made it familiar with the process of approaching the Courts and following due process of the law prior to enforcing removals from illegally occupied land. As a result of this process IYM has identified alternative housing but the relocation of households from invaded land to alternative accommodation has yet to be finalised.

In relation to Land Reform, Section 10 (1) (c) of Land and Assistance Act, 1993 (126 of 1993), as amended, provides that the Minister may, from money appropriated by parliament, on such conditions as she/he may determine, grant an advance or subsidy to municipalities to acquire land to be used as a commonage or extent an existing commonage.

Following from the above background it is suggested that the municipality should consider the following issue:

a) Identification and purchase of private agricultural land within the area of municipal jurisdiction for commonage purposes;

b) Identification of all state land (SADT farms, RSA farms and National Government of SA farms) within the area of municipal jurisdiction for redistribution purposes;

c) Creation of mechanisms through which both commonage and land reform (LRAD projects in particular) beneficiaries could access support such as provision of necessary farm infrastructure, training and capacity building, marketing and business development, and information and knowledge management; and

d) Establishment of leasehold or freehold small family farms (as opposed to large farms) to enhance access

and security of tenure to land for the majority of those who have interest in farming in order to ensure secured and increased household food production and production for local markets.

Agriculture is the largest industry within the primary sector in IYM. However, this industry remains small and underdeveloped when compared to the entire economy of the municipality. What is most notable about the Agricultural sector in IYM is the fact that as an industry, agriculture is decreasing in terms of the absolute size that it contributes to the IYM economic output. In 1996, The Agricultural sector contributed 18.6% to the local economy; this figure had fallen to 14.6 by 2005.

Subsequently the Agriculture industry is also offering fewer employment opportunities in recent years. Currently only around 0.4% of employed individuals in IYM are employed in the Agricultural industry.

Opportunities in the agricultural sector are prevalent despite the fact that the industry continues to perform poorly. As stated in the SWOT analysis, IYM has good grazing land and soil which is suitable for intense commercial grazing. There are a number of projects that have been embarked upon by the IYM with the intension of harnessing the potential of the agriculture industry.

These include:

a) Irrigation and agricultural projects from Lubisi to Ncora Dams; and

b) Crop production in the entire municipality

c) The following are the Anchor Projects identified within the Local Economic Development Strategy for implementation within the Municipal area:

d) High value crop production and processing;

e) Livestock (Beef & sheep) Improvement and commercialisation;

f) Fruit (Stone Fruit) production, processing and packaging.

Forestry is the second largest industry within the primary sector after agriculture in IYM. According to ECSECC data, forestry is an industry that has been declining over the past 10 years; this reflects a general trend of economic contraction within theprimary sector. Just as with Agriculture, there is great potential within the forestry industry despite the fact that it continues to perform poorly in terms of economic output. IYM has available natural forests which could be utilised for forestry. Furthermore,

there is also open land that could be used for expansion of current forests. As an industry, forestry has the potential to stimulate growth of secondary sector industries such as furniture manufacturing.

The potential of IYM to develop a flourishing forestry industry is something which has been recognised not only by the local municipality, but also by the District Municipality. CHDM has categorised the growth of a forestry, timber and wood processing industry as one of its priorities in terms of the Growth and development summit. Forestry within IYM features prominently within CHDM plans for the district, for example CHDM plans to establish medium size sawmill to benefit Intsika Yethu and Engcobo Municipalities. The district also plans to facilitate afforestation in IYM among other areas.

<u>Water and Sanitation</u>

The municipality has a basic services plan as detailed their

Free Basic Services

The municipality provides a free basic services to registered indigent households. The services currently provided is electricity and refuse removal, water services are provided by the district municipality.

Applications are made by indigent households to be included in the indigent register. The municipality subject all applications to test to determine whether households meet the criteria set by the municipality in the indigent policy to qualify for indigent status. The indigent register is reviewed annually to maintain its credibility. The municipality has a functional free basic unit with dedicated staff to perform all the free basic services functions. The municipality has also established indigent steering committee, the committee is functional and is revived annually.

