Ugu District Municipality

edtea
Department :
Economic Development, Tourism and Environmental Affairs
PROVINCE OF KWAZULU-NATAL

UGU DISTRICT MUNICIPALITY
ENVIRONMENTAL MANAGEMENT FRAMEWORK

STRATEGIC ENVIRONMENTAL MANAGEMENT PLAN

FINAL

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AMENDMENTS PAGE

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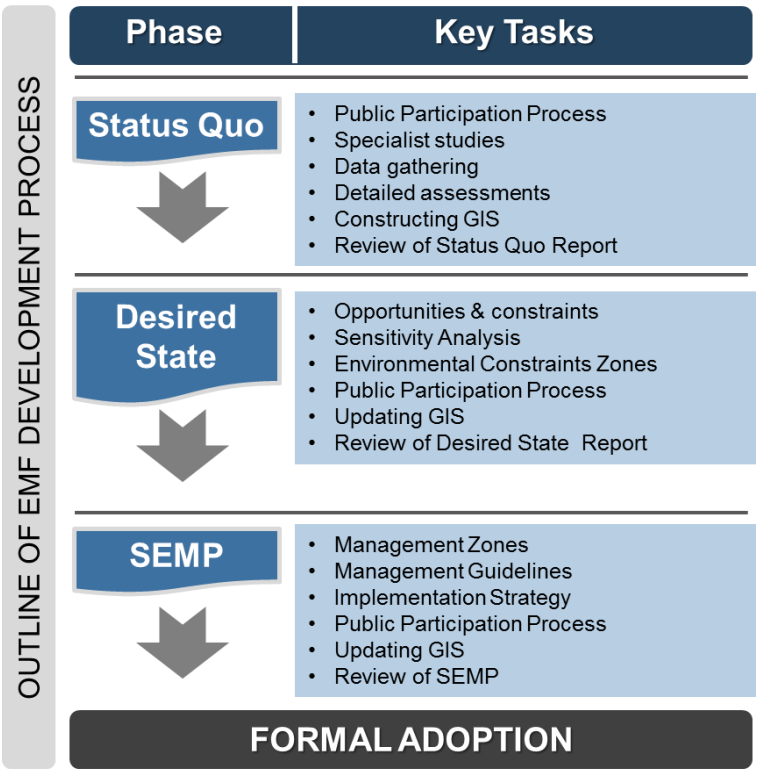
EXECUTIVE SUMMARY

The Ugu District Municipality, in partnership with the Department of Environmental Affairs and KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs, embarked on a process to develop an Environmental Management Framework for the district. Nemai Consulting was appointed to only compile the Strategic Environmental Management Plan, based on the outcomes of the Status Quo and Desired State phases of the overall Environmental Management Framework process.

An Environmental Management Framework is a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific activities may best be practiced and to offer performance standards for maintaining appropriate use of such land. In its formal context, the EMF that is adopted by the Minister or MEC will be taken into consideration when reviewing applications for environmental authorisation in or affecting the areas to which the EMF applies. In addition, the EMF informs decision-making regarding land use applications.

The Environmental Management Framework development approach, which is outlined in the accompanying figure, is consistent with the requirements stipulated in the National Environmental Management Act (Act No. 107 of 1998) and the Environmental Management Framework Regulations (Government Notice No. R547 of 18 June 2010).



Outline of EMF Development Process

This report represents the Strategic Environmental Management Plan of the Environmental Management Framework and serves to plot the way forward for attaining the desired state. The Strategic Environmental Management Plan bridges the divide between the current state of the environment in the district and the desired state. It aims to achieve this by managing the sustainable utilisation of land through Management Guidelines and by controlling the activities that may impact on environmental attributes in specific geographical areas.

An Environmental Management Zones, which is also regarded as a 'geographical area' in terms of Section 24 of the National Environmental Management Act (Act No. 107 of 1998), represents a specific demarcated area that requires active control to ensure that its potential is realised and sensitive features are safeguarded. The following Environmental Management Zones were delineated for Ugu DM based on the outcome of the sensitivity analysis:

- Formally Protected Terrestrial Areas;
- Terrestrial Biodiversity;
- Aquatic Biodiversity;
- Coastal and Estuarine Environment;
- Agriculture;
- Heritage; and
- Urban Areas.

To facilitate the attainment of the desired state for these zones, guidelines are required that stipulate compatible activities and specific management requirements and objectives that need to be adhered to when development is proposed in a zone.

The SEMP culminates in a strategy for the implementation of the EMF, which consists of the following:

- A pragmatic approach to the implementation of the UGU DM EMF based on the commonly adopted management system of a Plan-Do-Check-Act cycle;
- Linkages with other Planning and Policy Instruments;
- Striving towards the Desired State;
- Giving Effect to the EMF –
  - EMF Enabling Institutional Arrangements;
  - EMF Implementation Duties;
  - EMF Functionality;
  - EMF Review;
- Cooperative Governance; and
- Monitoring and Evaluation Framework.

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BSP	Biodiversity Sector Plan
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CBA	Critical Biodiversity Area
CCA	Community Conservation Areas
CCRS	Climate Change Response Strategy
CEA	Cumulative Effects Assessment
CMA	Catchment Management Agency
CMP	Coastal Management Programme
CVI	Coastal Vulnerability Index
COGTA	Department of Co-operative Governance and Traditional Affairs
CR	Critically Endangered
DAFF	Department of Agriculture, Forestry and Fisheries
DARD	Department of Agriculture and Rural Development
DEA	Department of Environmental Affairs
DM	District Municipality
DMR	Department of Mineral Resources
DPSIR	Driving Force - Pressure - State - Impact - Response
DRDLR	Department of Rural Development and Land Reform
DWA	Department of Water Affairs
DWS	Department of Water and Sanitation
EDTEA	Economic Development, Tourism and Environmental Affairs
ECZ	Environmental Constraints Zone
EIA	Environmental Impact Assessment
EKZNW	Ezemvelo KZN Wildlife
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EMS	Environmental Management System
EMZ	Environmental Management Zone
EN	Endangered
ESA	Ecological Support Area
FEPA	Freshwater Ecosystem Priority Areas
FSCA	Freshwater Systematic Conservation Assessment
GDS	Growth and Development Strategy
GIS	Geographical Information System
GN	Government Notice
H	High
IDP	Integrated Development Plan
IEM	Integrated Environmental Management

ITB	Ingonyama Trust Board
KZN	KwaZulu-Natal
LM	Local Municipality
L	Low
LCA	Life Cycle Assessment
LT	Least Threatened
LUMS	Land Use Management System
M	Medium
MLRA	Marine Living Resources Act (Act No. 18 of 1998)
MP	Management Plan
MPRDA	Mineral and Petroleum Resource Development Act (Act 28 of 2002)
MSCP	Marine Systematic Conservation Plan
NBF	National Biodiversity Framework
NBSAP	National Biodiversity Strategy and Action Plan
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act (Act 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act (Act No 24 of 2008)
NEM:PAA	National Environmental Management Protected Areas Act (Act 57 of 2003)
NEM:WA	National Environmental Management: Waste Act (Act 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act (Act 25 of 1999)
NPAES	National Protected Area Expansion Strategy
NSSD1	National Strategy for Sustainable Development and Action Plan
NWA	National Water Act (Act 36 of 1998)
RDMs	Resource Directed Measures
RQOs	Resource Quality Objectives
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SDCs	Source Directed Controls
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SEMP	Strategic Environmental Management Plan
SOE	State of the Environment
SPLUMA	Spatial Planning and Land Use Management Act (Act 16 of 2013)
VH	Very High
VU	Vulnerable
WHS	World Heritage Site
WWTW	Wastewater Treatment Works

DEFINITIONS / GLOSSARY OF TERMS

Environment

The surroundings in which humans exist and which comprise:

- *The land, water and atmosphere of the earth;*
- *Micro-organisms, plant and animal life;*
- *Any part or combination of a) and b) and the interrelationships among and between them; and*
- *The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.*

Environmental Feature

Elements and attributes of the biophysical, economic and social environment that comprise a data category.

Environmental Management Framework (EMF)

The study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific land-uses may best be practiced and to offer performance standards for maintaining appropriate use of such land.

Management Guidelines

Specific provisions applied in the management of each individual attribute or activity associated with the respective Environmental Management Zones.

Environmental Management Zones

Specific demarcated geographical area, represented spatially on a map illustrating a specific sensitive feature which needs to be managed in a pro-active and dedicated way.

Regulated Area of a Watercourse

- *Delineated riparian habitat / 1:100 flood line (whichever is greatest);*
- *In absence of above, the areas within 100m from edge of watercourse (edge = first identifiable annual bank fill flood bench); and*
- *500m radius from delineated boundary of any wetland or pan*

Introduction

Section 1



1 INTRODUCTION

1.1 Background

The Ugu District Municipality (DM), in partnership with the KwaZulu-Natal (KZN) Department of Economic Development, Tourism and Environmental Affairs (EDTEA), embarked on a process to develop an Environmental Management Framework (EMF) for the District. Nemai Consulting was appointed to only compile the Strategic Environmental Management Plan (SEMP), based on the outcomes of the Status Quo and Desired State phases of the overall EMF process.

An EMF is a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific activities may best be undertaken and to offer performance standards for achieving and maintaining the desired state of that area. An EMF includes a framework of spatially represented information connected to significant environmental (i.e. ecological, social and economic) parameters. A key function of an EMF is to proactively identify areas of potential conflict between development proposals and critical/sensitive environments.

Once the EMF is finalised, it will undergo promulgation and gazetting in order to render it as a formal decision-making tool in the environmental and planning arenas.

The deliverables of the Ugu DM EMF include the following (shown in **Figure 1**):

- Status Quo Report;
- Desired State Report; and
- SEMP.

This report represents the SEMP of the Ugu DM EMF process and serves to plot the way forward for attaining the desired state for the environment within the district.

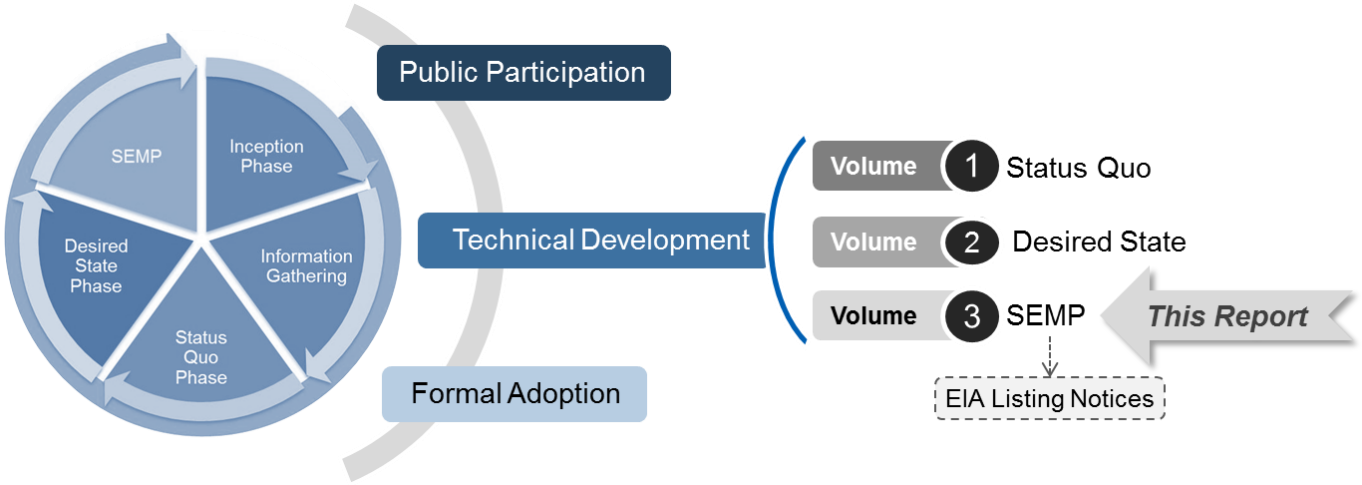


Figure 1: Ugu DM EMF Building Blocks

1.2 EMF Study Area

The Ugu DM (district code DC21) is a Category C municipality situated in the south of KZN. The district is bordered by Umgungundlovu District Municipality (DM) (north), eThekwini Municipality (north-east), Harry Gwala DM (west) and the Eastern Cape (south-west) (see **Figures 2** and **3**). The Indian Ocean forms the eastern border of the district.

Ugu DM encompasses the following local municipalities: Umdoni Local Municipality (LM), uMzumbe LM, Ray Nkonyeni LM and Umuziwabantu LM. The District previously consisted of six local municipalities (Ezinqoleni LM, Hibiscus Coast LM, Umdoni LM, Umuziwabantu LM, Umzumbe LM and Vulamehlo LM). In 2016 Vulamehlo LM was disestablished and its municipal area merged with the eThekwini Municipality and the Umdoni LM. The Ezinqoleni LM and Hibiscus Coast LM were amalgamated to form the Ray Nkonyeni LM.

The district covers an area of 5 074 km² with a coastline of approximately 112km. The main towns and cities include Harding, Hibberdene, Margate, Pennington, Port Edward, Port Shepstone, Scottburgh/Umzinto North and Southbroom.

The N2 highway runs through Ugu DM parallel to the sea. Port Shepstone is the seat of the District and also forms the main commercial centre. The highway serves as both a link and gateway to the neighbouring Eastern Cape and in the opposite direction to Durban and Johannesburg.

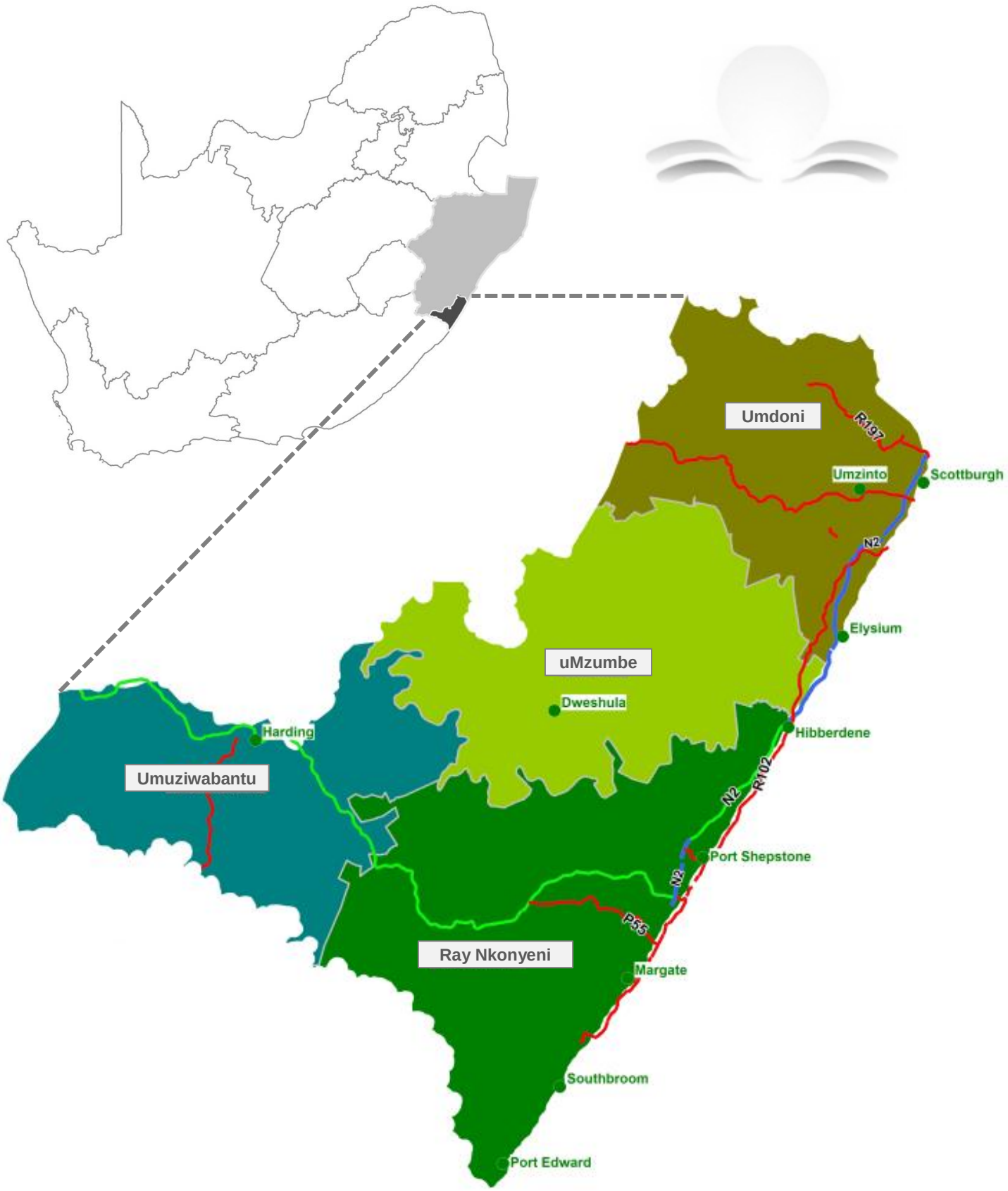


Figure 2: **Ugu DM National and Provincial Geographical Context**

Figure 3: Locality Map

An overview of the local municipalities in Ugu DM follows:

- The Ray Nkonyeni LM is the most concentrated economic hub within the District. The main features of the economy are tourism and agriculture with some manufacturing centred around Port Shepstone. Parts of its terrain are hilly and contain features such as the Oribi Gorge.
- Umdoni LM's seat is in Scottburgh, which is located on the mid-south coast of KZN. The economy of the town is based on tourism, commerce, industry, agriculture and government offices. The amalgamated municipal area predominantly consists of Traditional Authority areas. There are, however, a few scattered pockets of privately owned land.
- Umuziwabantu LM's seat is in Harding. The municipality consists of farmland, commercially-grown forests and Traditional Authority areas.
- uMzumbe LM extends along the coast for a short stretch between Mtwalume and Hibberdene, and then balloons out into the hinterland for some 60 km. Only 1% of the municipality is built up (semi-urban). The rural hinterland predominantly consists of Traditional Authority areas.

1.3 EMF Objectives

In order to address the triggers for sustainable development in the Ugu DM and the priority environmental opportunities and constraints, the specific objectives of the EMF will include the following:

1. To consolidate environmental information for the district;
2. To identify geographical areas in terms of Section 24 of the National Environmental Management Act (NEMA) (Act No. 107 of 1998);
3. To consider the influence of the geographical areas to the listed activities under the Environmental Impact Assessment Regulations (EIA) (2014), as amended (refer to separate sub-deliverable);
4. To develop a decision support system for development in the area to ensure that environmental attributes, issues and priorities are taken into account;
5. To inform development planning in the district; and
6. To provide strategic guidance on environmental, economic and social issues in Ugu DM.

In its formal context, the EMF that is adopted by the Minister or MEC will be taken into consideration when reviewing applications for environmental authorisation in or affecting the areas to which the EMF applies. In addition, the EMF informs decision-making regarding land use applications.

1.4 EMF Development Principles

In accordance with the Department of Environmental Affairs (DEA) (2010), the following principles have been applied in the development of the Ugu DM EMF:

- The EMF is customised to the context of Ugu DM;
- The EMF is undertaken with reference to environmental goals and priorities;
- The EMF strives to encourage sustainable development;
- The scope of the EMF is comprehensive enough to provide assistance to all levels and types of environmental and planning decision-making in Ugu DM;
- The EMF places specific focus on the issues and information that matter in decision-making in Ugu DM;
- Bio-physical, social, economic, and other aspects that are relevant in the district are reflected in the EMF;
- The EMF aims to be clear and easy to understand;
- The process of developing the EMF included an appropriate level of public participation;
- The process of developing the Ugu DM EMF was conducted impartially; and
- The EMF takes into consideration the legal and policy requirements as well as guidelines that are applicable to Ugu DM.

1.5 SEMP Development Approach

The development approach for the SEMP is consistent with the requirements stipulated in the following primary legislation that governs the process:

- NEMA, in particular Sections 2, 23 and 24; and
- The EMF Regulations (Government Notice No. R. 547 of 18 June 2010), which make provision for the development, content and adoption of an EMF as a proactive environmental management decision support tool.

In addition, the SEMP also aims to conform to the Guideline on Environmental Management Frameworks in terms of the EMF Regulations of 2010, Integrated Environmental Management Guideline Series 6 (DEA, 2010).

1.6 Gaps, Assumptions and Limitations

It is expected that the EMF and each of the Environmental Sensitivity Maps and Environmental Management Zones (EMZs) will undergo rigorous review and scrutiny by the relevant parties that will be involved with the application of the outcomes of the EMF, the implementation of its Management Guidelines or are potentially affected by the framework. Following the requisite

amendments and incorporation of comments, this decision-making tool should be regarded as a concept EMF until the requirements of DEA and KZN EDTEA can be satisfied and the gazetting process has been completed.

Environmental Sensitivity Maps and EMZs were demarcated using the best available information at the time when this report was compiled and the accompanying Geographical Information System (GIS) was developed. It is accepted that more accurate and supplementary information may become available subsequent to the finalisation of the EMF. A plan-do-check-act approach is thus advocated, where the framework will undergo a cycle of planning and implementation which needs to be followed by revisions and updating by its custodians. Ground-truthing is also crucial, especially for significant environmental attributes, which needs to feed into the evolving EMF.

The following information gaps and limitations accompany the SEMP:

- The Environmental Sensitivity Maps and resultant EMZs were delineated and rated based on pre-determined (and available) criteria that were fed into a spatial model. Through further data refinement and the inclusion of new spatial information, the precision of the EMZs can be enhanced. Input from stakeholders could also lead to the re-adjustment of weightings, which could fine-tune the sensitivity rating system.
- Areas where conflict between development pressures and environmental sensitivity were identified were dealt with in the demarcation of the EMZs through a conservative and risk-averse approach. Nonetheless, opinions may vary as to the acceptable manner in which development pressures influenced the delineation of the EMZs. Despite efforts, limited information was sourced with regard to sector-related developments earmarked for the District, and the EMF may thus not holistically consider all the development pressures in Ugu DM.
- Further consultation is recommended with the Traditional Leaders to convey the implications of the framework for future development in the District in order to garner the necessary support in this regard. This should be facilitated through the KZN Department of Co-operative Governance and Traditional Affairs (COGTA).
- Through the Project Steering Committee and direct consultation, the project team endeavoured to obtain existing policies, strategies, plans and programmes, as well as information regarding earmarked developments that are relevant to Ugu DM. However, it is anticipated that not all of the spatial data and accompanying information was successfully sourced. These gaps may be identified during the review of the EMF.

Summary of Status Quo & Desired State Reports

Section 2

2 SUMMARY OF STATUS QUO & DESIRED STATE REPORTS

2.1 EMF Development Process

The approach to developing the EMF for Ugu DM is outlined in the diagram to follow. The process consists of three distinct phases, namely Status Quo (*where are we now?*), Desired State (*where do we want to be?*) and SEMP (*how do we get there?*). The process is concluded with the adoption and gazetting of the EMF, which allows it to be formally used as a decision-making tool for environmental and planning purposes.

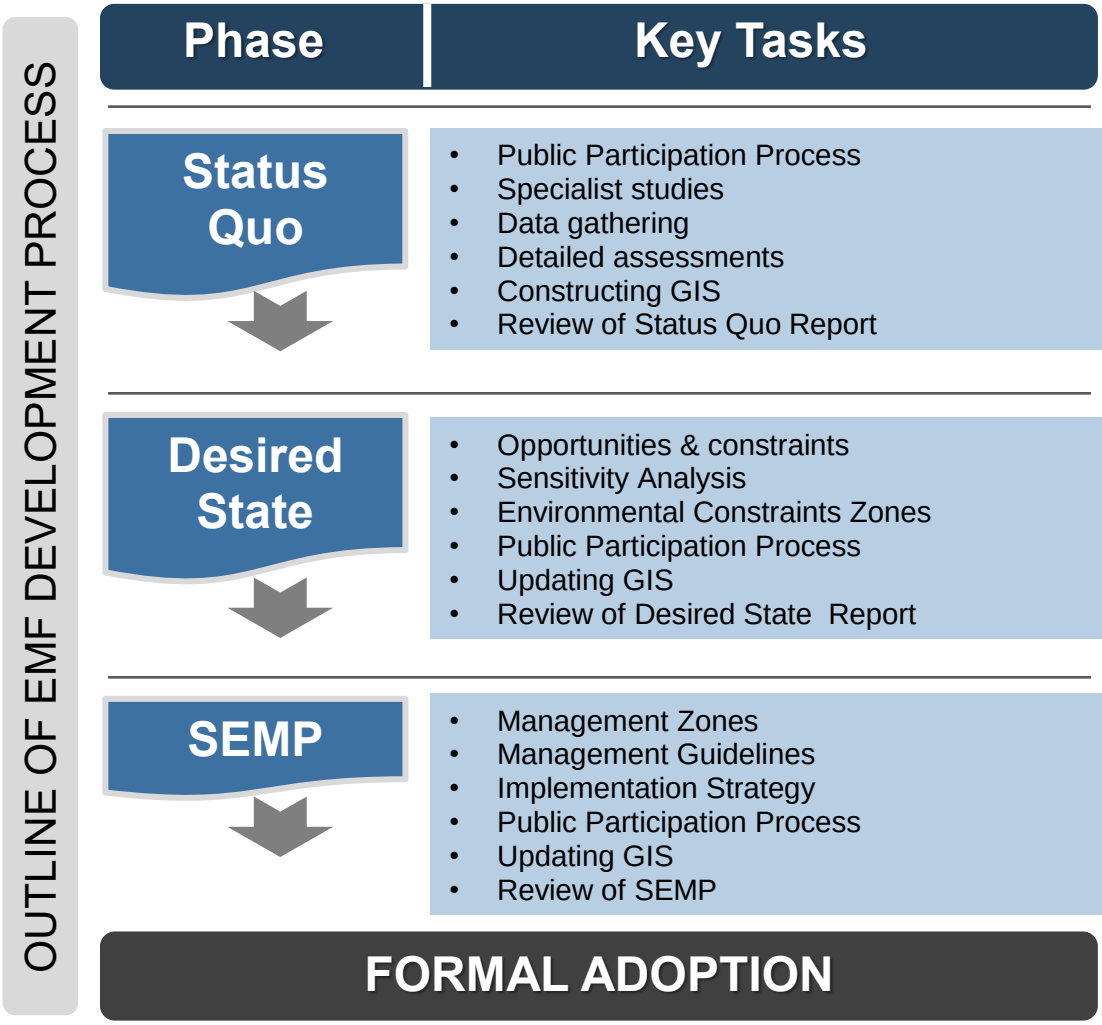


Figure 4: Ugu DM EMF Development Approach

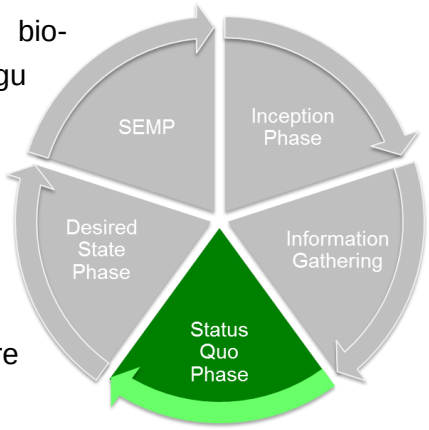
This section further provides an overview of the Status Quo and Desired State Reports.

2.2 Status Quo Report

2.2.1 Introduction

The products of the Status Quo phase of the EMF included the following (Ugu DM, 2013):

- A report describing the presiding socio-economic and bio-physical environmental conditions and governance in the Ugu district, as well as a suite of specialist studies;
- Recommendations of individual specialists; and
- GIS Maps accompanied by raw spatial data.



The outcomes of the status quo assessment provided the foundation upon which the remaining EMF deliverables were built.

Key findings from the Status Quo phase are captured in the sub-sections to follow as sourced from Ugu DM (2013).

2.2.2 Biodiversity

Historic levels of transformation and land use have resulted in dramatic impacts to the environment, particularly along the coastal zone and higher rainfall areas. Levels of transformation are such that a large number of ecosystems are now critically endangered and stand out amongst the most critical areas in the country for biodiversity protection. This has considerably compromised ecological infrastructure and the goods and services available to society, which will significantly affect the district's ability to adapt and respond to pressures such as climate change and water quality deterioration. This has also resulted in widespread species decline.

Less than 2% of the land surface area is formally protected, which is below par. While opportunities for protection and improved management still remain, socio-economic drivers such as agricultural expansion, the spread of alien invasive plants and deteriorating water quality will continue to erode the remaining environmental assets. Dynamic management interventions that were recommended include:

- Integrating biodiversity into municipal and development planning: It is critical that information on biodiversity priorities be clearly communicated to key stakeholders in order to improve decision making;
- Protection and management of Critical Biodiversity Areas (CBAs): Given the critical levels of transformation in the district and pressures on remaining land, efforts are urgently required to secure and manage CBAs;

- Rehabilitation of degraded areas: While degraded areas are not necessarily areas of highest biodiversity value, they often pose a threat to CBAs;
- Protection of water resources: Water resources provide critical ecosystem goods and services which are likely to increase in importance as population pressure increases and climate change affects local rainfall patterns; and
- Coastline management: Given the importance of the coastline for both biodiversity and tourism, it is critical that appropriate strategies are implemented to safeguard this resource.

2.2.3 Agriculture

There is a well-developed commercial agricultural sector and a poorly developed small holding sector in the rural areas of the district. The majority of land in the Ugu DM that can be used for different forms of agricultural production in the district has already been identified and/or is being utilised. An exception to this may be in the drier areas where there may be good soils and associated production conditions, but these can only be realised with water (if available) for irrigation purposes. The key agricultural activities taking place in the district at the present time include: sugar cane production and milling; timber production and pulp processing; bananas for local and international markets; macadamia nuts for local and international markets; limited coffee production for local consumption and livestock for commercial and subsistence (beef, dairy, poultry, piggeries and goats).

There is potential for the diversification of sub-tropical fruit production in the Ugu DM, which could include commercial production of citrus, mangoes, litchis and medicinal plants. The commercial viability of extending these fruit crops into rural areas on an outgrower basis would need to be investigated further as part of an update of the agricultural plan for Ugu. Various other recommendations are made, which are incorporated in the Management Guidelines of the SEMP.

2.2.4 Water Resources

The majority of the catchments within the Ugu DM are in good ecological state and have a low level of anthropogenic impact, although highly impacted on by invasive alien vegetation. The geohydrological units underlying the Ugu DM are classified as secondary aquifers. Generally, borehole yields can be expected to be satisfactory, except for low yield areas. Groundwater quality is generally good, and recharges depending on elevation and precipitation.

2.2.5 Geology

The various types of geology (which influences soil production) as well as risk types (hazards) in the Ugu DM were identified. The geology types are: Tillite, Mudstone, Shale, Dolerite, Gneiss, Arenite and Berea Formation. Geological risks in Ugu include: collapsible soils, heaving/shrinking soils, landslide risks and unstable slopes. Despite the above findings/knowledge available, fine scale site investigations are a primary requirement prior to development in the area due to the possibility of geological risks being present at the more detailed level.

It is recommended that site specific geotechnical investigations would still need to be conducted prior to any development taking place due to the study providing a general overview, and not specific to individual locations.

2.2.6 Resource Economics

In terms of land assets (i.e. land cover types) of Ugu, these produce a wide variety of ecosystem services, including those within the built environment. The assets in rural areas are in relatively good condition in comparison to those in the coastal areas due to lower levels of transformation. Similarly, assets in close proximity to settlement areas are generally in poorer condition than those further away.

A wide range of ecosystem services are supplied by the land cover types within the Ugu DM, including: carbon storage / sequestration, crops, fruits & vegetables, flood attenuation, land-based recreation, temperature moderation, fibre and poles, waste assimilation and soil

stability / retention. These services are delivered at high levels due to the landscape assets inherent in Ugu.

The following recommendations are noted:

- More participation is required from the specialists, as well as local stakeholders in the next phase;
- The transformation of natural and agricultural assets or land cover types may reduce the range of ecosystem services supplied, while changes in condition, size and connectivity may reduce service supply levels; and
- Services with low supply levels will need to be carefully managed as these generate high risk to society.

2.2.7 Air Quality

There is a broad mix of land uses in the study area, which results in varied air quality across the area, whereby emissions vary for rural versus developed / urban areas as a result of the type of emissions sources. Agricultural and some rural areas are responsible for emissions related to biomass burning while the more urbanised areas have higher industrial and transport related emissions. The bulk of industrial emissions emanates from Port Shepstone. In terms of management of air quality in Ugu and its local municipalities, up-skilling and increased capacity are required within local municipal structures.

The following recommendations are noted:

- There are a number of gaps in the information currently available that need to be addressed (e.g. improving on the limited ambient air quality monitoring data available and obtaining more information on emitters);
- In terms of the institutional framework, there is a need to address the gaps in the district's air quality management capacity, improve the licensing function and increase collaboration between all stakeholders; and
- Developments likely to result in high emissions should not take place near ecologically and/ or socially sensitive receptors. Alternative fuel sources need to be investigated to

reduce negative health impacts typically suffered by informal communities as a result of compromised indoor air.

2.2.8 Heritage

A significant number of unidentified and poorly documented historical and cultural resources occur, as well as resources that have been recorded but for which geographic coordinates are unavailable at present. These consist of memorials, places of worship (churches, mosques and temples), cemeteries, open spaces, areas of political significance and areas of past economic significance, to mention but a few. Few comprehensive and accurate records exist for heritage resources in the area, which has limited mapping opportunities and spatial planning for this EMF.

The following recommendations are noted:

- Establishment of Metro and/or District Heritage Forums: In order to adequately address the conservation of heritage resources within the Ugu DM, it is strongly recommended that Amafa and the municipality create a functioning District Heritage Forum, as required in terms of Section 29 of the KwaZulu-Natal Heritage Act, 2008 (Act No. 4 of 2008);
- Heritage resource identification and grading: An extensive public participation program should be undertaken to identify sites of cultural and historical significance;
- Development of management plans: Amafa and the District Heritage Forum should compile integrated site management plans for all Provincial and Heritage Landmarks, places of conflict and other significant heritage resources;
- Database development: A national database for all heritage resources, SAHRIS, has been developed by the South African Heritage Resources Agency and is continually updated. Existing resources such as oral histories and Heritage Impact Assessments (HIAs) submitted as part of the EIA process should be uploaded to the SAHRIS database;
- Heritage Impact Assessments: HIAs, including Archaeological Impact Assessments, should be carried out in all areas identified for development; and
- Urban conservation: Buildings and structures should be assessed in terms of their various values, including their contribution to streetscapes and townscapes. All buildings with heritage significance are protected by heritage legislation, not only those older than sixty years, however such significance must be in the public interest.

2.2.9 Town Planning

North-south linkages within the rural areas are weak and currently limit the potential for additional routes other than the N2 along the coastline. Developing these north-south linkages (from Harding to St Faiths; Oribi Flats through Umzinto to Odidini, and from Umgayi through Kenterton past Dududu) will dramatically improve accessibility within the district.

This coastal belt currently hosts the majority of formal residential property, tourism activity, retail and manufacturing activities. There will be further development pressure in this zone and therefore it is essential to ensure that development is undertaken sustainably.

Traditional settlements have poor accessibility and contain very few and/or badly maintained linkages to the existing road network. The major traditional settlements are surrounded by commercial agriculture, and opportunities exist to not only create linkages between communities and commercial farmers, but also to develop capacity within rural communities to undertake small-scale farming.

Large scale-commercial agriculture will remain a primary focus of the Ugu district. The EMF should ensure that high potential agricultural land that can have a major benefit for local communities and commercial farming is protected.

2.2.10 Landscape Character Assessment

While a large portion of Ugu comprises cultivated land (such as plantations and sugarcane), several prominent steep slopes, ridges and mountains in Ugu still possess natural aesthetic value. The district is home to the famous Oribi Gorge Nature Reserve and the largest town is Port Shepstone. Other major conservation or protected areas include:

- Umtamvuna Nature Reserve;
- Mbumbazi Nature Reserve;
- Vernon Crookes Nature Reserve;
- Skyline Nature Reserve;
- Forest Side Nature Reserve;
- Mehlomnyama Nature Reserve;
- Ngele Nature Reserve;
- Red Desert Nature Reserve;
- Mpenjati Nature Reserve; and
- Weza Forest Reserve.

An investigation into the general topography of the region, the terrain morphology, the broad land cover and land use patterns, and a visual assessment aimed at determining the visual

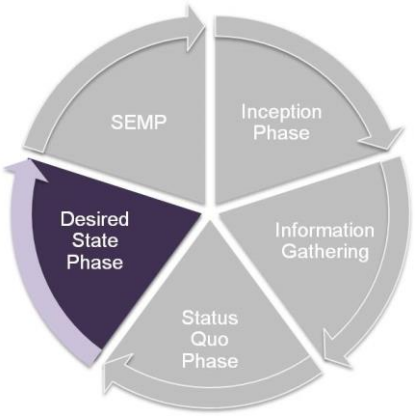
exposure within the district, provides us with zones with similar characteristics, to delineate zones and to provide management guidelines (where applicable) for each zone.

2.2.11 Mapping

A series of maps was produced for the status quo phase, and form part of EMF GIS.

2.3 Desired State Report

2.3.1 Introduction



With the foundation of the EMF set through the Status Quo Phase, the next step was to determine a realistic desired state for the environment in the study area.

The analysis and evaluation of the baseline information, issues raised throughout the stakeholder engagement process (see photographs below), authority requirements and the principles of sustainable development provided the basis for establishing environmental priorities (Ugu DM, 2014). These priorities are intended to form the basis of the management guidelines and strategic objectives of the EMF.

Figure 5: Photographs of stakeholder workshops (Ugu DM, 2014)

2.3.2 Sustainability Objectives

Sustainability objectives were developed based on South Africa's environmental legal framework, environmental best practice and through a sensitivity analysis, which included a description of the status and the desired state for the following environmental features:

- Socio-economic environment;
- Town planning;
- Heritage resources;
- Biodiversity;
- Water resources;

- Agriculture; and
- Air quality.

Where relevant, specific sustainability objectives from the EMF Desired State Report were incorporated into the Management Guidelines of the EMZs (see **Section 4**).

2.3.3 Vision and Mission

The following vision and mission was determined as part of the Desired State phase through stakeholder input:

Ugu's Vision:

"*A place where everyone benefits equally from socio-economic opportunities and services, in a manner that ensures the sustainable use and management of environmental and financial resources in the Ugu District.*"

Ugu's Mission:

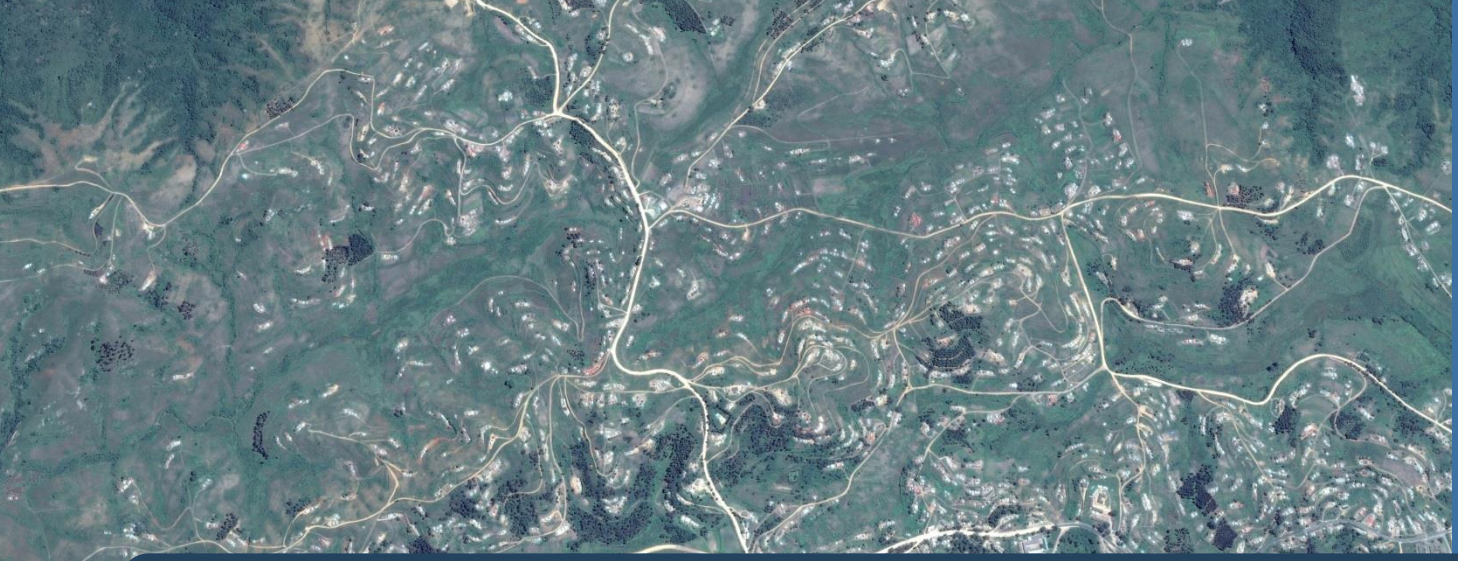
"*To foster a safe and enabling environment for social and economic development resulting in the provision of quality drinking water and access to decent sanitation through a process of people centered development and by ensuring the responsible use of resources across all sectors and spheres.*"

It is noted that the above vision and mission relate to the overall Ugu DM, and various role-players will need to be involved in their realisation. Through the SEMP the EMF also endeavours to achieve the desired state for the environment within the District.