Waste and Environmental Management

Environmental Management

The Municipality has benefited in the Department of Environmental Affairs Thuma Mina program: Good Green Deeds. The Programme is there to support the Municipalities in the functions around waste management by adding HR capacity in the form of 15 Cleaners and 7 Awareness Campaigners. The basic objective of the Programme is keeping our environments clean and safe by greening, proper waste management and educating our communities on good environmental management practices.

The current environmental footprint on natural resources consumption and demand pattern clearly predicts future deficiency in the available resources to meet the population demand. The situation is further exacerbated by human activities which results in climate change, a phenomenon which its effects can be witnessed globally. The need to provide services in a sustainable manner and to preserve our natural resources has been a global challenge, hence the Millennium Development Goals (MDG), treaties to which South Africa is a signatory to such as the Montreal protocol and Basel convention.

The promulgation of the National Environmental Management Act, Act 107 of 1998 (NEMA) and the subsequent pieces of legislation legitimized environmental sustainability in development planning, service delivery and infrastructure development.

This means that our attempts and efforts to meet the needs of the current generation should not impact negatively on the ability of future generations to meet their own. Environmental sustainability should therefore be considered and incorporated in development planning in national, provincial and local spheres of government.

IYM is cognisant of the global issue of climate change which may have important implications on all climatic variables, especially temperature and rainfall. Although the direction and degree of climate change and its impact at municipal level is still unknown, it is expected that temperatures may increase and while rainfalls may become less frequent, yet more intense, leading to a greater frequency and intensity of draughts and floods. Given the rural nature of the municipality, climate change has a potentially serious impact on agricultural activities. IYM's proactive role in local economic development thus means that drought resistant crops may need to be investigated in mitigation of the potential effects of climate change. Consequently, a disaster management plan for the municipality will also have to respond to severe climate conditions e.g. thunder storms', lightning and hail.

Public Open Spaces:

Public open spaces play an integral part in maintaining the environment degradation whilst addressing environmental conservation and protection. They help to maintain environmental integrity in most settlements. The municipality has established, maintains and controls 5 public spaces within its towns.

Wetlands

Section 24 of the Constitution of South Africa states that everyone has a right to an environment that is not harmful to their health and well-being: and to have the environment protected and, for the benefit of present and future generation through reasonable legislative and other measures that prevent pollution and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

- Principles such as the "duty of care", enshrined in section 28 of the national Environmental Management Act, required that landowners must take reasonable measures to prevent, minimise and rectify environmental degradation on their properties.

The IYM and Qamata traditional authorities in collaboration with the CHDM and DEDEAT has started a programme for the management of wetlands with in Intsika Yethu Municipality. One wetland has been identified in ward 2 and the awareness campaign on wetlands management has been conducted to communities and schools, the campaign also included the honouring/Celebrating of World Wetlands day.

Climate Change

Climate Change Forum exists in Chris Hani District Municipality and Intsika Yethu Municipality participates in that forum. Intsika Yethu Municipality does not have climate change forum of its own. A Climate Change Strategy has become a necessity in IDPs for the category A (Metros) and C (District Municipalities). It is however advisable that category B (Local Municipalities) also adopts the District Climate Change Strategy Framework and determines exactly how they integrate into the District's plans. Climate change is however defined in the National Climate Change Response Policy as an on-going trend of changes in the earth's general weather conditions because of an average rise in the temperature of the earth's surface often referredto as global warming. This rise in the average temperature is due, primarily, to the increased concentration of gases known as greenhouse gases (GHG) in the atmosphere that are emitted by human activities. These gases intensify a natural phenomenon called the "greenhouse effect" by forming an insulating layer in the atmosphere that reduces the amount of the sun's heat that radiates back into space and therefore has the effect of making the earth warmer. The district is in a process of adopting Climate Change Strategy

Waste

IYM has developed an environmental by-law relating to Dumping, Littering and Waste Collection. The by-law regulates all "waste-management activities," that involves the generation, reduction and minimisation of waste and waste handling.

This includes the separation, storage, collection, and transfer of waste, and waste treatment. Waste treatment includes the recovery of waste, recovery being the recycling, reclamation and re-use of waste, and disposal of waste. The by-law further provides for the separation of waste into different kinds determined by the nature of the waste. It also allows for charges to be made payable for the removal of waste from premises or dumping of waste at a disposal site under the control of the Municipality. The municipality is in the processes of amending the by-law so as to cater all new legislation governing waste management.

The by-law further regulates potential illegal dumping through the control of all dumping, littering, and other pre-determined contraventions. The by-law provides various offences clauses which can result in financial penalties and in the most extreme instances, convictions. The by-law is further enhanced by the existence of the Peace Officers employed by the municipality in order to enforce it and ensure citizens act within the parameters of the law.

The municipality subscribes to the Waste Information System and reports on a monthly basis for waste data as the landfill site has a weighbridge. The municipality was last audited by Department of Environmental Affairs on reporting on the system in 2017. As contemplated in section 11 of NEM: Waste Act (Act 59 of 2008), the municipality has Integrated Waste Management Plan that has been adopted by the municipal council in 2017 and endorsed by the MEC in 2018.

The projects and programmes that are implemented by the municipality that are included/responding to the IWMP which include the following:

- Extension of refuse removal services to peri urban areas
- Upgrading of Cofimvaba Landfill site – construction of a new cell.
- Waste minimization project (Sorting at Source project) funded by DEDEA

- Clearing and rehabilitation of dumping sites – funded by CHDM
- Good Green Deeds
- EC Intsika Yethu GMC Theme (R2 400 000)
- Awareness campaigns to communities and business in the jurisdiction of Intsika Yethu Municipality.

The IYM has finalised the Environmental Sector Plan during 2014 -2015. The district has also assisted the municipality in establishing a Waste Forum in 2015-2016. The municipality is currently implementing waste sorting at source project funded by Department of Economic Development Environmental Affairs and Tourism.

In compliance with section 10 of NEM: Waste Act, which requires each municipality authorised to carry waste management services by Municipal Structure Act, 1998 (Act No.117 of 1995), must designate in writing a waste management officer form its administration to be responsible for coordinating matters pertaining to waste management in that municipality, the municipality has designated a Waste Management Officer.

The duties of the WMOs is to coordinate matters relating to waste management, which essentially means that the WMO is a local point of entry available to the public to address all waste management matters. The WMO also ensure implementation and coordination of the national waste management strategy:

Solid Waste Management.

The municipality provides waste management services that include waste collection, street cleansing, clearing of illegal dumping, and waste disposal. Regular solid waste collection service is provided to business, institutions and households in the urban nodes of Cofimvaba and Tsomo and excludes the villages.

The service has been extended to peri urban areas which include Mzomhle Location near Tsomo and St Marks RDP house next to Cofimvaba and is collected according to the collection schedule developed by municipality. Seventy-eight percent (78%) of households have access to weekly refuse removal services, and all businesses in both towns are serviced daily. About 60% in mostly rural areas burn their waste or dispose it within their yards.

Waste disposal is centralized, and all waste collected in the various centres (including garden waste) is transported to the Transfer Station in Tsomo and to the permitted Cofimvaba landfill site (**Licensed Number: EC/CH/A/15/001-2011)** for disposal. The operations, maintenance of the landfill site is done by the municipality. The license of the landfill site was granted in terms of Section 49(1) (a) of the National Environmental Management: Waste Act, Act no. 59 of 2008. Furthermore, there are clear regulations regarding the kind waste which may not be accepted on the landfill site. At the landfill site, there is one cooperative (Lithalethu waste and recycling primary co-orp) who conduct the sorting of waste on site and bail the reclaimed materials for selling to recycling market. On a quarterly basis an inspection is done by Chris Hani District Municipality on both the landfill site and transfer station in an effort to monitor compliance and annually by DEDEA. The municipality also does external audit through qualified service provider.