2.3.4 Threats and Opportunities for Achieving the Desired State

Based on an understanding of the study area as well as stakeholder contributions, an analysis of the threats to achieving the desired state and opportunities for achieving it was undertaken.

Section 3.5 indicates how the SEMP strives to address the threats and opportunities in Ugu and the manner in which it supports the desired state objectives.



ENVIRONMENTAL MANAGEMENT ZONES

SECTION 3

3 ENVIRONMENTAL MANAGEMENT ZONES

3.1 Process of Delineating EMZs

An EMZ, which is also regarded as a 'geographical area' in terms of Section 24 of NEMA, represents a specific demarcated area that requires active control to ensure that its potential is realised and sensitive features are safeguarded. The management zones focus the attention of the relevant authority on critical environmental areas in Ugu DM and thus ultimately guide and inform decision-making within the environmental planning realm.

The EMZs in the study area were delineated as follows:

Step 1 – Undertake sensitivity analysis and delineate Environmental Sensitivity Maps for selected features, based on spatial information available.

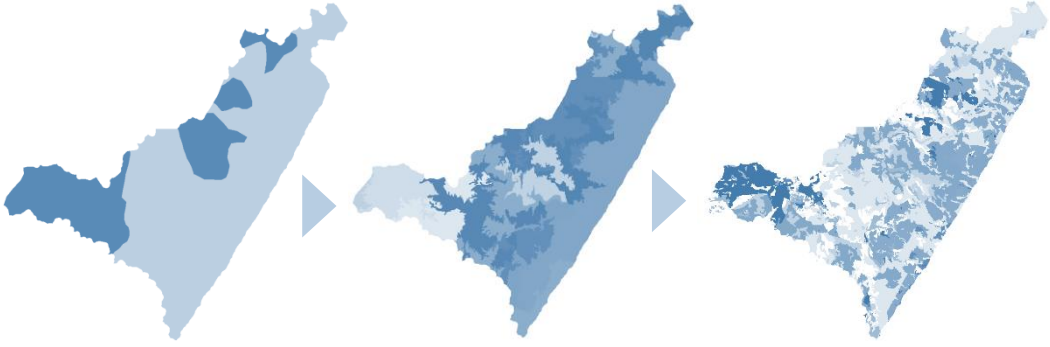
Step 2 – Create version 1 of EMZs by overlaying attributes with a **Very High** and **High** sensitivity rating for each environmental category.

Step 3 – Consider version 1 of the EMZs in light of threats, opportunities and development pressures in the District.

Step 4 – Identify conflict areas between known significant and large developments (e.g. Strategic Infrastructure Projects) and sensitive environmental features.

Step 5 – Where relevant, identify conflict areas between incompatible environmental features and assign preference.

Step 6 – Demarcate final EMZs from overlapped Environmental Sensitivity Maps, development pressures and trends, opportunities, constraints and public aspirations.



3.2 Sensitivity Analysis

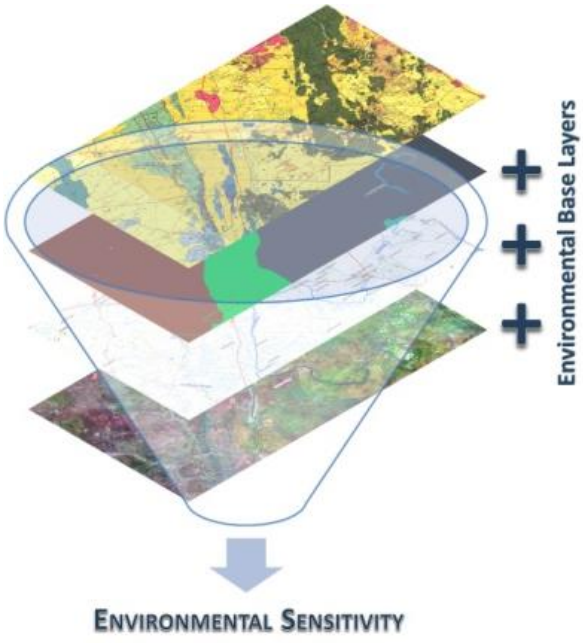
3.2.1 Introduction

'Sensitivity' is regarded as the inherent quality of an environmental feature, which is derived from the following traits:

- Goods and services offered;
- Scientific importance (e.g. research purposes, uniqueness, biodiversity significance);
- Legal status / protection level; and
- Vulnerability / tolerance to change.

The process adopted in undertaking the sensitivity analysis for the EMF consisted of the following steps:

1. Integrate spatially represented baseline information from the the Status Quo assessment;
2. Identify the **environmental features and their associated attributes** that portray the environmental sensitivity of the Ugu DM based on the outcomes of the Status Quo phase;
3. Assign **sensitivity ratings**;
4. Mapping of sensitivity by –
   a. Overlaying **base layers** in the GIS to compile Environmental Sensitivity Maps for environmental features; and
   b. Combining separate sensitivity maps to prepare a composite map that reflects the **Environmental Control Zones**.



3.2.2 Determining Sensitivity per Environmental Feature

Groupings of homogenous environmental features and attributes in the district that depict the sensitivity of the area were allocated weightings, based on their intrinsic qualities that render them as sensitive. In this way, baseline information was transformed into secondary information that attached values to different features.

The sensitivity scale that was employed ranged from low to very high (see **Table 1**), based on various criteria such as the sensitivity to development pressure or resilience to change. In

order to retain a certain degree of objectivity the band or spectrum of weighting was kept narrow.

Table 1: Environmental Sensitivity Scale

(Note: sensitivity based on a single criterion / combination of criteria, where applicable to the feature)

Sensitivity Rating	Description
Restricted	Constraints exist against the activities associated with the environmental feature (e.g. agriculture not supported in protected areas).
Low (L)	The inherent feature status and sensitivity is already significantly degraded. Environmental goods and services depleted / compromised. Any *significant environmental – development** change will not influence the current status.
Medium (M)	The inherent feature status and sensitivity will be moderately influenced by a significant environmental – development change.
High (H)	Environmental – development change may influence the current status of the feature, either negatively or positively. Feature offers intact environmental goods and services / supports environmental goods and services offered by other feature(s). Feature may be afforded legal protection status.
Very High (VH)	Environmental – development change will significantly influence the feature, either negatively or positively. Feature offers critical environmental goods and services. Feature afforded legal protection status.

* *The term "significant environmental – development" was adopted from the EMF Guidelines (DEA, 2010)*

The sensitivity of the key environmental features in Ugu DM is portrayed in the sub-sections to follow. Please note the following:

- The reader is referred to the EMF Status Quo Report for a more comprehensive discussion on the environmental features in the district;
- The sensitivity is expressed and shown in maps through information and spatial data received from various government departments and institutions. Sensitivity mapping was reliant on the availability and reliability of data. In some instances, data reflecting sensitivity could not be included as it is still being developed and thus not yet formally accepted by its custodians to allow for distribution; and
- Although the sensitivity analysis does not prescribe the desired state, it is one of the key factors that are considered in the delineation of the EMZs.

3.2.3 Agriculture

3.2.3.1 Local Context

The local context in terms of agriculture in the Ugu District, as obtained from the Status Quo Report (Ugu DM, 2013) and Desired State Report (Ugu DM, 2014), is provided below.

There is a well-developed commercial agricultural sector and a poorly developed small holder sector in the rural areas of the district. Landownership in the district indicates rural areas located in the south, centrally and to the north, and coastal strip. High-lying areas and areas to the west of the district are under private ownership, predominantly used for commercial farming purposes. Settlement is most dense along the coastal region, and in the rural areas (particularly along transportation routes). The indications are that the majority of land that can be used for different forms of agricultural production in the district has already been identified and utilised. The only exception to this may be in the drier areas where there may be good soils and associated production conditions, but these can only be realised with water (if available) for irrigation purposes. The review has indicated that the key agricultural activities taking place in the district at the present time include: sugar cane production and milling; timber production and processing for pulp and sawn timber; bananas for local and international markets; macadamia nuts for local and international markets; limited coffee production for local consumption and livestock for commercial and subsistence purposes (beef, dairy, poultry, piggeries and goats).

Two plantation crops predominantly occur in the district. Sugar cane production occurs primarily along the coastal strip where conditions are optimal for sugar cane production. Timber production in the district occurs predominantly in the western highlands around Harding (Alfred), Umuziwabantu and Vulamehlo.

Production of various sub-tropical fruit occurs in suitable areas in the district. Banana plantations between Port Shepstone and Port Edward account for the bulk of banana production in KZN Province, although potential exists for expansion along the coastal strip. Valencia orange and avocado production occurs on a limited commercial basis in the district, however the extent of production has not been identified through the data available. Based on aerial interpretation, macadamia nuts are produced in the greater Port Edward area, along the coastal region.

3.2.3.2 EMF Spatial Considerations

High value agricultural land in Ugu DM must be conserved for production purposes, whilst concurrently addressing the need for economic growth and development in the district. High agricultural potential is regarded as a scarce non-renewable resource and accordingly a risk

averse and cautious approach should be adopted when development of such land for purposes other than agricultural production is proposed.

Agricultural potential is based on the potential of the specific land parcel for cultivation and/or grazing purposes. The overarching management mechanism (apart from legal provisions) in the province in this regard is the KZN Agricultural Land Categories Spatial Decision Support tool which aims to guide and assist municipalities with the compilation of various planning documents such as the Integrated Development Plans (IDP's), Spatial Development Frameworks (SDF's) and Land Use Management Schemes (LUMS's). It is also intended to give direction to prospective developers when proposing land use change. The following agricultural potential categories apply in KZN (Collet and Mitchell, 2013):

- **Category A: Irreplaceable**
  Very high potential agricultural land that should be retained exclusively for agricultural use so as to ensure national food security. Included within this Category is also identified grazing land that has a very high production value for sustained livestock production.
- **Category B: Threatened**
  High potential agricultural land. Due to the limited amount of Category B land in the province (and in the country), all efforts should be focussed on retaining land within this Category for predominantly agricultural use.
- **Category C Primary agricultural land use**
  Land with moderate agricultural potential, on which significant interventions would be required to achieve viable and sustainable food production, although agriculture is the still the majority land use in the rural landscape.
- **Category D Secondary agricultural land use**
  Land with restricted to low agricultural potential. This land requires significant interventions to enable sustainable agricultural production.
- **Category E Mixed land use**
  Land with very restricted to very low potential for agricultural production. Cultivation within this land category is severely limited in both extent and in terms of the natural resources available and grazing value will be poor with a very low carrying capacity. Land within this Category however may have a high conservation or tourism status, depending on the locality, or may act as a buffer for as higher Category of adjacent land. In addition, these land parcels may be required to support the economic viability of an extensive grazing system on adjoining land parcels e.g. large dairy farming system. **Category Waterbodies**
  Areas within this Category mainly consist of water bodies (natural or man-made) as well as wetlands, pans and estuaries and can therefore not be used for agronomic production purposes, as stipulated by legislation.

- **Category Permanently Transformed**
  Demarcated areas within this Category have been permanently transformed to non-agricultural land uses (urban/built up areas, mines, quarries) and can therefore not be utilized for agricultural production purposes.
- **Category Proclaimed Reserves**
  Parcels within this Category have formally been proclaimed as either a national or provincial reserve under the significant legislation and not available for cultivation purposes. However, should this land be removed from such protected status this land, this land would be re-evaluated and assigned to the applicable Category.

The draft KZN Policy for Agricultural Land Potential, Development Rights and Application Processes (2015) provide the principles to be applied when considering any development application on agriculturally designated land as well as development controls for Agricultural Land Potential Categories and areas with Combined Agro-biodiversity Designation. Agro-biodiversity is a designation (zone) which aims to highlight the importance of both sustainable agriculture and biodiversity conservation, because it is deemed to have high to moderate agricultural potential and high biodiversity value (DARD, 2015). At the time when this document was compiled the spatial data for Agro-biodiversity in the District was not yet available.

3.2.3.3 Sensitivity Ratings

Table 2 reflects the sensitivity ratings assigned to the various agricultural attributes in the district. **Figure 6** shows the outcome of the sensitivity analysis for agricultural features.

Table 2: Sensitivity Ratings assigned to Category: Agriculture

Category	Sensitivity Criteria	Source	Attributes	Rating
AGRICULTURE	KZN Agricultural Land Categories	KZN Department of Agriculture and Rural Development (DARD)	Category A: Irreplaceable	**VH**
			Category B: Threatened	**H**
			Category C Primary Agricultural Land Use	**H**
			Category D: Secondary Agricultural Land Use	**M**
			Category E: Mixed Land Use	**L**
			Category: Waterbodies	**Restricted**
			Category: Permanently Transformed	**Restricted**
			Category: Proclaimed Reserves	**Restricted**

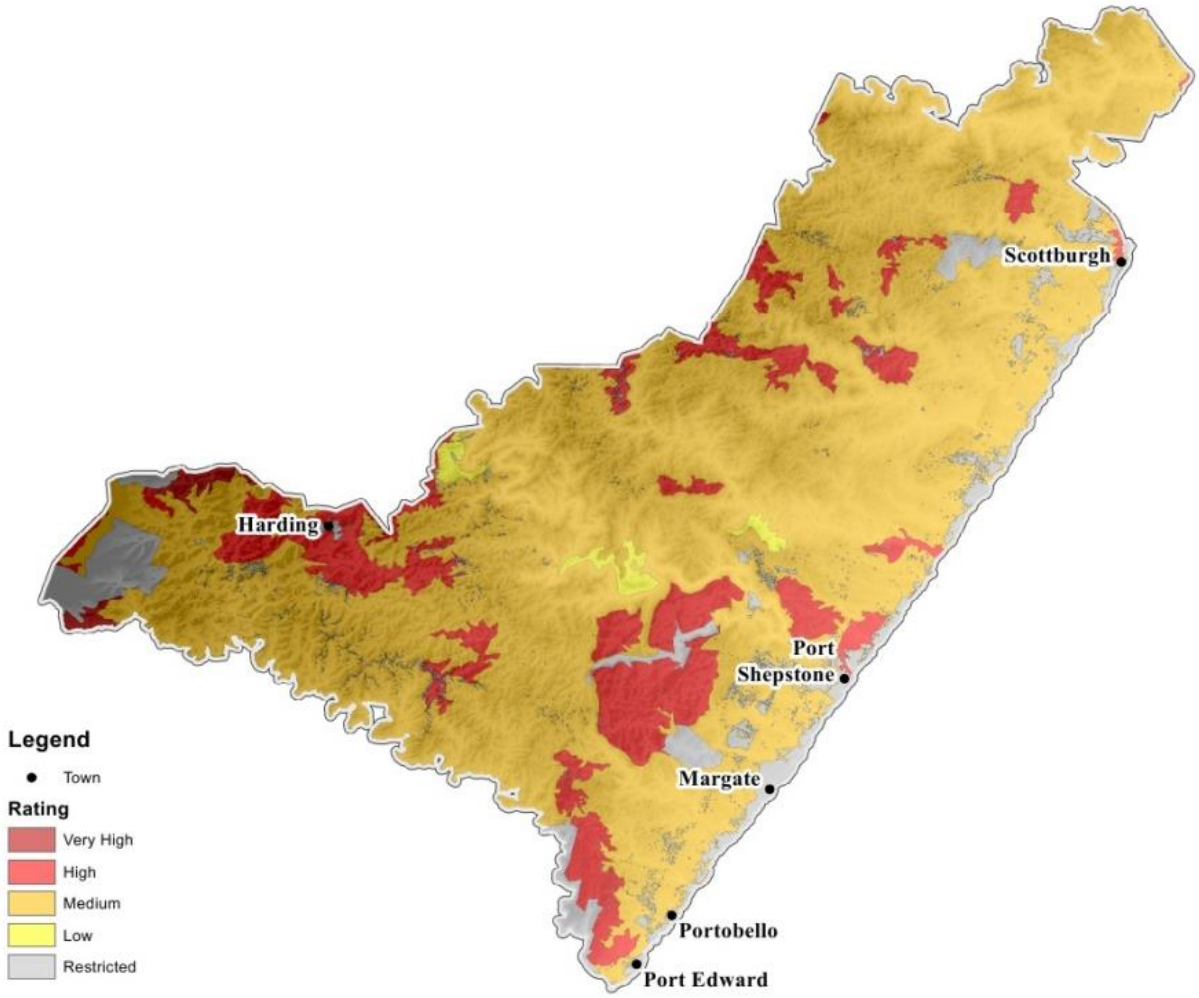


Figure 6: Agricultural Sensitivity Map

3.2.4 Terrestrial Biodiversity

3.2.4.1 Local Context

The local context in terms of terrestrial biodiversity in the Ugu District, as obtained from the Status Quo Report (Ugu DM, 2013) and Desired State Report (Ugu DM, 2014), is provided below.

The status quo assessment shows that historic levels of transformation and land use have resulted in dramatic impacts to the environment, particularly along the coastal zone and higher rainfall areas. As a consequence, levels of transformation are such that a large number of ecosystems are now endangered or critically endangered and stand out amongst the most critical areas in the country for biodiversity protection (Ugu DM, 214). Less than 2% of the land surface is formally protected.

High levels of transformation in the study area, particularly along the coast and the higher lying inland area, have contributed to six vegetation types (i.e. KwaZulu-Natal Coastal Belt Grassland, KwaZulu-Natal Coastal Forests: Southern Mesic Coastal Lowlands Forest, KwaZulu-Natal Coastal Forests: Southern Moist Coastal Lowlands Forest, KwaZulu-Natal Dune Forests: East Coast Dune Forest, KwaZulu-Natal Sandstone Sourveld and Pondoland-Ugu Sandstone Coastal Sourveld) being classified as critically endangered and a further three vegetation types (i.e. Eastern Mistbelt Forests, Midlands Mistbelt Grassland and Moist Coast Hinterland Grassland) being classified as endangered. Together, these vegetation types account for 58% of the District, while 24% of vegetation types are Vulnerable and only 17% are classified as least threatened.

The most threatened ecosystems in the district are located along the intensely-developed coastal strip, resulting in significant implications for development in the coastal zone. The total number of species of conservation concern in the Ugu DM is 180 and includes plants, mammals, birds, amphibians, reptiles, invertebrates and fish. This includes at least 6 species regarded as critically endangered with a further 22 species that are endangered. Species listed as critically endangered are *Turraea streyi* (Dainty leaved Honey-suckle Bush); *Chrysospalax villosus dobsoni* (Roughhaired golden mole); *Hirundo atrocaerulea* (Blue Swallow); *Bugeranus carunculatus* (Wattled Crane); *Anhydrophryne ngongoniensis* (Mistbelt Moss Frog) and *Gulella salpinx* (Trumpet-mouthed hunter snail). The total number of species of conservation concern may be higher, due to large areas of the municipality not yet being sampled by specialists.

Terrestrial formally Protected Areas in the district include Oribi Gorge Nature Reserve, Skyline Nature Reserve, Mbumbazi Nature Reserve, Mehlomnyama Nature Reserve, Umtamvuna Nature Reserve, Vernon Crookes Nature Reserve, Ngele Nature Reserve (managed by the Department of Agriculture, Forestry and Fisheries (DAFF)), Weza Protected Environment, Forest Side Nature Reserve, Red Desert Nature Reserve and Mpenjati Nature Reserve. Less than 2% (± 8,880 ha) of the study area falls within formally protected areas. In KZN, at least 80% of the important biodiversity lies outside formally protected areas, on privately or communally owned land. The Biodiversity Stewardship Programme, initiated by Ezemvelo KZN Wildlife (EKZNW), helps to secure some of these areas for long-term biodiversity conservation while maintaining the productivity of the landscape for landowners as well (EKZNW, 2014). There are different types of biodiversity stewardship agreements, ranging from non-binding to long-term, formally declared protected areas. There is one stewardship Biodiversity Agreement in the district in terms of the National Environmental Management Biodiversity Act (NEM:BA) (Act 10 of 2004) for Rossmin.