<u>Culture and Tourism</u>

Tourism &Heritage Development

According to the White paper on Development and Promotion of Tourism in South Africa (1996), Local Municipality has the responsibility of planning, development and maintenance of Tourism product in their areas of Jurisdiction. In line with this principle, the Tourism plan for IYM, Responsible Tourism Sector Plan (2008). The vision for tourism development in the IYM area is:

Vision for Tourism

'A responsible and sustainable tourism destination of choice for historical and adventurous experiences in the Eastern Cape'

Mission for Tourism

'To become a responsible and sustainable tourism destination of choice in the Eastern Cape, providing historical and adventurous experiences by 2020 to benefit the local communities'.

The focus of the strategy is on marketing, product development, infrastructure development, human resource development and an appropriate institutional framework that will support tourism development in the area.

This is achieved through the following Strategic goals and objectives:

a) Goal 1: To develop new tourism products to grow the destination;
b) Goal 2: To increase the participation of Local Communities in the tourism industry of the IYM;
c) Goal 3: To ensure a high-quality visitor experience in the IYM; and
d) Goal 4: To extensively market IYM as a tourism destination

5.9 KEY FINDINGS

As in most municipalities IDP's the challenges faced, relate to socio economic, economic, basic infrastructure, spatial and housing issues as well as social facilities, services and environmental degradation.

The key issues some of which are likely to have a fundamental effect on the long-term economic viability are:

Infrastructure and services

- Lack of proper and up to standard road infrastructure and storm water channelling.
- Ageing electricity infrastructure in general and in particular limited capacity of power for future business development.
- Inadequate street lighting with some areas requiring high masts lights.
- Lack of serviced plots for medium and high cost housing development.
- A high percentage of households still have no RDP level sanitation.
- Backlogs and supply for future demand in services such as sanitation need to be addressed as a matter of urgency.
- A reliable regional water supply scheme is needed to service the area.
- The high percentage of households / properties that use their own refuse dump or have no form of rubbish disposal is of serious concern.
- The result of poor land use management and uncontrolled development is a safety risk to vehicle and pedestrian road users.
- Provision in the basic needs of commuters (walkways / pavements, seating / shelter and ablutions is important to improve the roadside infrastructure and movement/safety controls along the road.
- Lack of formal settlement planning and land use management to ensure safety to residents and road users and efficient functioning of built up areas.
- Basic infrastructure and service provision that includes roads and road safety infrastructure, water and sanitation.

Agriculture

- Availability of land for potential development of emerging farmers and cooperatives.
- Development and provision of infrastructure to support local economic development, particularly in the agricultural sector.

Socio-economic

- There are high levels of unemployment and very low levels of income, which impacts on the levels of affordability and type of development needed.
- The HIV/AIDS pandemic and its impact on local demographics.
- Youth unemployment and lack of development.
- Lack of job opportunities creating great discontent amongst the youth.
- Drug abuse with increased crime levels.

- Insufficient revenue base due to high levels of poverty.
- The complex tenure arrangement in the former Transkei region hinders development, investment and appropriate planning in the area.
- Fragmented settlement patterns both at the broader Municipal scale and at the local urban scale. This fragmentation mirrors differences in levels of infrastructure provision, land tenure arrangements and socioeconomic well-being. It is essential, therefore, that strategies to overcome this spatial and socio-economic fragmentation be implemented where physically and fiscally possible.
- There has been growth of the towns and peri-urban areas as people move closer to the towns to access services and job opportunities.
- There are a number of environmental health risks, including:
  - The need to license a properly designed and managed Solid Waste Facility; and
  - The need for the management of the conditions under which rural cemeteries are identified and utilised.
- Low literacy level in rural communities.
- Safety, security, crime concerns and incidents.