3.2.4.2 EMF Spatial Considerations

Apart from the strong legislative framework that protects terrestrial biodiversity, various mechanisms exist to manage the associated features in the district, including:

- In KZN the **Critical Biodiversity Areas** (CBAs) represent one of the sensitive layers against which several activities are listed, and which would require environmental authorisation in terms of the EIA Regulations Listing Notice 3 of 2014 (Government Notice No. R. 985 of 4 December 2014, as amended) if the project falls within the CBA identified areas. The CBA map for Ugu DM has been created as part a strategic planning strategy to ensure biodiversity conservation and persistence in the district. It is noted that the CBA layer still needs to be adopted by the Competent Authority or gazetted in terms of a Bioregional Plan.
- Protected areas are managed in accordance with their respective **Management Plans** (MPs) and buffer zones (where applicable).
- EKZNW developed the **Biodiversity Sector Plan** (BSP) for the Ugu DM. According EKZNW (2014), the objectives of the Ugu BSP are met largely through the core elements of the plan which include:
  - A map of biodiversity priorities that identifies those sites critical for meeting biodiversity targets, namely CBAs and Ecological Support Areas (ESAs), by maintaining biodiversity pattern and ecological processes; and
  - Accompanying land-use planning and decision-making guidelines which aim to incorporate biodiversity considerations into land-use planning and decision-making with the aim being to maintain the integrity of CBAs by avoiding loss and degradation of natural habitat, whilst managing sustainable development in other remaining natural areas.
- Terrestrial CBAs within the district were mapped and defined in the BSP according to the following: CBA Irreplaceable and CBA Optimal from the KZN Terrestrial Systematic Conservation Assessment; CBA Irreplaceable Linkages from the Landscape Corridors; Critically Endangered category from the National Threatened Ecosystems; Critically Endangered and Endangered category from KZN Threatened Ecosystems; CBA Irreplaceable and CBA Optimal derived from local and specialist knowledge (EKZNW, 2014).
- The Terrestrial ESAs within the district were mapped and defined in the BSP according to the following data: Landscape and local corridors; Ecosystem via expert input; and Species specific habitat requirements (EKZNW, 2014).
- Land Use Planning and Management Guidelines have been compiled separately for (i) the terrestrial and freshwater aquatic environments and (ii) the marine and inshore environments. The guidelines are qualitative statements concerning the desired level of biodiversity loss one is willing to accept within the various CBA map categories and the

types of land uses/activities that would be considered compatible or incompatible with the specific biodiversity conservation priorities for each of these categories. These guidelines are designed to be used in conjunction with the CBA maps for the Ugu DM to better inform land use planning, decision making and environmental authorisations (EKZNW, 2014).

- The BSP's Land Use Management Objectives for terrestrial and aquatic conservation categories are presented in **Table 3**.

Table 3: Land Use Management Objectives for the Terrestrial and Aquatic Conservation Categories (EKZNW, 2014)

Map Category	Guiding description of categories	Land-Use Management Objective
Protected Areas (PAs)	Protected areas as declared under the National Environmental Management: Protected Areas Act (Act 57 of 2003).	Maintain in a natural state with limited to no biodiversity loss.
CBAs	Natural or near-natural landscapes that include terrestrial and aquatic areas that are considered critical for meeting biodiversity targets and thresholds, and which safeguard areas required to ensure the persistence of viable populations of species, and the functionality of ecosystems and Ecological Infrastructure.	Maintain in a natural state with limited to no biodiversity loss.
CBA: Irreplaceable	Areas which are required to meet biodiversity conservation targets, and where there are no alternative sites available. (Category driven by species and feature presence).	Maintain in a natural state with limited to no biodiversity loss.
CBA: Optimal	Areas that are the most optimal solution to meet the required biodiversity conservation targets while avoiding high cost areas as much as possible (Category driven primarily by process).	Maintain in a natural state with limited to no biodiversity loss.
ESA: Buffers	Areas identified as influencing land-use management that are not derived based on biodiversity priorities alone, but also address other legislation / agreements which the biodiversity sector is mandated to address, e.g. World Heritage Site (WHS) Convention, triggers for EIA Regulations, etc.	Maintain or improve ecological and tourism functionality of a PA or WHS *
ESA: Protected Area Buffer	Unless otherwise stated, this represents an area extending 5km from the PAs or where applicable PA specific delineated buffers.	Maintain or improve ecological and tourism functionality of a PA.
ESA: World Heritage Site Buffer *	Unless otherwise stated, this represents an area extending 10km from the WHS or where applicable area specifically defined for WHS.	Maintain or improve ecological and tourism functionality of WHS *
Terrestrial ESAs	Functional but not necessarily entirely natural terrestrial that is largely required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the CBAs. The area also contributes significantly to the maintenance of Ecological Infrastructure.	Maintain ecosystem functionality and connectivity allowing for some loss of biodiversity.
Terrestrial ESAs: Species specific	Modified but area is providing a support function to a threatened or protected species	Maintain current land use or rehabilitate back to functional natural area.
Aquatic ESAs	Functional but not necessarily entirely natural aquatic landscapes that are largely required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the CBAs. The area also contributes significantly to the maintenance of Ecological Infrastructure.	Maintain ecosystem functionality allowing for some loss of biodiversity but without degrading Present Ecological State (PES) category.
Natural Biodiversity Areas	All natural areas not already included in the above categories.	Maintain basic ecosystem functionality.
Modified	Areas with no significant natural vegetation remaining and therefore regarded as having a low biodiversity value (e.g. areas under cultivation).	Sustainable management.

* *Note that there are no World Heritage Sites in Ugu DM or within 10 km of the District's boundary*

3.2.4.3 Sensitivity Ratings

Table 4 reflects the sensitivity ratings assigned to the various terrestrial biodiversity attributes in the district. **Figure 7** shows the outcome of the associated sensitivity analysis. It is noted that the CBAs include *inter alia* vegetation types and threatened ecosystems. The individual attributes that contributed towards the compilation of the CBAs are included in the EMF Biodiversity Assessment (Eco-Pulse, 2013) that forms part of the Status Quo phase of the overall EMF.

Table 4: Sensitivity Ratings assigned to Category: Terrestrial Biodiversity

Category	Sensitivity Criteria	Source	Attributes	Rating
TERRESTRIAL BIODIVERSITY	Protected Areas	EKZNW (2017)	EKZNW Protected Areas	**VH**
			EKZNW owned not currently proclaimed	**H**
			Other Protected Areas	**VH**
			Community Conservation Area	**H**
			KZN Private Nature Reserves	**VH**
			DAFF Forest Protected Areas	**VH**
			KZN Stewardship Sites - Nature Reserves	**VH**
			KZN Stewardship Sites - Protected Environments	**H**
	Protected Areas – Buffer Zones	-	EKZNW Protected Areas & Other Protected Areas - 5 km buffer	**M**
	Important Bird & Biodiversity Areas	BirdLife South Africa (2015)		**H**
	Terrestrial CBAs	EKZNW (2016)	CBA Irreplaceable	**VH**
			CBA Optimal	**H**
	Terrestrial ESAs		• Landscape and local corridors • Ecosystems • Species specific habitats	**H**
	BSP Local Corridors	EKZNW (2014)		**H**
	BSP Landscape Ecological Corridors	EKZNW (2016)		**H**
	Modification	EKZNW (2011)	KZN Conventional Modification Layer 2011 v1	**Restricted**

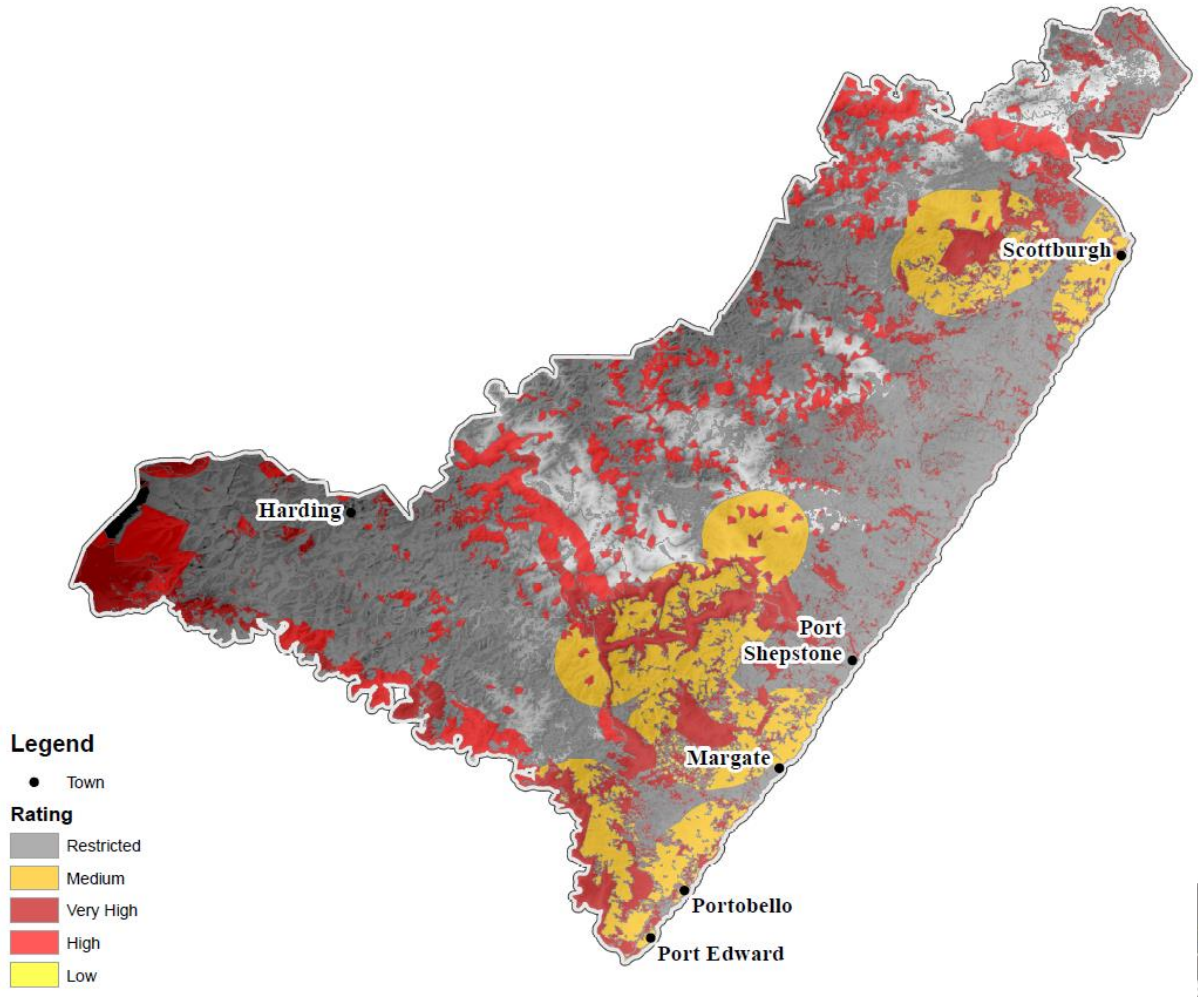


Figure 7: Terrestrial Biodiversity Sensitivity Map

3.2.5 Aquatic Biodiversity

3.2.5.1 Local Context

The local context in terms of aquatic biodiversity in the district, as obtained from the Status Quo Report (Ugu DM, 2013) and Desired State Report (Ugu DM, 2014), is provided below.

The district contains four main river systems (Lovu, Umkomaas, Mzimkhulu and Mtamvuna) as well as a number of smaller rivers. The catchments are in a good ecological state and are not greatly influenced by anthropogenic impacts.

Most rivers, including the two major perennial rivers (Mtamvuna and Mzimkhulu), are reported as being in good condition (A/B class). The Mtamvuna and Mzimkhulu rivers are free-flowing, which is noteworthy, considering levels of impoundment of most rivers in South Africa. A number of the smaller rivers are more heavily modified and classified as moderately (C class) to heavily (D class) impacted. While detailed information is lacking for some of the smaller

rivers, surrounding land cover suggests that many of these systems are “not intact”, including a large number of discrete, short river systems flowing into the Indian Ocean. Generally, rivers in the district are in reasonable condition.

The majority of wetlands in the district occur within higher rainfall areas, resulting in high densities of wetlands along the coastal region and fewer located inland. As a result of intensive urban development along the coast and agricultural practices (commercial and informal), an estimated 67% of wetland areas have been subject to transformation, significantly affecting the ecosystem services derived from these resources. While no critically endangered wetland types were identified in the provincial assessment, more than 50% of wetlands fall within an endangered wetland vegetation type. The national assessment paints a worse picture, with many wetland vegetation groups classified as critically endangered in the study area.

3.2.5.2 EMF Spatial Considerations

In accordance with the National Water Act (NWA) (Act No. 36 of 1998), a watercourse is regarded as a river or spring, a natural channel in which water flows regularly or intermittently, and a wetland, lake or dam into which, or from which, water flows. A watercourse needs to be considered in terms of its “resource quality”, which is defined by the NWA as the following:

- Quantity, pattern, timing, water level and assurance of in-stream flow;
- Water quality, including physical, chemical and biological characteristics of the water;
- Character and condition of the in-stream and riparian habitat; and
- Characteristics, condition and distribution of the aquatic biota.

The NWA promotes two complimentary approaches to achieve Integrated Water Resource Management, namely Resource Directed Measures (RDMs) and Source Directed Controls (SDCs). RDMs focus on the quality of the water resource itself, regarding it as an ecosystem rather than a commodity, and comprise the following components: Classification system, Reserve and Resource Quality Objectives (RQOs). Giving effect to RDMs means regulating water use through SDCs. SDCs aim to control and minimise potential impacts on the water resource so that RQOs are achieved. SDCs include regulatory mechanisms such as water use authorisation.

The National Freshwater Ecosystem Priority Areas (NFEPA) project aims to identify a national network of freshwater conservation areas and to explore institutional mechanisms for their implementation. Freshwater ecosystems provide a valuable natural resource, with economic, aesthetic, spiritual, cultural and recreational value. NFEPA takes forward the implementation of the Cross-Sector Policy Objectives for Inland Water Conservation. It also builds on the river component of the National Spatial Biodiversity Assessment.

The following was mapped and defined in the BSP in terms of aquatic biodiversity (EKZNW, 2014):

- Aquatic CBAs based on the following data –
  - CBA Irreplaceable;
  - CBA Optimal;
  - CBA Irreplaceable and CBA Optimal derived from local and specialist knowledge;
  - CBA Irreplaceable Linkages (National Flagship Rivers and 30m buffer);
  - All wetlands within Freshwater Systematic Conservation Assessment (FSCA) and the 24 KZN priority wetlands;
  - Perennial rivers in FSCA and all priority FEPA rivers;
  - All perennial rivers associated with FEPA fish sanctuary areas; and
  - 30m buffer on identified CBA Irreplaceable & Optimal perennial rivers, perennial rivers associated with FEPA fish sanctuary areas, and priority FEPA Rivers.
- Aquatic ESAs based on the following data –
  - Non-perennial rivers in FSCA;
  - FEPA rivers, wetlands & wetland clusters;
  - Aquatic corridors – KZN priority/ flagship rivers;
  - Specialist or expert input data;
  - Species specific habitat requirements;
  - 100m buffer on FSCA wetlands;
  - 70m buffer on CBA perennial rivers, KZN Flagship Rivers & National Flagship Rivers;
  - 70m buffer on non-perennial rivers; and
  - 500m buffer on FEPA priority wetland clusters & KZN priority wetlands.

The BSP's Land Use Management Objectives for aquatic conservation categories are presented in **Table 3**. The BSP also contains Land Use Planning and Management Guidelines for freshwater aquatic environments.

3.2.5.3 Sensitivity Ratings

Table 5 reflects the sensitivity ratings assigned to the features associated with aquatic biodiversity in the district. **Figure 8** shows the outcome of the associated sensitivity analysis. The Aquatic CBAs and ESAs in terms of the BSP were not available to include in the EMF. Hence, the information from the EMF Biodiversity Assessment (Eco-Pulse, 2013), which was undertaken as part of the Status Quo phase, was used in the sensitivity analysis mapping.

Table 5: Sensitivity Ratings assigned to Category: Aquatic Biodiversity

Category	Sensitivity Criteria	Extent Buffer	River FEPA	Rating	Ecological Buffer	Rating
AQUATIC BIODIVERSITY	NFEPA Rivers	50m	Yes	**VH**	50m	**H**
			No	**H**	25m	**H**
	Perennial Rivers	20m	Yes	**VH**	50m	**H**
			No	**H**	25m	**H**
	Non-Perennial Rivers	10m	Yes	**H**	25m	**H**
			No	**H**	25m	**H**
	Wetland FEPAs	N/A	Yes	**VH**	50m	**H**
			No	**VH**	50m	**H**
	Other Wetlands	N/A	Yes	**VH**	50m	**H**
			No	**H**	25m	**H**
	Stakeholder defined Aquatic CBAs	N/A	N/A	**VH**	N/A	N/A

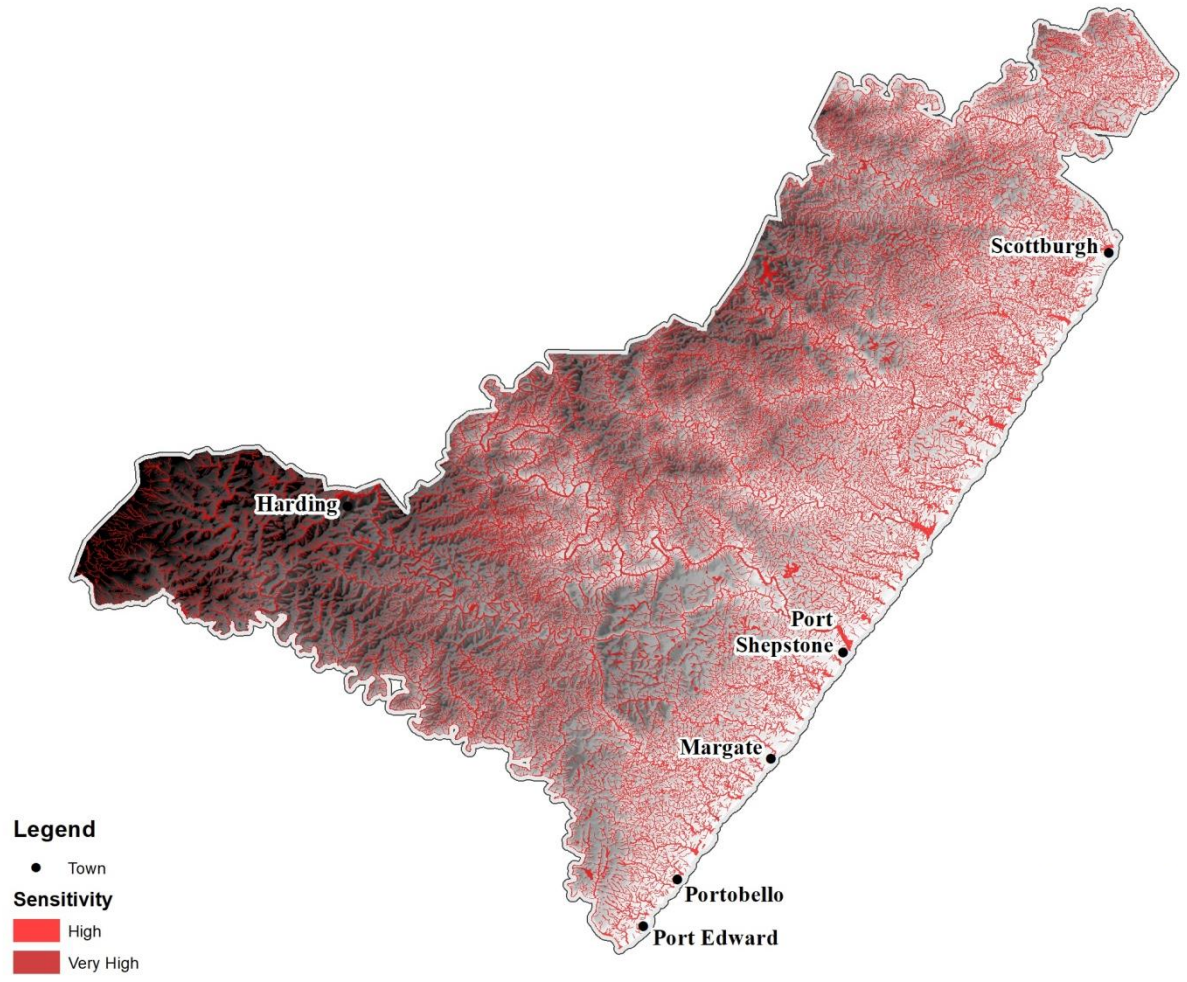


Figure 8: Aquatic Biodiversity Sensitivity Map

3.2.6 Coastal and Estuarine Environments

3.2.6.1 Local Context

The local context in terms of coastal and estuarine environments in the district, as obtained from the Status Quo Report (Ugu DM, 2013) and Desired State Report (Ugu DM, 2014), is provided below.

The Ugu DM coastline stretches for approximately 112 kilometres, from the Mtamvuna River in the south to Scottburgh in the north. There are 40 estuaries located along the coastal stretch of the district, ranging in size from 0.01 ha to 72 ha. With the exception of the Mzimkulu estuary, all are classified as 'Temporarily closed'. The Mzimkulu estuary, classified as 'Permanently open', does occasionally close due to recent anthropogenic impacts, but is artificially maintained as an open estuary. The Kaba, Ku-Boboyi and Zolwane estuaries have been flagged as Fresh Water Priority Areas by the South African National Biodiversity Assessment. Estuaries within the District are heavily impacted on with only 20% of estuaries in a Good or Excellent condition. Of the remainder, 30% are reportedly in a Poor condition while the remaining 50% are in Fair condition. The Mtamvuna is currently the only estuary within the district regarded as being in an excellent condition.

Two Marine Protected Areas have been established in the district, namely Aliwal Shoal and Trafalgar.

The Blue Flag is a certification by the Foundation for Environmental Education (FEE) that is provided when a beach meets its series of stringent environmental, educational, safety-related and access-related criteria. Blue Flag Beaches in the district include Trafalgar Beach, Marina Beach, Ramsgate Beach, Lucien, Southport, Umzumbe and Hibberdene.

3.2.6.2 EMF Spatial Considerations

The National Environmental Management: Integrated Coastal Management Act (NEM:ICMA) (Act No 24 of 2008) deals with the definition and legal status of the various spatial aspects that make up the coastal zone of South Africa (as shown in **Figure 9**), which includes:

- Coastal public property;
- Coastal protection zone;
- Coastal access land;
- Coastal waters;
- Coastal protected areas;
- Special management areas; and,
- Coastal set-back lines.

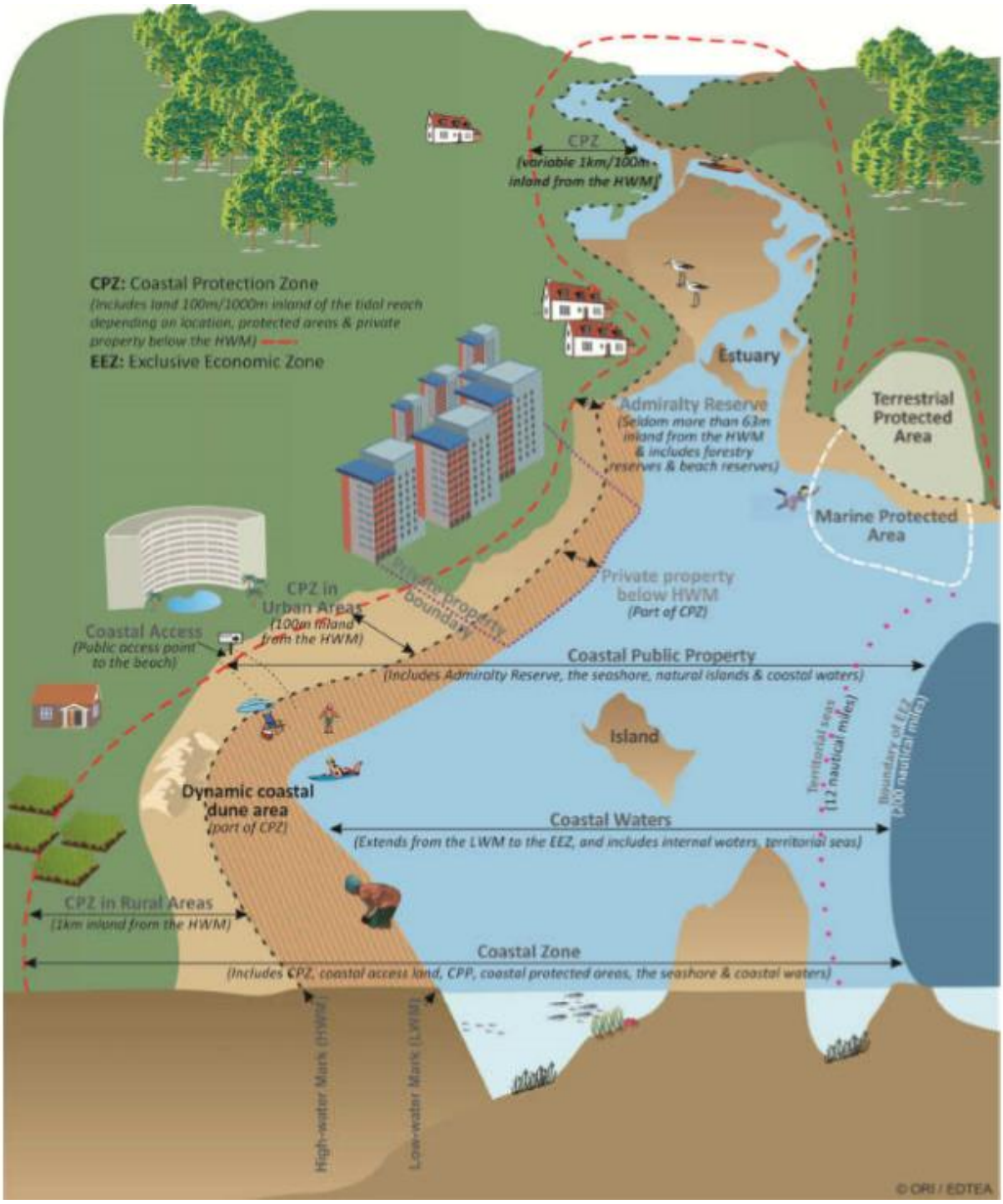


Figure 9: **Schematic representation of the Coastal Zone (KZN EDTEA, 2017)**

The NEM:ICMA contains a variety of tools to ensure that the coastal zone will be managed co-operatively, so that development is undertaken in a sustainable manner thereby protecting the coast's conservation status (DEA, 2014). The development of Coastal Management Programmes (CMPs) is one of the most powerful of these integrating instruments. The KZN CMP was in draft format at the stage when this document was being compiled.

In terms of NEM:ICMA, the coastal protection zone aims to ensure the protection of the ecological integrity, natural character and economic, social and aesthetic values of the coast. The coastal protection zone includes *inter alia* land falling within 100m of the high-water mark in urban areas and within 1km in rural areas.

Coastal vulnerability is the degree to which a coastal system is susceptible to, or unable to cope with, adverse effects of climate change. One of the most widely used methods in assessing risk and vulnerability of coastlines on a regional scale includes the calculation of vulnerability indices and presenting these results on a vulnerability map. These maps can assist coastal managers, planners, landowners and stakeholders identify regions of greater risk to coastal hazards and ultimately better inform mitigation and development strategies (Musekiwa *et al*, 2015). The Coastal Vulnerability Index (CVI) assessment for KZN is based on remote sensing data, processed by means of GIS methodology. The CVI assesses the relative physical coastal vulnerability based on a set of physical coastal parameters (including beach width, dune width, distance to the 20m isobath, percentage rocky outcrop, and width of vegetation behind the back beach) which serve as indicators of risk or vulnerability. This assessment also tries to address social, economic and ecological factors by identifying indicators and assessing them in relation to the findings of the CVI to determine which populations and associated infrastructure are potentially at risk. The Ugu coast, extending from Port Edward to Umkomaas, has a mean CVI score of 23, resulting in it being categorised as High Risk. This section of coast is considered to have high vulnerability to the effects of coastal erosion and sea-level rise damage. This is primarily due to the fact that its physical properties are low, e.g. dune width being 0m and vegetation behind the back beach being only 46m. Although the overall vulnerability for the Ugu coast is High Risk, the majority of the coast (59%) is classified as Moderate risk, while 40% is classified as High Risk.

Provisions for establishing coastal setback lines are included in NEM:ICMA, NEMA and the EIA Regulations. Coastal setback lines may be established for various reasons. One of the main purposes of a setback lines includes controlling development along an ecologically sensitive or vulnerable area, or any area that poses a hazard or risk to humans. According to KZN EDTEA (Matsheke pers. comm., 2017) the coastal setback line has not yet been developed for KZN. Once available, this will need to be considered in the next version of the EMF.

Two Marine Protected Areas have been established in the district, namely Aliwal Shoal and Trafalgar. DEA has proposed declaring 22 new Marine Protected Areas under the National Environmental Management Protected Areas Act (NEM:PAA) (Act 57 of 2003). These new areas set management objectives and aim to protect important marine habitats and ecosystems. The new MPAs were identified through Operation Phakisa, which is a presidential

project to fast-track the development of South Africa's Ocean Economy. The Protea Banks and Aliwal Shoal expansion Marine Protected Areas occur within Ugu DM. According to DEA Oceans and Coasts (Dlulisa pers. comm., 2017), these areas are not yet finalised and formally declared and they were thus not included in the EMZs for Ugu DM EMF.

The Admiralty Reserve is a strip of state-owned land approximately 45-60m wide inland of the high-water mark. This strip includes land owned by the State and/or where it is specifically described in title deeds of private land. The Admiralty Reserve is therefore not continuous along the coast. It was administered by the Seashore Act (No. 21 of 1935) until the enactment of the ICM Act and it is now included in coastal public property. The Desired Stated Report (Ugu DM, 2014) indicates that the Admiralty Reserve should be retained as it acts as a "protective green buffer" (especially during coastal erosion events), and the encroachment of invasive alien vegetation or clearing of indigenous vegetation within this zone must be prevented. The functions of the Admiralty Reserve are further shown in **Figure 10**.

Figure 10: Admiralty Reserve Functions (Provincial Planning and Development Commission, 2008)

The following was mapped and defined in the BSP in terms of marine and inshore environments (EKZNW, 2014):

- Marine CBAs based on the following data –
  - CBA Irreplaceable;
  - CBA Optimal;
  - CBA Irreplaceable and CBA Optimal derived from local and specialist knowledge;
  - Nationally identified Priority Estuaries;
  - KZN Priority Estuaries; and
  - Marine National Endangered and Critically Endangered habitat.

- Marine ESAs based on the following data –
  - All remaining estuaries;
  - Specialist or expert input data;
  - Marine Species migratory corridors;
  - Marine Key foraging areas (e.g. for turtles); and
- Marine Protected Areas.

The BSP's Land Use Management Objectives for marine and inshore conservation categories are presented in **Table 6**.

Table 6: Land Use Management Objectives for Marine and Inshore Conservation Categories (EKZNW, 2014)

Map Category	Guiding description of categories	Marine/Shoreline Management Objective
Marine Protected Areas: Sanctuary Zones	Statutory protected and conservation areas (proclaimed marine reserves) *This zone aims to maintain biodiversity and ecological processes and to provide visitors with natural/spiritual/educational experiences in the marine environment. There is no extractive resource use except limited traditional subsistence harvesting in specified areas*	Maintain in a natural state with limited or no biodiversity loss
Marine Protected Areas: Restricted Zones	Statutory protected and conservation areas (proclaimed marine reserves) *This zone aims to conserve biodiversity and ecological processes and to provide visitors with a very exclusive high quality nature based outdoor experience in a marine environment. Certain activities such as catch and release pelagic fishing are permitted*	Maintain near-natural seascapes with some loss of biodiversity pattern and limited loss of ecosystem processes
Marine Protected Areas: Controlled Zones	Statutory protected and conservation areas (proclaimed marine reserves) *This zone aims to restore and maintain the natural environment and ecological processes by providing an affordable, comfortable, informative, safe, enjoyable and sustainable outdoor recreational experience in a relatively un-spoilt marine environment. This zone allows for a small amount of extractive resource use.*	Maintain near-natural seascapes with some loss of biodiversity pattern and limited loss of ecosystem processes
CBAs	Areas that are considered critical for meeting biodiversity targets and thresholds	Maintain in a natural state with limited to no biodiversity loss
Critical Biodiversity Area: Irreplaceable	Marine areas which are required to meet biodiversity conservation targets, and where there are no alternative sites available	Maintain in a natural state with no further biodiversity loss

Map Category	Guiding description of categories	Marine/Shoreline Management Objective
Critical Biodiversity Area: Optimal	Areas that are the most optimal solution to meet the required biodiversity conservation targets while avoiding high cost areas as much as possible	Maintain in a near natural state with no further biodiversity loss
Marine Ecological Support Areas	Marine areas which are required for the persistence and maintenance of marine biodiversity, examples of which are up welling areas, fronts, eddies, and migration routes	Functional seascapes: manage marine environment to maintain basic ecosystem processes and functionality
Other Natural Seascapes	Remaining marine areas not located within any of the preceding categories	Sustainable management

3.2.6.3 Sensitivity Ratings

Table 7 reflects the sensitivity ratings assigned to the features associated with coastal and estuarine environments in the district. **Figures 11 - 12** show the outcome of the associated sensitivity analysis. The Marine ESAs and Estuarine CBAs in terms of the BSP were not available to include in the EMF. Hence, the information from the EMF Biodiversity Assessment (Eco-Pulse, 2013), which was undertaken as part of the Status Quo phase was used in the sensitivity analysis mapping

Table 7: Sensitivity Ratings assigned to Category: Coastal and Estuarine Environments

Category	Sensitivity Criteria	Source	Attributes	Rating
COASTAL & ESTUARINE	Protected Areas	EKZNW (2017)	Marine Protected Areas	**VH**
	Marine CBAs	EKZNW (2010)	CBAs within Marine Systematic Conservation Plan (MSCP)	**VH**
	Marine ESAs	EMF Biodiversity Assessment (Eco-Pulse, 2013)	All process layers and species pathways identified in the MSCP	**H**
	Estuarine CBAs		Priority estuaries identified in the Estuarine Systematic Conservation Plan and nationally identified priority NFEPA estuaries	**VH**
	Marine Benthic and Coastal Threat Status	SANBI (2011)	Critically Endangered (CR)	**VH**
			Endangered (EN)	**H**
			Vulnerable (VU)	**H**
			Least Threatened (LT)	**L**
	Coastal Vulnerability Index (CVI)	EDTEA	High Risk	**VH**
			Moderate Risk	**H**
			Risk	**M**
	Admiralty Reserve			**H**

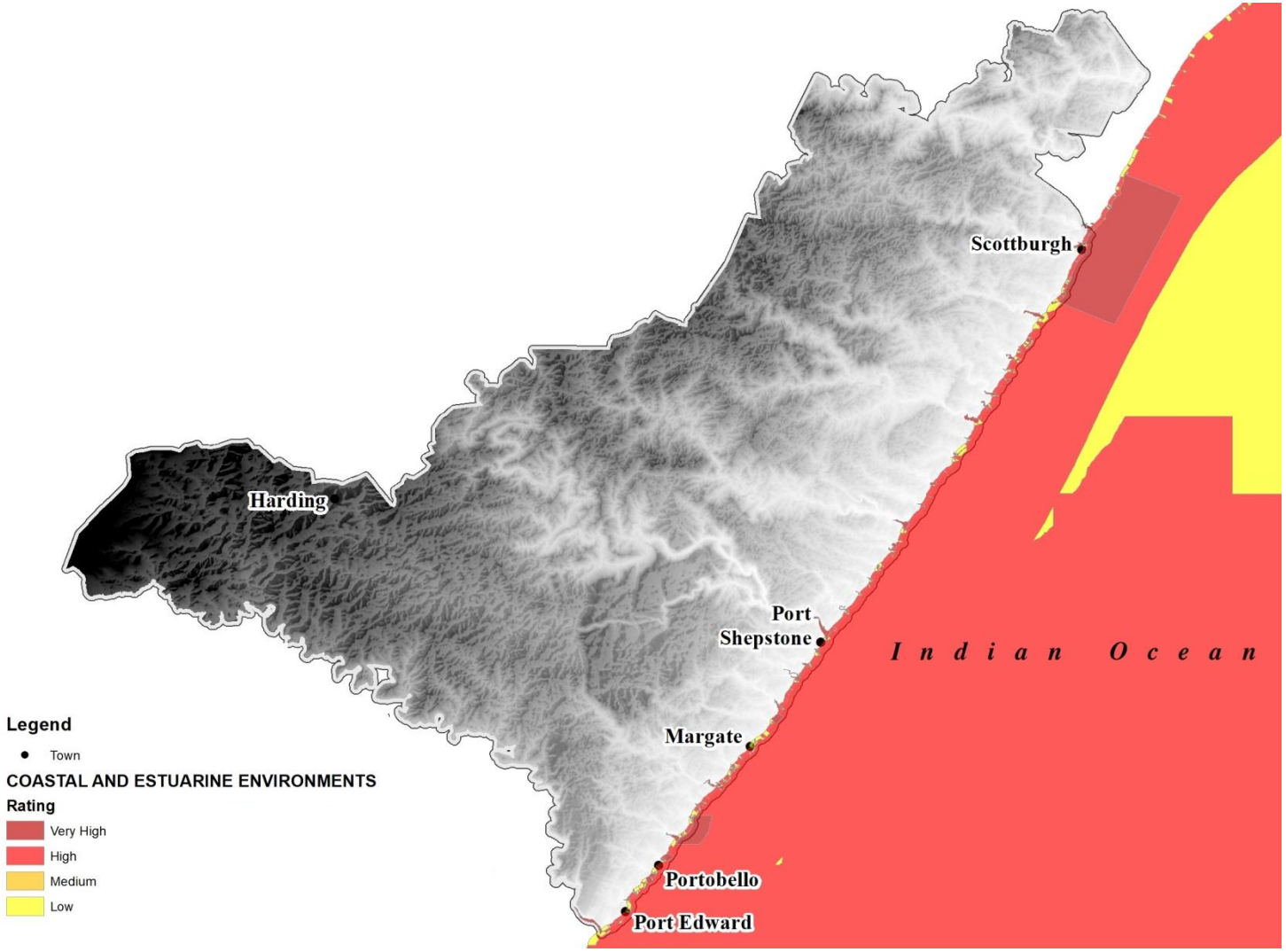


Figure 11: **Coastal and Estuarine Environments Sensitivity Map (overall)**

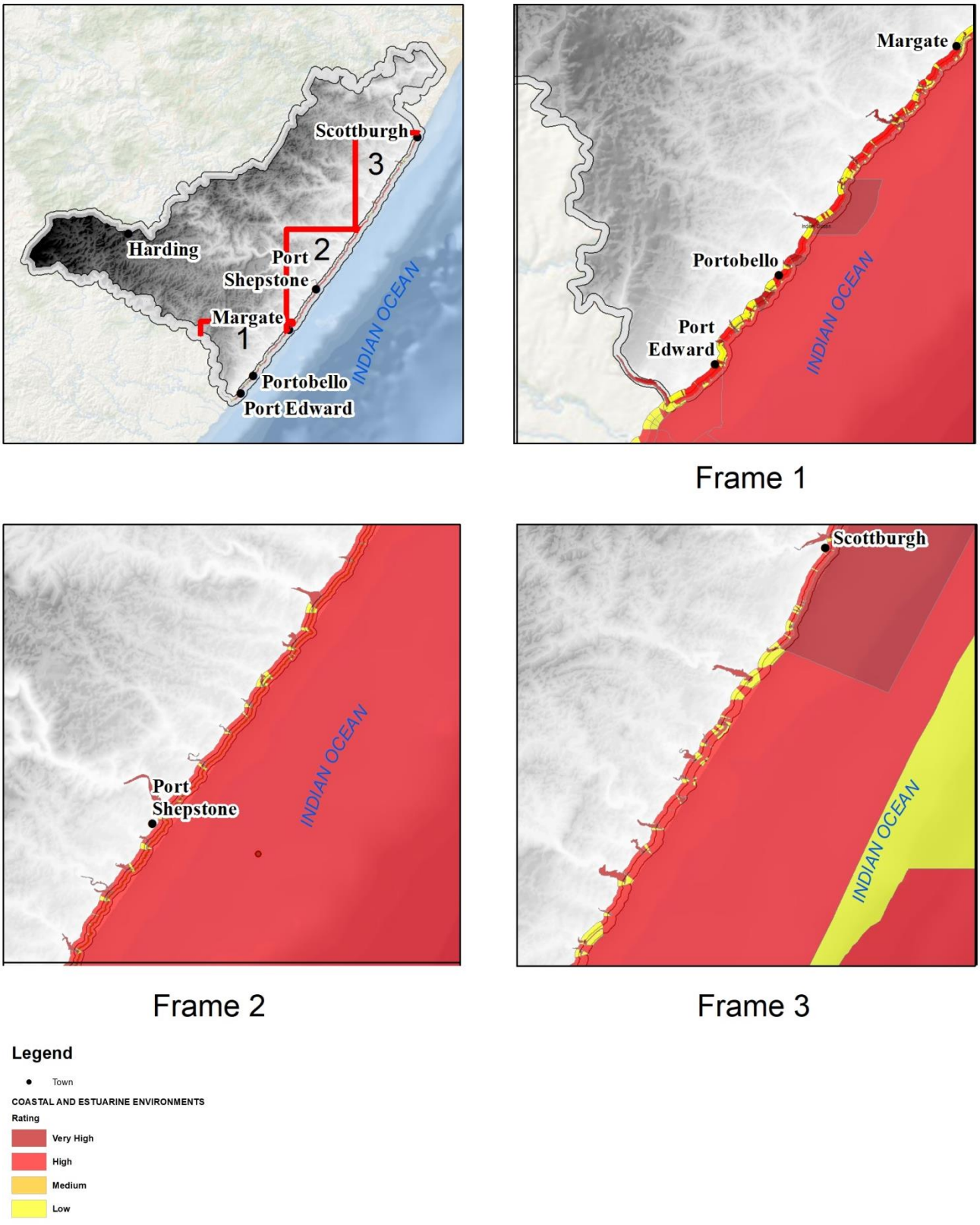


Figure 12: **Coastal and Estuarine Environments Sensitivity Map (individual frames)**

3.3 Slope

3.3.1.1 Local Context & EMF Spatial Considerations

According to MetroGIS (2013), the surface elevation (or altitude) of the district ranges from 0m (sea level) to 2267.7m above sea level. The highest point within the district is the peak of the Ngele mountain (part of the Ngele escarpment). The most prominent of these valleys are the Mtamvuna (southern boundary of the district), Mzimkhulu and Mkomazi rivers.