Bio-physical and climate

- Land degradation is extensive and requires priority intervention to restore important agricultural land to support the rural livelihoods base of the majority of people in the area.
- Insufficient capacity in catchment systems and storage dams to bridge dry winter spells and drought periods.
- Lack of preparedness for impact of climate change predictions (more erratic rainfall patterns, severe weather conditions and disaster management to respond to risk).
- Physical barriers, such as rivers, require costly infrastructural inputs to improve movement / integration between settlements (vehicle and pedestrian bridges).
- The 32- m buffer of the river also restricts/prohibits development in close proximity to the river.
- The nodal areas' coverage is predominantly subsistence-based cultivated lands linked to the neighbouring settlements.
- Impact of solid waste on the environment is a concern, particularly where density of people is increasing in the built up zone.
- High soil erosion resulting in land degradation.
- Climate change effect may cause high erosion, drought or flooding.
- Poor water resource management.
- Stress on resources and a biodiversity loss.

Institutional and legislative

- Land claims and unlawful land invasions.
- Lack of implementation of legislation, policies, regulations, framework and guidelines.
- Collapse of communal land administration.
- Legal arrangements around traditional councils.
- Lack of skills in critical departments such as budget and treasury office.
- Lack of Provincial Planning and Land Use legislation (SPLUMA).
- Lack of institutional services: health and safety, community and government services.

The following key findings provide opportunities for development:

- Areas with favourable soils for cultivation, raises the potential for irrigated crop production.
- Favourable grazing for stock, especially sheep and goats, creating opportunities for farming and faring products such as meat and wool.
- The majority of households in the nodal areas have Eskom power supply.
- SANRAL is in the process of upgrading and refurbishment of the R61 route.
- Agriculture and forestry have been identified as the sectors with the most developmental potential

and the spatial areas with identified development potential need to be conserved and managed in order to be best utilised in a sustainable manner.

- The natural resources, scenic assets and prime forestry/agricultural land need to be carefully managed in order to ensure their appropriate development and sustainable use.
- The tourism sector has been highlighted as sectors for potential growth. This sector is largely dependent on natural resources (assets) and therefore it is essential that these resources are properly managements in order for these sectors to function as best possible.

5.10 INFORMATION GAPS

- Most of the documents reviewed, dates back to pre-2017 or earlier, even though the IDPs are reviewed annually.
- The same information is being used over and over again in both the district and the local municipalities.
- Environmental information is scares and often tend to revert back to information on a national or provincial level, the scale might thus not be appropriate for district municipal level.

6 OTHER SOURCES OF INFORMATION

6.1 CHRIS HANI DDM ONE PLAN AUGUST 2021 Draft version 5 dated 23 August 2021

This DDM One Plan for Chris Hani is a realization of a new government approach to improve integrated planning and delivery across the three spheres of government with district and metropolitan spaces as focal points of government and private sector investment. This One Plan for the District will increasingly enable integrated planning and delivery backed up by a more credible joint planning, budgeting and implementation process.

The new 2050 Vision for the District is as follows:

“A viable municipality that enables vibrant and eco-friendly economic development through capable and active citizenry guided by consistent and accountable leadership”.

The Chris Hani District Municipality DDM One Plan is based on the DDM Theory of Change which postulates six transformations to move from the current problematic situation to a desired better future. Whilst existing plans across government seek to align to the NDP and to each other, there is no clear single line of sight and logical rationale or relations in terms of commonly agreed priorities and joint and coherent way of addressing them within the socio-economic and inclusive and integrated place-making dynamics within specified spaces. These six DDM Transformation Focal Areas are:

i. People Development and Demographics – the process of understanding the current population profile and development dynamics and by which a desired demographic profile and radical improvement in the quality of life of the people is achieved through skills development and the following 5 transformations discussed below (economic positioning, spatial restructuring and environmental sustainability, infrastructure engineering, housing and services provisioning, and governance and management).
ii. Economic Positioning – the process by which a competitive edge is created that enables domestic and foreign investment attraction and job creation on the basis of an inclusive and transformed economy. The economic positioning informs the spatial restructuring and has to be sustained through protecting, nurturing and harnessing natural environment and resources.
iii. Spatial Restructuring and Environmental Sustainability – the process by which a transformed, efficient and environmentally sustainable spatial development pattern and form is created to support a competitive local economy and integrated sustainable human settlements. Spatial restructuring informs infrastructure investment in terms of quantum as well as location and layout of infrastructure networks.

iv. Infrastructure Engineering – the process by which infrastructure planning and investment especially bulk infrastructure installation occurs in order to support the transforming spatial pattern and form, meet the needs of a competitive and inclusive local economy and integrated human settlements, and ensure demand for housing and services is met in a sustainable way over the long-term.
v. Integrated Services Provisioning – the process by which integrated human settlement, municipal and community services are delivered in partnership with communities so as to transform spatial patterns and development for planned integrated sustainable human settlements with an integrated infrastructure network. This also requires holistic household level service delivery in the context of a social wage and improved jobs and livelihoods.
vi. Governance and Finance – the process by which leadership and management is exercised that planning, budgeting, procurement, delivery, financial and performance management takes place in an effective, efficient, accountable and transparent manner. It also includes spatial governance, that is, the process by which the spatial transformation goals are achieved through assessing and directing land development and undertaking effective land use management and release of municipal/public land.

This One Plan also includes the current implementation commitments by all three spheres of government and key stakeholders will enable the identified strategies/interventions to be implemented. Various implementation, monitoring and evaluation measures and mechanisms that will reinforce and be in place to focus attention and capability across the 3 spheres of government, so that this One Plan lives up to its stated purpose across eight focus areas, namely:

1) Economically self-sustained rural villages;
2) Infrastructure development linked to economic growth opportunities;
3) Transformed land use and ownership;
4) Revived Small Towns;
5) Revitalised industries;
6) Effective and efficient municipalities;
7) Active and able citizenry; and
8) Entrepreneurial and skills development linked to key sectors.

The Vision, Goals, Strategies and Targets included in this One Plan are a radical departure from the current unacceptable norm, which must be changed in the short, medium and long term. The targets contained herein are meant to shake up and reinvigorate hope across the whole of government and society in the District and leave a new legacy for generations to come. Various social compacts and agreements with key stakeholders will be put in place shortly to ensure that this Plan is actively co-owned, resourced, implemented and monitored.

The purpose of the Chris Hani District Municipality DDM One Plan is:

i. To give effect to the District Development Model (DDM) approved by Cabinet as a practical method to improve service delivery and development impact in the Chris Hani District Municipality space through integrated planning, budgeting, and delivery by all three spheres of government working together with stakeholders and communities.
ii. To localise and synergise the National Development Plan (NDP), the Medium-Term Strategic Framework (MTSF), National Spatial Development Framework (NSDF), Integrated Urban Development Framework (IUDF) and key national and provincial sector policies/strategies/plans with socio-economic and spatial development logic of the Chris Hani District Municipality;
iii. To express a coherent and predictable government approach in relation to these key priorities through a Long-Term Strategic Framework (One Plan) for growth and development of the Chris Hani District Municipality space that is co-produced by all three spheres of government together with stakeholders and communities.
iv. To enable a programmatic Intergovernmental Relations approach in relation to Chris Hani District Municipality through implementation of the One Plan that will serve as an impact performance framework tracking the commitments and spending of national and provincial sector departments

and the Chris Hani District Municipality according to the shared vision and desired future development of Chris Hani District Municipality and its people.

v. To create an environment which is conducive for investment.

vi. To stabilize governance and financial management practices in the Chris Hani District Municipality.

7 CONCLUSION AND WAY FORWARD

Muvuledzi Consulting has assessed and summarised the most important studies and legislative requirements for the development of the Chris Hani District Municipality EMF. In the summary the shortcomings of the studies have been highlighted in the literature review as well as relevant information and key findings.