The general topography along the coastline is relatively gentle, changing dramatically as one proceeds inland towards the plateau, with undulating river valleys, deep gorges and steep hillslopes generally encountered. Valley sides often exceed gradients of 40 %, and cliff faces are common within many of the river valleys (Eco-Pulse, 2013).

In general, areas with steep slopes are regarded as significant due to the following reasons:

- Vulnerable to erosive forces, which leads to soil destabilisation and eventual sedimentation of watercourses;
- Influence accessibility;
- Offer aesthetic qualities;
- Offer refuge to fauna and flora;
- Act as important water catchment areas;
- Create natural corridors; and
- May contribute towards climate change resilience.

3.3.1.2 Sensitivity Ratings

Table 8 reflects the sensitivity ratings assigned to slope in the district, based on their grading. **Figure 13** shows the outcome of the associated sensitivity analysis.

Table 8: Sensitivity Ratings assigned to Category: Terrain

Category	Sensitivity Criteria	Attributes	Rating
TERRAIN	Slope	Very steep slopes 18º	VH
		Steep slopes (12º - >18º)	VH
		Low to medium gradient slopes	H

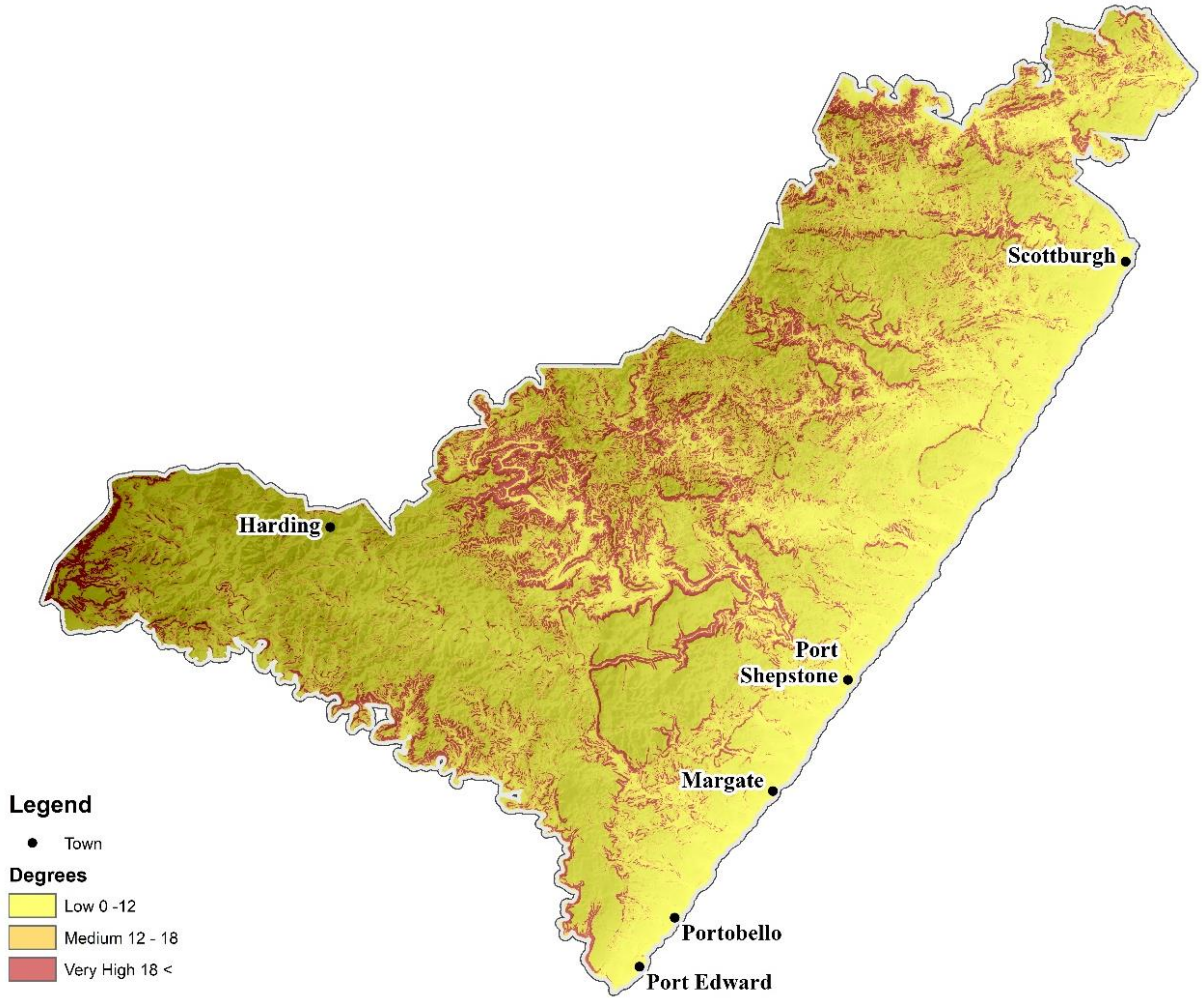


Figure 13: Terrain Sensitivity Map

3.3.2 Heritage

3.3.2.1 Local Context

According to the Desired State Report (Ugu DM, 2014), there are a significant number of unidentified and poorly documented historical and cultural resources in Ugu, as well as resources that have been recorded but for which geographic coordinates are unavailable at present. These consist of memorials, monuments, places of worship (churches, mosques and temples), cemeteries, open spaces, areas of political significance, and areas of past economic significance. Unfortunately, few comprehensive and accurate records exist for heritage resources in the area, severely constraining mapping opportunities and therefore spatial planning.

A summary of heritage resources and archaeological sites available is provided in **Table 9**.

Table 9: Heritage Resources within Ugu (Ugu DM, 2014)

Heritage Resource		Location
Buildings and Places	Port Shepstone Jail	Unknown
	Norwegian Settlers Church	Unknown
	Port Shepstone Railway history	Unknown
	Botha House	30° 23' 38" S; 30° 41' 26" E
	Lynton Hall, Pennington	30° 22' 59" S; 30° 40' 20" E
	Batstone's Drift, Port Shepstone	Unknown
	Bazleys Harbour Works Port Shepstone	Unknown
	Alfred County Annexation site Ezinqoleni	Unknown
	Frank Fynn's Grave Port Shepstone	Unknown
	Green Point Lighthouse Clansthal	30° 14' 57" S; 30° 46' 37" E
	Ndongeni ka Xoki's Grave Port Shepstone	Unknown
	Port Shepstone Maritime Museum	Athlone Drive Port Shepstone
	Shaka's Bush, Port Shepstone	Near Bates's service station
	Sister Dominique Mkhize Assisi Hospital and Convent	Unknown
	St Helen's Rock	On the uMzimkhulu River approximately 10 km from the river mouth
Provincial and Heritage Landmarks	Paddock Station, Paddock	30° 45' 54.86" S; 30° 14' 40.16" E
	Old Police Fort, Port Shepstone	30° 44' 01.67" S; 30° 26' 56.54" E
	Port Shepstone Lighthouse	30° 44' 30.92" S; 30° 27' 31.84" E
	Izotsha River Railway Bridge	30° 47' 03.13" S; 30° 25' 27.29" E
	Kneisel's Castle, 24 Reynoulds Street, Port Shepstone	30° 44' 27.07" S; 30° 27' 06.40" E
	Royston Hall, 10 Royston lane Umtentweni	30° 42' 45.68" S; 30° 26' 49.79" E
Protected Areas	Vernon Crookes Nature Reserve	30° 16' 29" S; 30° 35' 39" E
	Oribi Gorge Nature Reserve	30° 41' 48" S; 30° 17' 32" E
	UMtamvuna Nature Reserve	31° 00' 23" S; 30° 09' 11" E
	Mpenjati Public Resort Nature Reserve and Trafalgar Marine Protected Area	30° 58' 19" S; 30° 16' 54" E
	Uvongo River Nature Reserve	30° 50' 03" S; 30° 23' 20" E
	Skyline Reserve	30° 49' 10" S; 30° 23' 10" E

3.3.2.2 EMF Spatial Considerations

Heritage resources have lasting value and provide evidence of the origins of the South African society. As heritage resources are cherished, finite, non-renewable and irreplaceable they must be carefully managed for future generations.

According to the KZN Heritage Act (Act No. 04 of 2008), the following are categorised as "heritage assets":

- Places, buildings, structures and equipment of cultural significance;
- Places to which oral traditions are attached and/or places associated with living heritage;
- Historic settlements and townscapes;
- Landscapes and natural features of scientific and cultural importance;
- Archaeological and paleontological sites;
- Graves and burial grounds;
- Movable objects including:
  - Objects recovered from the soil or waters of the Province of KZN, including archaeological and paleontological objects, materials, meteorites and rare geological specimens;
  - Ethnographic art and objects;
  - Military objects;
  - Objects of decorative art;
  - Objects of fine art;
  - Objects of scientific or technological interest;
  - Books, records, documents, photographic positives and negatives, graphs, films and video materials and sound recordings;
- Battlefields; and
- Traditional building techniques and vernacular architecture.

The known heritage resources and archaeological sites in Ugu DM are listed in **Table 9**.

3.3.2.3 Sensitivity Ratings

Table 10 reflects the sensitivity ratings assigned to the historical and cultural features in the district, based on their grading. **Figure 14** shows the outcome of the associated sensitivity analysis.

Table 10: Sensitivity Ratings assigned to Category: Heritage

Category	Sensitivity Criteria	Source	Rating
HERITAGE	Buildings and Places	EMF Heritage Resources Management Report (eThembeni Cultural Heritage, 2013)	H
	Provincial and Heritage Landmarks		H - VH

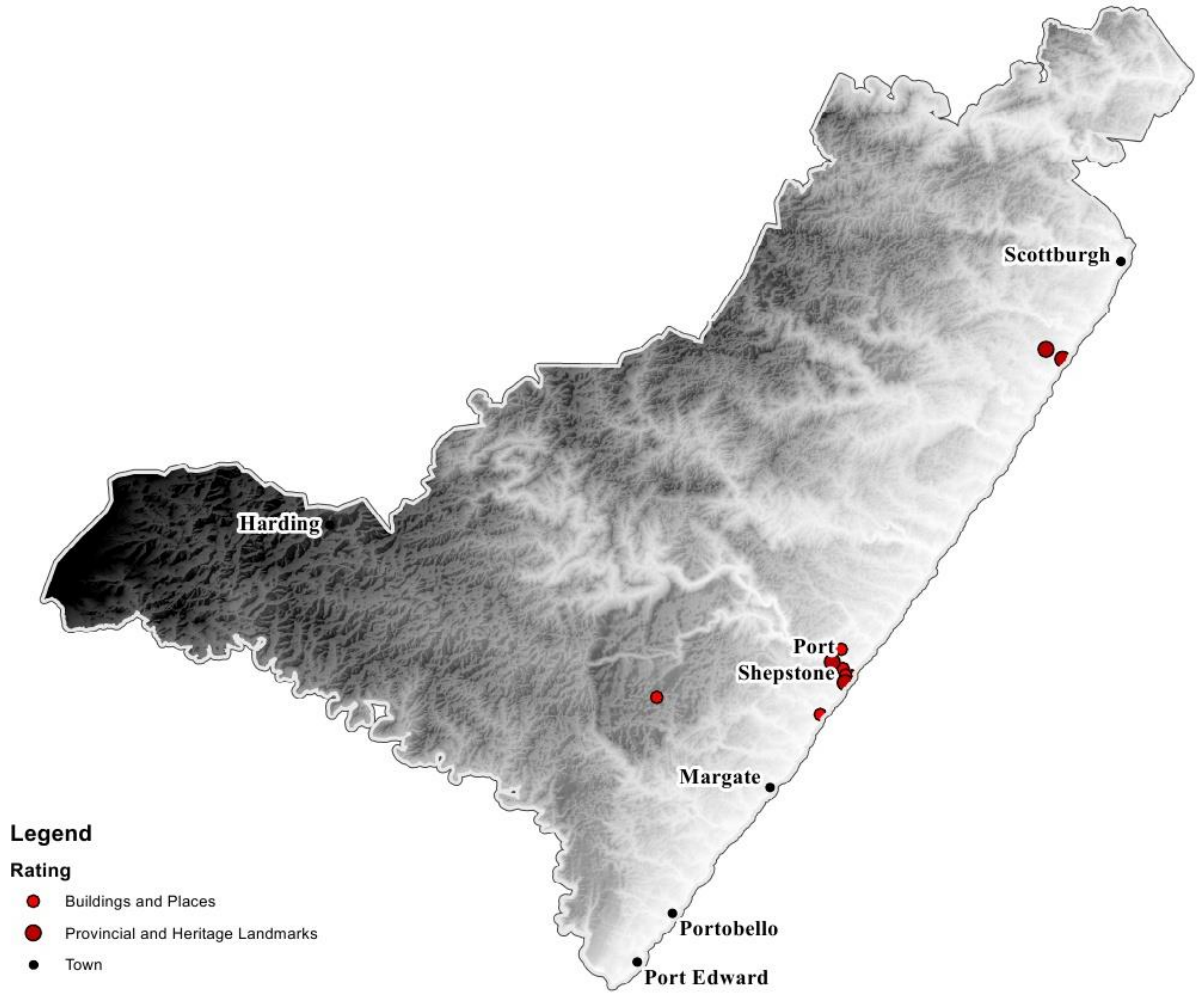


Figure 14: Heritage Sensitivity Map

3.4 Environmental Constraint Zones

By superimposing the various sensitivity maps in GIS, Environmental Constraints Zones (ECZs) are produced (see **Figure 15**). These zones maintain the sensitivity ratings allocated to the environmental features and attributes as part of the sensitivity analysis, with priority to the mapped layers based on sensitivity (i.e. VH ➜ H ➜ M ➜ L).

Due to their innate characteristics, the environmental feature categories (agriculture, terrestrial biodiversity, aquatic biodiversity, coastal and estuarine environment, heritage and slope) highlight areas that pose limitations to development in Ugu DM. Conversely, these characteristics promote certain types of development that harness the land potential and support the management objectives linked to the sensitive features and attributes.

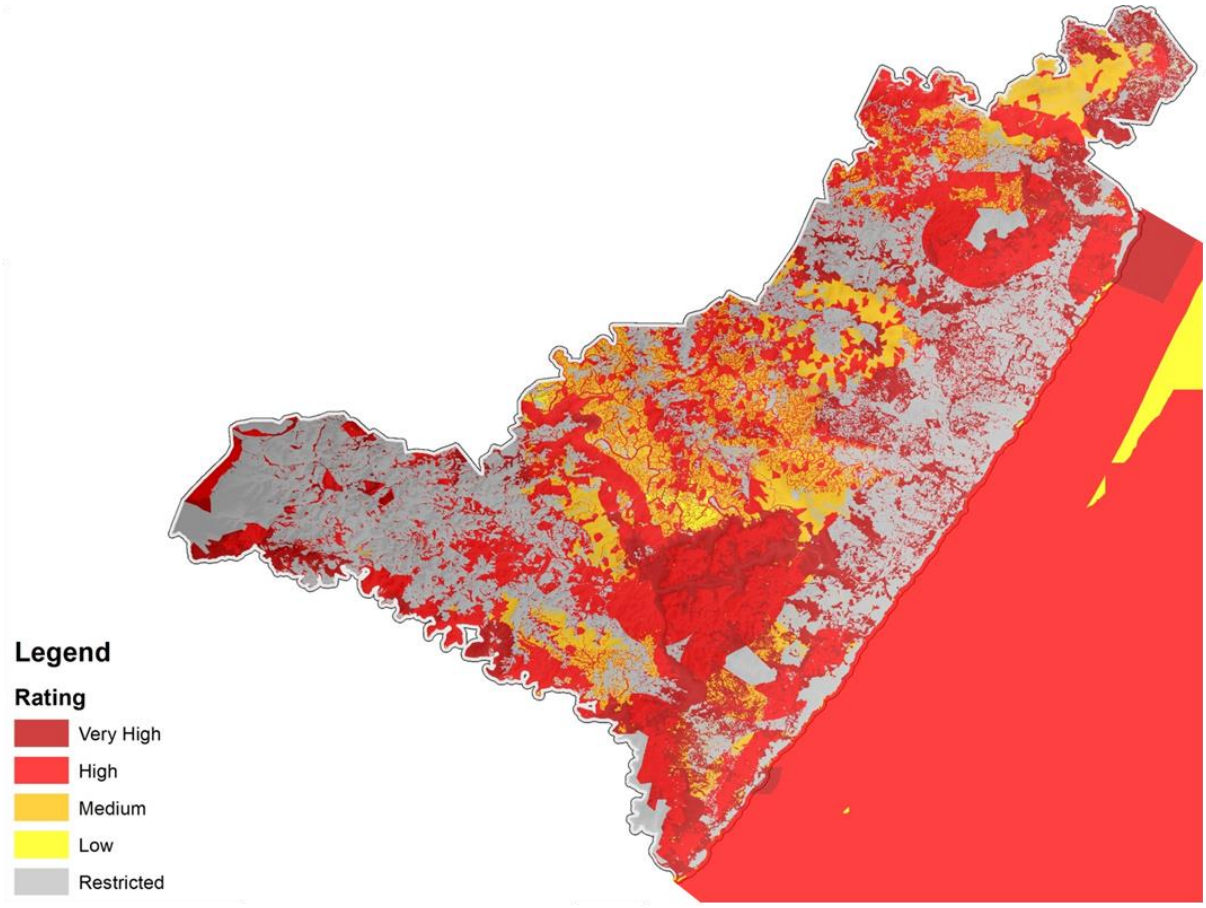


Figure 15: **ECZs in Ugu DM**

Figure 15, which has a large number of areas with 'High' and 'Very High' sensitivity, reflects the abundance of sensitive environmental features and attributes in Ugu. It emphasises the possible challenge faced in identifying suitable land that is available for development. On the other hand, it also highlights the district's environmental wealth that can be exploited for commensurate development types, such as tourism and agriculture.

The ECZs present a crucial component of the EMF's progression towards delineating EMZs that present a balanced depiction of the district's desired state. These zones are the product of the interrogation and assessment of the Status Quo information and the realisation of the district's possible restrictions to development pressures and opportunities.

3.5 Threats and Opportunities

The Desired State Report (Ugu DM, 2014) identified various threats and opportunities related to achieving the desired state for the district. The EMF should strive to overcome the threats and exploit the opportunities within the parameters linked to this framework. It should be noted that the EMF is not the only solution to address all environmental management endeavours

within the district. There is a strong environmental governance framework with mandated authorities within the various spheres of government for various sectors within the environmental realm. In addition, it is evident when reviewing the opportunities in the district that there are other more appropriate mechanisms than the EMF through which a number of these potential future prospects should be explored and pursued.

The table to follow shows how the EMF strives to address the threats and opportunities in Ugu and the manner in which the framework supports the desired state objectives.

Table 11: EMF provisions to address threats and opportunities

Threats	Opportunities	EMF Support
BIODIVERSITY		
The Desired State is to maintain current levels of biodiversity throughout the DM and to ensure that no further loss in biodiversity occurs		
▪ Historical transformation and land use have resulted in significant impacts on the environment, particularly along the coast. ▪ A large number of ecosystems (18%) and vegetation types (58%) are endangered or critically endangered. ▪ Several fauna and flora species are listed as endangered or critically endangered. The threat status of species of conservation concern in the District is: Critically Endangered – 6; Endangered – 22; and Vulnerable – 75. ▪ Large areas of the District show infestation by alien vegetation, particularity in the eastern region of the District where infestation exceeds 50%. ▪ Agriculture (particularity forestry, sugarcane and subsistence) is the major cause of landscape transformation and biodiversity loss. ▪ Major pressures on natural resources include afforestation, agriculture and alien vegetation. ▪ An estimated 67% of wetland vegetation types in the District have been lost. ▪ High sensitivity habitats within rural areas, resulting in divides between communities (e.g. Sipofu area) where infrastructure (e.g. roads and sanitation) may be required to cut across high sensitivity habitats. ▪ High sensitivity habitats with conservation important species within the urban edge of developing coastal nodes (e.g. Margate airport, Ifafa, iZotsha and Pumula).	▪ Public works programmes, such as Working for Water, could create jobs to assist in combating the extent and spread of alien invasive plant species. ▪ Opportunities for employment through IASP programme and Wetland rehabilitation projects. ▪ Protected biodiversity can enhance tourism. ▪ Large tracks of natural areas within agricultural and traditional authority areas, which allow opportunity for stewardship programmes and subsequent protection of biodiversity. This is especially so within rural areas that would allow for ecological corridors and linkages between protected areas. ▪ Established protected areas with significant tracks of natural vegetation adjacent to these areas (e.g. Oribi Gorge), which allows for expansion of natural areas and thus protection of biodiversity. ▪ High biodiversity within developed areas, allowing for development of an open space system (e.g. uVongo, Skyline, Admiralty Reserves).	▪ Delineation of dedicated EMZ for Terrestrial Biodiversity, Aquatic Biodiversity and Marine & Inshore Biodiversity. The purposes of these zones include *inter alia* to provide measures to safeguard biodiversity, to facilitate decision-making for developments earmarked for these areas and to ultimately support the progression towards the desired state ▪ BSP for Ugu DM incorporated into EMZs (based on the availability of spatial data) to ensure alignment with the biodiversity management planning of EKZNW for the District. ▪ The EMF recommends the development of a Municipal Open Space System, which is a separate process but will incorporate the relevant EMZs. Areas that form the building blocks of the potential Municipal Open Space System, such as areas of high biodiversity and associated links via environmental corridors, are included in the Terrestrial and Aquatic Biodiversity EMZs.

Threats	Opportunities	EMF Support
CONSERVATION AREAS The desired state is that a minimum of 10% of the DM is conserved, in line with the target set out in the Convention on Biological Diversity		
▪ Less than 2% of the total area of the Ugu DM is formally protected, falling far short of the 10% target set out in the Convention on Biological Diversity (UN, 1992), to which South Africa is a signatory. ▪ Development pressure on areas of high conservation significance (e.g. adjacent to Margate airport, uZumbe and iFafa).	▪ A number of conservation areas (conservancies, private reserves and game ranches) exist in the District, however they are not formally protected by law. An opportunity exists to formalise the conservation of these areas. ▪ Potential exists for the development of a Big 5 game reserve associated with the Mzimkhulu priority area in the Ugu DM, through the amalgamation of several smaller reserves in the central region of the Ugu DM near St. Faiths. ▪ EKZNW Stewardship programme allows for protection in association with landowners, without purchase of land.	▪ Delineation of a dedicated EMZ for formally protected areas in Ugu DM. ▪ The Terrestrial Biodiversity EMZ supports the District's overall biodiversity values including ecotourism developments, stewardship programmes, Community Conservation Areas (CCAs) and KZN's Protected Area Expansion Strategy (NPAES).
TOURISM The Desired State is sustainable, environmentally responsible tourism activities/developments that contribute to the economy of the DM		
▪ Compromised water quality may pose a threat to tourism in the District, as insufficient quality and quantity of water will deter tourism. ▪ Aged sanitation infrastructure, resulting in re-occurring effluent spills (e.g. Margate beach), and lack of water-borne sewerage systems resulting in pollution of water sources and beaches, especially during tourist seasons. ▪ Coastal erosion linked to climate change but also associated with poor management of the coastal area (e.g. removal of vegetation in the Admiralty Reserves and artificial breaching of estuaries) resulting in beaches such as uVongo being reduced in size and aesthetic appeal lost through hard engineering solutions (e.g. Port Shepstone and Margate beaches). ▪ Poor inland infrastructure and facilities to cater for tourism. ▪ Several species of conservation importance include the Blue Swallow, Wattled Crane, Cape Parrot and Oribi, which may be an opportunity for eco-tourism. ▪ Tourism in the hinterland of the district needs to be explored and promoted. ▪ Restoration of coastal cities (e.g. Hibberdene, Margate, Scottburgh and Port Edward) for tourism purposes, establishing tourist-related infrastructure.	▪ Seven formally protected terrestrial areas (totalling 8883 ha) and two marine protected areas occur within the District. This poses an opportunity for eco-tourism. ▪ Numerous Heritage resources (e.g. graves, religious sites, memorials) have the potential to be developed into tourism attractions. ▪ Areas such as Oribi Gorge and Aliwal Shoal should be expanded in size and in terms of eco-tourism. ▪ The District has some very unique geological features, such as the Uvongo waterfall; Oribi Gorge; Wilson's Cutting; the Reneken fault line; the Red Desert; and Hells Gate, which have the potential to be further developed as tourism locations.	▪ Tourism values are inherent within the EMZs and the related Management Guidelines, particularly those activities that are reliant of the visual and biodiversity qualities within Ugu DM. Any development in these zones, including tourism-related, should not compromise the sensitivity of the environmental features that make up these zones. ▪ Delineation of a dedicated Urban Area EMZ, which recognises the development priorities often associated with urban areas, e.g. services, densification, tourism facilities (e.g. accommodation). Provision made in the manner in which the EMF aims to influence the EIA Listing Notices for this zone.
AGRICULTURE The Desired State is to maintain existing agricultural productivity and to reserve areas with agricultural potential for agricultural purposes so as not to compromise food security		
▪ Soil erosion (loss of fertile land) and transformation of agricultural land is posing a threat to agriculture in the District, as land for farming is being transformed through development. ▪ Climate change could pose a major threat to agriculture, as crops currently grown in	▪ There is potential for crops, which are not currently grown in the District, to be cultivated, for example chillies, mango, papaya and ginger. ▪ Opportunities for aquaculture should be explored and developed.	▪ In support of the desired state objective, high value agricultural land and areas where agriculture is the primary land use have been included in the Agriculture EMZ.

Threats	Opportunities	EMF Support
the District may not be suited to future climate shifts. ■ Closure of sugar mill in Port Shepstone and potential closure of Sezela mill, discouraging sugar cane growth.	■ The potential opportunities for subsistence as well as commercial scale agriculture on the Ingonyama Trust land should be investigated and promoted.	
WATER RESOURCES The Desired State is to ensure that the water resources are not further compromised in terms of quality, quantity and aquatic ecology.		
■ Wetlands in the Ugu DM are generally heavily degraded, both in terms of quality and functionality, as a result of development along the coastal zone, formal and subsistence agriculture and informal housing. ■ Climate change generally poses a major threat to water resource availability throughout the District, as well as occurrence of droughts and more extreme weather events. ■ The microbiological quality of the water in the Weza, Phungashe, KwaLembe and, in particular, the KwaFodo, KwaNyuswa 1, KwaHlongwa and Assissi supply systems is poor and presents a potential for infection. ■ Legal and illegal discharges of treated and/ or untreated wastewater together with poor sanitation in rural areas contributing to faecal contamination in rivers, dams and estuaries. ■ Pollution from known and unknown sources affecting water quality and hence availability. Examples of sources would include: solid waste pollution in and around water resources (rivers, streams, etc.); river bank erosion (leading to sedimentation); chemical contamination from industries located in close proximity to water resources; and water quality degradation due to increased and often polluted stormwater run-off. ■ Impacts of alien vegetation and alien fauna on water resources, viz. availability and quality. ■ The combination of impoundments and water abstractions for domestic, industrial and irrigation purposes drastically reduces natural run-off, resulting in reduced total flow volumes and altered seasonal flow patterns in rivers, streams, etc. ■ Nutrients (nitrates and phosphates) originating from agricultural practices (use of fertilizers and irrigation run-off) can result in eutrophication (i.e. excessive nutrient concentrations) which in turn results in the proliferation of alien aquatic plant species.	■ Groundwater quality in the District is generally good, although influenced by the depositional environment, proximity to the coast (saltwater intrusion) and industrial activity. Borehole yields are also satisfactory throughout the District, except in areas where yields are known to be low. ■ There is an increasing runoff potential towards the southern region of the District, a possible area for water infrastructure (e.g. dams) development. ■ There is an opportunity to improve the Green Drop status once the sanitation needs outlined in the Ugu Infrastructure Audit (2011) have been met. ■ Wetland rehabilitation projects provide an opportunity to improve wetland functionality and hence increase e the goods and services they provide.	■ Specific measures included in the Aquatic Biodiversity EMZ to safeguard the characteristics of the watercourses in the District, including water quality, flow, ecology and morphology. ■ A management priority in the Aquatic Biodiversity EMZ includes he rehabilitation of wetland areas, streams and rivers to maintain ecological functioning. This includes interventions in support of the Ecological Infrastructure associated with aquatic ecosystems.
COASTAL MANAGEMENT The Desired State is to protect the coastal zone from degradation and to maintain the scenic beauty of the Ugu coastline.		
■ The coastline of the District is under threat of development, which poses a threat to the coastal ecosystem. Increase in development will also place added pressure on waste infrastructure, which could result in waste ending up in the ocean.	■ The existence of two Marine Protected Reserves (Aliwal Shoal and Trafalgar) off the coast of the Ugu DM is an opportunity for marine conservation and the associated impact on ecotourism.	■ The Coastal and Estuarine EMZ incorporates various factors, including the biodiversity of the marine and inshore environments (including marine and estuarine CBAs and ESAs), CVI (based on the relative

Threats	Opportunities	EMF Support
▪ The Ugu coastline is very aggressive and poses a threat in terms of coastal erosion and destruction of coastal infrastructure. ▪ Coastal pollution resulting from poorly maintained municipal waste and sewerage infrastructure. ▪ Development pressure resulting in loss of ecosystem processes and functions. ▪ Tidal surge events and coastal erosion, especially with climate change, resulting in risk to structures and infrastructure and loss of beach areas for tourism ▪ Coastal pollution resulting from poorly maintained municipal waste and sewerage infrastructure.	▪ The existence of Marine Protected Areas and undeveloped green areas, for the establishment of coastal protection areas. ▪ Tourist friendly beaches, allowing socio-economic development. ▪ Marine living resources for sustainable livelihood projects. ▪ The existence of Marine Protected Areas and undeveloped green areas, for the establishment of coastal protection areas. ▪ Ugu DM has developed a CMP which guides future opportunities within the coastal zone in a sustainable manner.	physical vulnerability of the coast to erosion, sea-level rise and extreme events), scenic quality and tourism based land use. ▪ Specific measures included in the Coastal and Estuarine EMZ to safeguard the values of the District's coastline.
ESTUARIES The Desired State is to prevent further degradation of Ugu's estuaries and to protect them from future development.		
▪ 30% of estuaries in the District are reported to be in poor condition. Impacts such as inadequate sanitation and waste disposal facilities result in the pollution of estuaries. Unpermitted artificial opening of estuaries to negative impacts on estuarine functioning. ▪ Poorly managed upstream activities have a detrimental effect on the condition of estuaries in the District. ▪ Illegal sand winning poses a threat to estuarine and coastal ecosystems by changing the dynamics of the system.	▪ 7 Estuaries in the District have been reported to be in good condition and one in excellent condition. The Kaba, Ku-Boboyi and Zolwane estuaries have been flagged as Fresh Water Priority Areas as part of the National Biodiversity Assessment. Estuaries that are in good condition provide an opportunity to preserve associated biodiversity and sensitive estuarine ecosystems. ▪ Development of estuarine management plans to proactively manage living resources and enhance biodiversity while supporting socio-economic growth of the area. ▪ Cooperative governance approach/ efforts involving DMR, EDTEA, Local Government and traditional authorities will lead to improved estuarine status as a result of improved upstream management of potential impacts, as well as direct impacts on the estuaries themselves.	▪ The Coastal and Estuarine EMZ incorporates estuaries of high conservation significance (including estuarine CBAs and ESAs). ▪ Specific measures included in the Coastal and Estuarine EMZ to safeguard the values of the District's estuaries.
AIR QUALITY The Desired State is to ensure that air quality is managed in such a way that it does not have a detrimental impact on human health or the environment.		
▪ Inadequate monitoring of noxious/waste gases being pumped into the atmosphere poses a threat to air quality in the District and compromises sound decision making with regards to future developments, in particular regarding industry. ▪ The threat of air quality degradation varies, with hinterland LMs facing air quality impacts based on agricultural practices (e.g. burning), while coastal LMs face air quality impacts associated with industrial development.	▪ With the recent establishment of an air quality forum within the District, there is an opportunity for the building of an air quality database and thus modelling of trends.	▪ Measures to manage air quality have been included in the Urban Area EMZ.
HERITAGE The Desired State is to identify and document all heritage sites in the Ugu DM and to protect and preserve their integrity.		
▪ Many heritage sites, such as graves, are not documented, and therefore there is a threat of destroying these during development.	▪ The District has a rich and diverse history reflected by numerous Heritage Resources, which is an opportunity for tourism.	▪ Delineation of dedicated Heritage EMZ, with measures to identify and protect heritage resources and to explore related tourism opportunities.

Threats	Opportunities	EMF Support
PLANNING The Desired State is to ensure that future planning addresses the socio-economic needs within the DM whilst not compromising the integrity of the environment.		
▪ Development in rural areas largely does not follow municipal spatial plans, which results in ecological fragmentation and the integrity of the environment being compromised.	▪ Links have been identified for the potential development of transport corridors between coastal and inland areas.	▪ A key function of an EMF is to facilitate decision-making in terms of applications for environmental authorisation as well as land use applications. ▪ The EMF provides recommendations on how to incorporate environmental management into the planning (including applications for land allocations and more substantial developments) undertaken on rural land under the Ingonyama Trust Board (ITB).
SOCIO-ECONOMIC DEVELOPMENT The Desired State is to ensure that socio-economic growth occurs in a sustainable manner which benefits all people and groups in the Ugu DM, without compromising the integrity of the environment.		
▪ There are a few challenges in the District, which may hamper economic development, including: Unemployment is very high; the standard of education is poor; infrastructure is poorly located, under-maintained and insufficient; and the economy is resource intensive, which is unsustainable. ▪ Limited growth potential for the Margate Airport, due to area identified for expansion also identified for housing, while also being highly sensitive from an ecological perspective. ▪ Toll fees associated with upgrade to the N2, which may discourage industrial-type developments. ▪ Planned development of transport corridors between coastal and inland areas and between larger towns in the Ugu DM will promote economic development.	▪ The National Government's Development Plan has undertaken to prioritize efforts to support employment creation in inter alia the following sectors: Agriculture; the Green Economy; and tourism, which are all priority sectors in the Ugu DM. ▪ Port Shepstone has been identified as a Primary Node with potential for expansion of economic development. Scottburgh also provides opportunity for industrial development, especially due to its relative closeness to Durban. ▪ There is an opportunity to develop the Margate Airport and associated infrastructure.	▪ Sustainable development constitutes the central theme of the EMF.
LANDSCAPE CHARACTER The Desired State is to maintain the scenic value to the area by ensuring informed development and planning takes place, as this will result in a basis for visual resource management.		
▪ Development in visually sensitive areas of the District is likely to have a negative effect on the Landscape Character.	▪ The District has very scenic beaches and ocean views, lagoons and estuaries, and a scenic topographic hinterland (e.g. Oribi Gorge), which are tourism attractions that may be further developed for this purpose.	▪ Aesthetic values are inherent within the EMZs and the related Management Guidelines. Any development in these zones should not compromise the landscape character of the environment.
RESOURCE ECONOMICS The Desired State is to ensure that ecological infrastructure is protected in order to function at optimal levels and thus yield the necessary ecological services.		
▪ Current land use trends indicate that supply of ecosystem services will decline by more than 30% by 2030. With population growth and subsequent increase in demand on resources, water, food and disaster reduction, services will be inadequate and costly to provide, particularly in the coastal areas.	▪ If environmental and land use management is improved, service supply will be increased. Focus on restoration of wetlands in the Ugu DM, for example, will ensure that water security and disaster reduction services are improved in the future. ▪ An evaluation of the scenarios indicates that demand management for water and waste on the coast, coupled with wetland restoration and improvement of farming	▪ Provision is made within the CBAs to support the functionality of Ecological Infrastructure, which are incorporated into the EMZs for terrestrial biodiversity, aquatic biodiversity and marine and estuarine environments. ▪ A management priority in the Aquatic Biodiversity EMZ

Threats	Opportunities	EMF Support
PLANNING The Desired State is to ensure that future planning addresses the socio-economic needs within the DM whilst not compromising the integrity of the environment.		
	techniques, will provide an opportunity for improvement of resource provision in the future.	includes he rehabilitation of wetland areas, streams and rivers to maintain ecological functioning. This includes interventions in support of the Ecological Infrastructure associated with aquatic ecosystems.
CLIMATE CHANGE The Desired State is to ensure that climate change, its impacts and risks are fully identified and taken into account in all aspects of planning (i.e. infrastructure, biodiversity targets, agriculture, etc.) to safeguard both present and future development.		
▪ Ugu does not currently have a Climate Change Response Strategy (CCRS). While a strategy is only the first step in addressing climate change issues, it would serve to start looking at the impacts that will affect Ugu (e.g. over-exploitation of resources; loss of wetlands, coastal forests, bushlands and grasslands, and associated biodiversity; etc.). ▪ Climate change poses additional environmental stressors on the region with the increased incidence of flooding, drought as well as other natural disasters. These disasters disproportionately affect poor communities within the district and increase their vulnerability. Local coping strategies need to be understood and supported, together with local and district-level strategies for responding to climate change. Municipal Environmental Management Plans (EMPs) must address both mitigation and rehabilitation needs. The financial impact of such disasters must also be taken into account as increased budgets are demanded for rehabilitation, reducing the budget available for maintenance and new investments.	▪ The development of a CCRS would aim to develop a robust strategy that identifies and outlines recommendations for responses to specific climate change management issues for vulnerable sectors within the Ugu area.	▪ Provision is made in the Coastal and Estuarine EMZ for the CVI (based on the relative physical vulnerability of the coast to erosion, sea-level rise and extreme events). ▪ Specific measures included in the EMZs pertaining to climate change. ▪ The outcomes of the CCRS and other climate change planning tools need to be incorporated into the next generation EMF, once they are available.

3.6 Development Pressures

The development pressures in Ugu DM provide the context within which the EMF must be developed. The Sensitivity Analysis considered the inherent tolerance of the environmental features present in Ugu to development pressures. The resultant EMZs include *inter alia* environmental features that are significantly sensitive to development pressures that warrant specific management measures (DEA, 2010).

From a spatial perspective, the EMF Desired State Report (Ugu DM, 2014) recommends the following objectives to guide appropriate development within the district:

- Clustering of development which facilitates more efficient service provision;
- Ribbon development along the coastline should not be permitted;
- Coastal setback lines must be determined and adhered to;

- Appropriate setback lines and buffers from environmental and agricultural assets must be determined and adhered to;
- While not losing focus on the need to develop all areas, initial development and infrastructure should be directed to existing development nodes;
- In line with Ugu DM's future spatial planning objectives, develop a realistic land release strategy;
- Optimal densities for development should be identified for areas within the urban edge; and
- Cross boundary planning is required with eThekwini to the north, uMgungundlovu and Harry Gwala DMs to the west and the Eastern Cape to the south.