The Chris Hani District Municipality (CHDM) is a landlocked district stretching across the northern portion of the Eastern Cape Province. Chris Hani is the second-largest district in the province, making up almost a third of its geographical area. It includes the former administrative areas of Transkei, Ciskei and Cape Provincial areas. It is a Category C municipality, a linking node to all regions in the province.

The natural environment ranges from semi-arid Karoo in the west to moist upland and mountain grassland in the east. The district is characterised by its rural settlements and typical subsistence agriculture activities. The district has relatively high poverty and low literacy levels.

Key drivers are agriculture, general government services, finance and business, wholesale, retail, transport, catering and community services. The agricultural industry in the district is divided into the first economy of commercial agriculture and the second economy of subsistence farming.

The primary sector consists of two broad economic sectors namely the mining and the agricultural sector. Both the agriculture and mining sectors are generally characterised by volatility in growth over the period. The secondary sector consists of three broad economic sectors namely the manufacturing, electricity and the construction sector. The tertiary sector consists of four broad economic sectors namely the trade, transport, finance and the community services sector.

The community services sector is the largest economic sector within the district. The trade sector the second largest, followed by the finance sector. The sector that contributes the least to the economy of Chris Hani District Municipality is the mining sector.

The N10 National Road, is a vital economic link between Gqeberha (formerly Port Elizabeth) and the north. The R61 is a provincial route runs across the length of Chris Hani through the main towns of five local municipalities, which could develop greater intra-district flows. There are thus good road and rail linkages.

The most common form of tenure in the former Transkei and Ciskei areas is the communal land tenure system. Ownership of land in the urban areas and former RSA areas is held by Free-hold Title Deeds. A considerable amount of land in the area of the former homelands remain in state ownership. This situation results in difficulty in obtaining land and use rights for developmental purposes.

The Chris Hani District Spatial development framework (SDF) identified four major corridors in line with the Chris Hani District Regional Economic Development Strategy (REDS) and Special Economic Zones (SEZ) key strategies for economic development. These corridors form the main “arteries” of the district and connect areas of economic development potential with the key urban settlement centres identified in the District Settlement Hierarchy. They also, for the main part, overlap with the district’s main Tourism Routes.

In this regard, the corridors represent key infrastructure that may strengthen and enhance potential value chains as these relate to a specific cluster of activities (e.g. mining cluster, agricultural cluster, forestry cluster etc.). They thus form a fundamental structural platform for the development of the Chris Hani SEZ.

The State of Environment Report is a Provincial document and therefore there is a lack of information focused specifically for the Chris Hani District Municipality. However, some of the information could be found in the local planning documents, e.g IDP and SDF.

The IDPs and SDFs for the local municipalities tend to focus on this lack of infrastructure and basic services. While this is acknowledged as a serious problem that requires urgent attention, it would appear that the needs of the people in terms of infrastructure and services are the focus with natural environmental areas and biodiversity only receiving attention in areas when and where it can be accommodated or when it is considered a potential asset or constraint to or for development and is often neglected to leading to the loss of ecosystem services such as: clean water, contributing directly to the economy through industries like fishing and tourism, supporting livelihoods by providing food, medicines and building materials and generally improving health and wellbeing.

The main issues that were highlighted include: socio economic, economic, basic infrastructure, spatial and housing issues as well as social facilities, services and environmental degradation.

The literature clearly highlights the challenges and constraints as well as the opportunities of the district and local municipalities.

Following on from, and building on the foundation of, this Literature Review the EMF project will progress to a more in-depth investigation of the various environmental and social characteristics of the Chris Hani DM. The Literature Review will therefore inform the compilation of a Status Quo Report. The findings of Status Quo Report will ultimately represent a current “snapshot‟ of the Chris Hani DM environment which can be compared to a more idealistic Desired State later in the project.