Some of the key development pressures and issues in the district include, based on a review of strategic documents such as the IDP (Ugu DM, 2016), SDF, and preceding EMF deliverables, include the following (list not exhaustive):

- Developing north-south linkages within the rural areas (from Harding to St Faiths; Oribi Flats through Umzinto to Odidini, and from Umgayi through Kenterton past Dududu) will dramatically improve accessibility within the District;
- This coastal belt currently hosts the majority of formal residential property, tourism activity, retail and manufacturing activities, and there will be further development pressure in this zone;
- Large scale-commercial agriculture will remain a primary focus of the Ugu district and high potential agricultural land needs to be suitably protected;
- There are increasing inappropriate, illegal and uncontrolled developments taking place in certain land parcels in the district. There is a need to enforce development controls and implement planning frameworks;
- Sand mining and quarrying is taking place illegally or in non-compliance with environmental approvals;
- Lack of capacities of cemeteries;
- Illegal solid waste disposal and landfill sites are fast approaching their capacities;
- Pollution is threatening the coastal environment;
- Degradation of natural resources;
- Further expansion of the forestry industry in the region, with resulting negative impacts on water resources;
- The area around Margate Airport presents substantial potential for future compatible development;
- Climate change poses additional environmental stressors on the region with the increased incidence of flooding, drought as well as other natural disasters. These disasters

disproportionately affect poor communities within the district and increase their vulnerability; and

- A land audit is required to determine current ownership of land in the District, vacant land that has potential for development, as well as to identify the areas of agricultural potential and agricultural land that is currently under-utilised.

According to the Ugu Growth and Development Strategy (GDS) (Ugu DM, 2012), spatial factors to consider in terms of development issues, priorities and pressures in the District include the following:

- In terms of the spatial planning for the district, the existence of natural structuring elements such as the coastline, river valleys, streams, hills and mountains, wetlands and other natural features need to be considered;
- It is evident that the rural areas in closer proximity to the coastal strip are generally better linked to rural upgrade settlements, compared to settlements in the deeper hinterland that are classified as limited access rural upgrade;
- Due to the fragmented nature of the district in spatial terms, linkages and accessibility represent a major development issue in Ugu. While the coastal areas accommodate the N2 development corridor and the coast, inland linkages, both in terms of north-south well as east-west connections are limited and need to be developed further to ensure better integration and the development of new opportunities in the western parts of the district;
- The future focus of the district must be on maintaining existing economic nodes within the region, protecting the natural environment and creating access to sustainable economic opportunities for rurally located communities. This focus must be driven through supporting sustainable resource management, value-chain linkages and the provision of road infrastructure and bulk services;
- The lack of both tenure security and access to ITB land has been identified as the primary blockage to economic and social development within the district. The existing spatial pattern, of a narrow strip of urban coastal development and a large, under-developed hinterland is perpetuated by the dual system of land ownership and management within the Ugu DM. The potential identified in the hinterland for commercial agriculture, tourism, industry and commerce will not be realized unless the land can be unlocked for development; and
- There are critical infrastructure gaps within Ugu that are restraining development within both existing and new economic spaces, including electrical supply, water availability and supply, road infrastructure and rail access.

The Ugu GDS Spatial Vision is presented in **Figure 16**. Some of the key considerations and requirements guiding the development of the spatial vision, as informed by the Ugu GDS are:

- Maintaining value-adding areas, such as Scottburgh, Hibberdene, Port Shepstone to Margate, Umtamvuna, and Port Edward;
- Understanding the entire coastal strip forming 'Key Activity Zones';
- The importance of the corridors from Park Rynie to Kenterton; Hibberdene towards Ixopo; Port Shepstone through St Faiths towards Ixopo; and Port Shepstone through Harding towards Kokstad; and
- The indication of most of the rural hinterland as 'mandated service delivery areas', 'agricultural investment areas' and 'social investment areas'. Many comprise of all three.

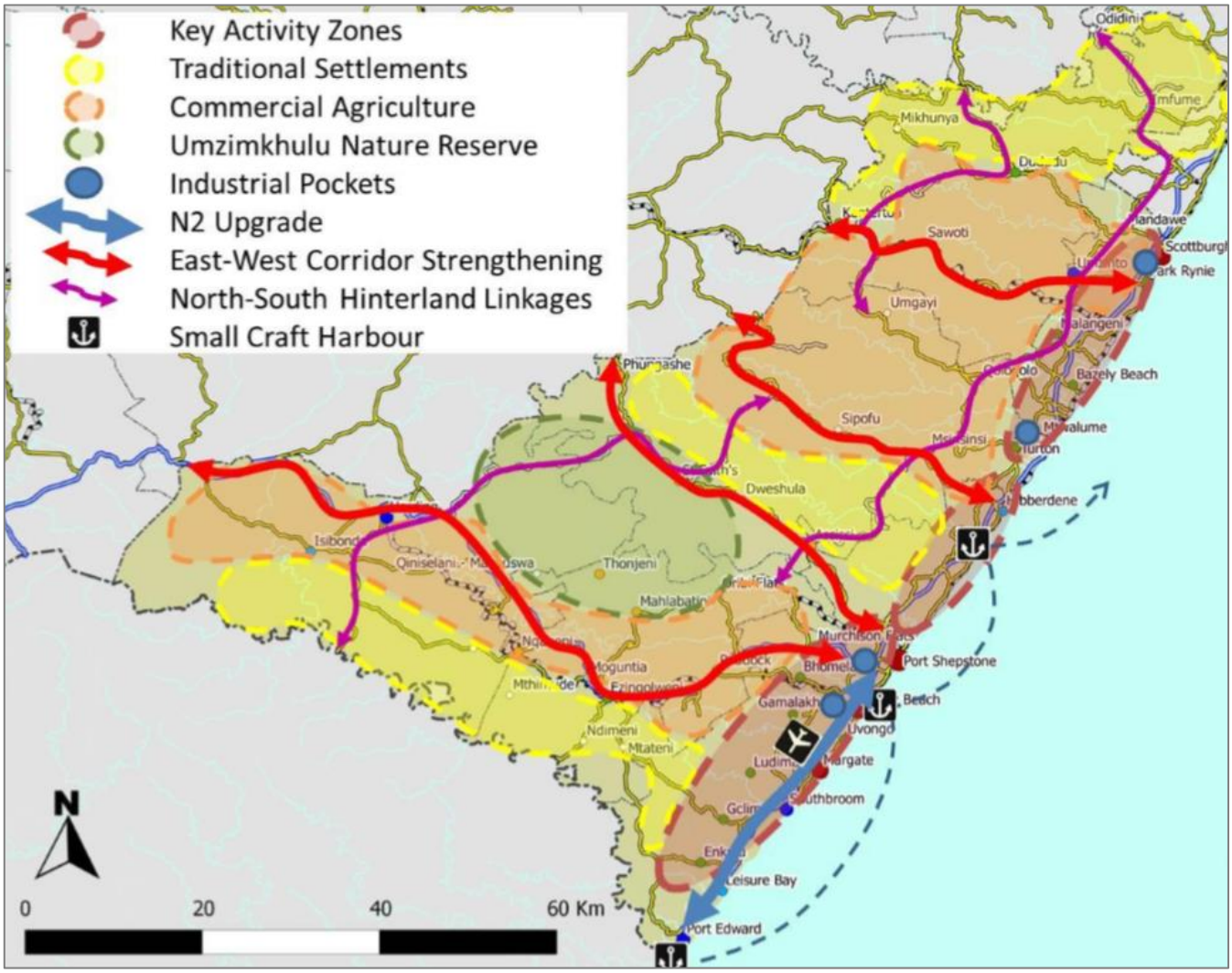


Figure 16: Ugu GDS Spatial Vision (Ugu DM, 2012)

The EMF is supported by various other planning and Integrated Environmental Management (IEM) tools and statutory processes that address development pressures in Ugu. It fulfils a specific niche within the planning and decision-making phases of developments, as explained further in **Section 5.4.3**.

KZN COGTA has prepared a Strategic Corridor Plan for a defined area between Kingsburgh (south of Durban) and Port Edward and between Port Shepstone and Kokstad, which is referred to as the "KZN-N2 South Corridor" (see **Figure 17**). This corridor is informed by the Provincial Growth and Development Strategy (PGDS) and associated SDF. The key objectives of the 'KZN-N2 South Corridor' Strategic Corridor Development Plan are to:

- Support value chain and logistics;
- Encourage investment growth and development;
- Coordinate infrastructure development; and
- Guide land use and spatial planning.

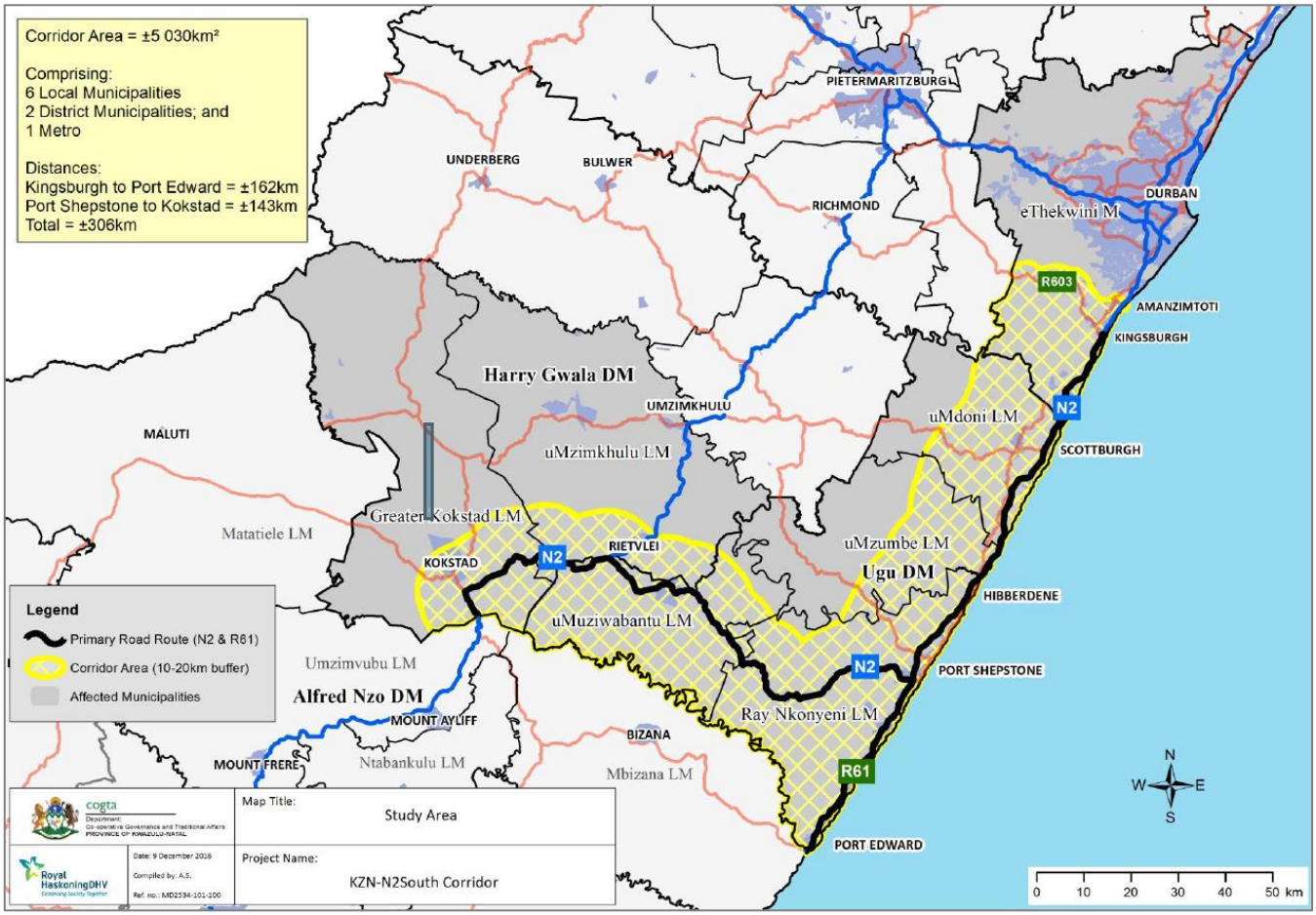


Figure 17: KZN-N2 South Corridor (COGTA, 2017)

The consolidated Strategic Corridor Development Plan land use framework, corridors and nodes with its associated "Protect", "Change" and "New" Strategies should inform the preparation of focus area plans. This will require a translation of the broader spatial concepts to a smaller scale to facilitate and coordinate strategic interventions at a local level

3.7 Managing Conflicts between Development and Environmental Features

Development pressures in the study area need to be screened and interpreted against the EMZs. Development and other growth demands can potentially be supported in areas where existing transformation exists or where detailed specialist studies confirm the receiving environment to be non-sensitive to the earmarked development. The last-mentioned would constitute ground-truthing of the EMF GIS information. Alternatively, the development may be supported by the desired state of the EMZ, such as cultivation in the Agriculture EMZ or appropriate tourism activities in the Terrestrial Biodiversity EMZ.

Note that ultimately each development needs to be screened against the EMZs, and must adhere to the Management Guidelines (as relevant).

Conflict areas may arise where a proposed activity / development pressure or opportunity is disproportionate to the environmental sensitivity. In these instances, preference needs to be assigned based on the following considerations:

- Risks posed by planned development activities to the sensitive environmental attributes associated with the EMZ;
- Degree of acceptable change to the state of the environmental features affected by the proposed development;
- Application of principles underpinning sustainable development;
- Maximise the opportunities to the benefit of both the environment and development; and
- The likelihood of the development proceeding, in order to avoid compromising environmental sensitivity for unrealistic development proposals.

3.8 Ugu DM EMZs

EMZs depict the assimilated and refined sensitivity maps that are integrated with the threats, opportunities and development pressures (where available). The end product therefore determines the environmental suitability of a specific area for certain types of development based upon inherent characteristics and overall sensitivity.

From a sensitivity perspective (see **Section 3.2**), only those features and attributes with ratings of High – Very High, where there is a positive inclination towards the core focus of the zone, were included in the amalgamated map. Nonetheless, the other features that are considered to be of medium sensitivity should also be taken into consideration when reviewing development proposals against the respective sensitivity maps. In the next generation EMF, these medium or even low sensitivity areas may be enhanced through efforts such as

environmental rehabilitation. Despite low sensitivity, it can also be recommended that an area or feature be managed to achieve an improved future state.

The EMZs take into account the current state of the environmental features and their attributes as well as the intended future use of the associated land parcels, and attempts to seek a sustainable compromise as to what features, attributes and areas should be included in which delineated areas that comprise the management zones.

The following EMZs were delineated for Ugu DM (refer to individual EMZs mapped in **Section 4**):

- **Formally Protected Terrestrial Areas**;
- **Terrestrial Biodiversity**;
- **Aquatic Biodiversity**;
- **Coastal and Estuarine Environment**;
- **Agriculture**;
- **Heritage**; and
- **Urban Areas**.

Note that a dedicated zone was created for urban areas in recognition of the development priorities often associated with built-up areas, such as focus areas for providing services, densification, tourism facilities (e.g. accommodation).

MANAGEMENT GUIDELINES

SECTION 4

4 MANAGEMENT GUIDELINES

4.1 Introduction

Management Guidelines include statutory provisions as well as objectives, measures and best practices that need to be taken into consideration when contemplating development within the Ugu DM's EMZs, in order to facilitate the realisation of the desired state. The Management Guidelines are primarily based on the following:

- Environmental management priorities in the District;
- Existing statutory and regulatory provisions;
- Provisions within existing policies, strategies, plans and programmes of various government departments;
- Outcomes of the Status Quo and Desired State phases, including findings of specialist studies and outcomes of public participation;
- Outcomes of the Sensitivity Analysis; and
- Environmental best practices.

As stated in the EMF Guidelines (DEA, 2010), the Management Guidelines are not prescriptive regarding land use and do not indicate which land uses must occur in which areas. Rather, the guidelines indicate specific minimum environmental requirements and performance criteria, which need to be abided by and satisfied before approval of a development application should be considered. The Management Guidelines for each EMZ are provided in the sub-sections to follow according to the format displayed in **Table 12**.

Table 12: Management Guidelines Outline

MANAGEMENT ZONE: _____	
Environmental Features	*Environmental features and attributes included and considered in the delineation of the specific Management Zone.*
Governance Framework	*Relevant statutory framework pertaining to environmental features and types of activities/developments commonly associated with the Management Zone in question. List of statutes may not be exhaustive. Includes list of authorities with jurisdiction over environmental features and attributes within zone.*
Implementation Mechanisms	*Protocols, procedures and other means of ensuring compliance with governance framework*
Management Guidelines	*Based on the environmental status, issues, constraints and opportunities. Linked to desirable state of the particular EMZ. Includes specific management measures, objectives and requirements related to environmental attributes within the EMZ.*
Compatible Activities	**Incompatible Activities**
Activities that promote and are supportive of the desired state and management objectives, and that need to be encouraged.	*Activities that are in conflict with the desired state and management objectives of the management zone, that need to be discouraged.*
Performance Management	*Measures indicating progress towards desired state. Means of measuring / checking achievement of targets (where relevant).*

4.2 Formally Protected Terrestrial Areas EMZ

4.2.1 Mapped EMZ

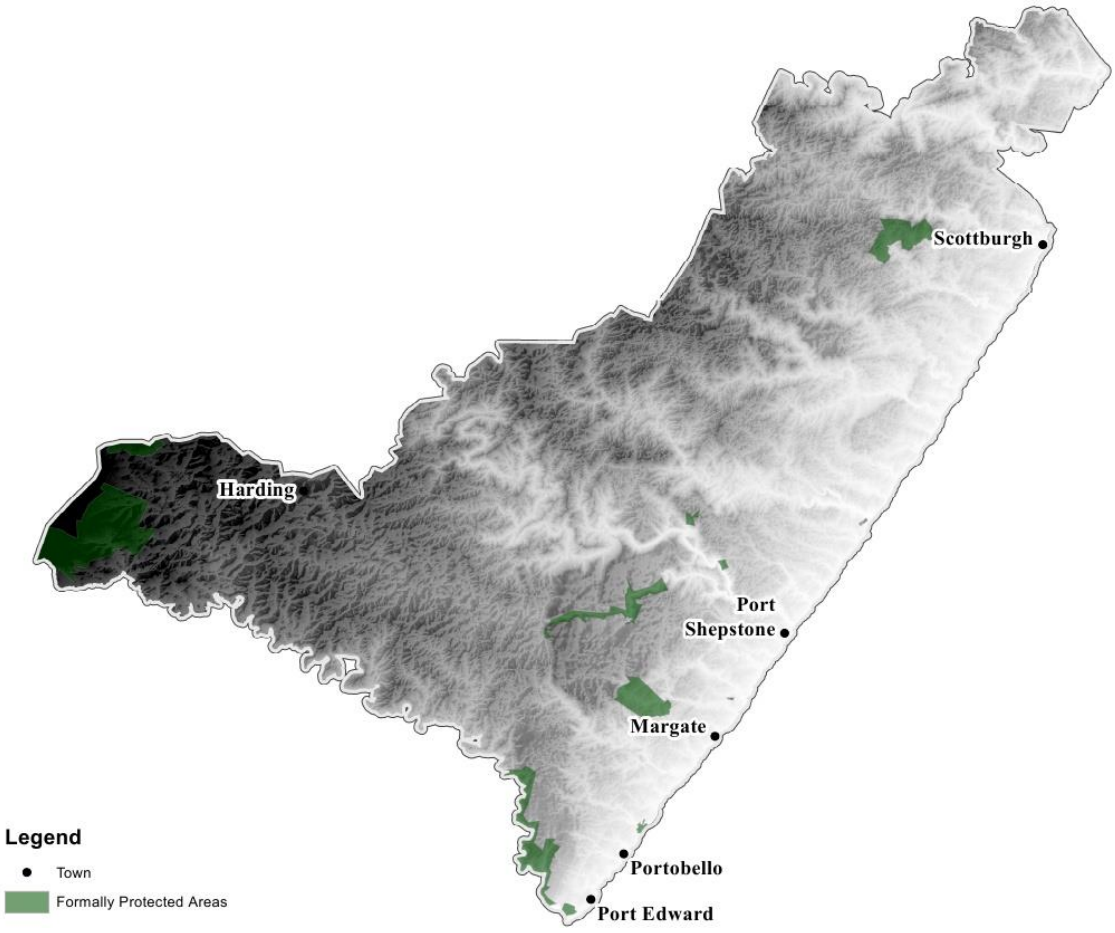


Figure 18: Formally Protected Terrestrial Areas EMZ

4.2.2 Expression of Desired State

- Sustainably managed and conserved natural and cultural resources within the formal protected areas of the District.

4.2.3 Environmental Features considered

- This zones includes all areas declared or formally proclaimed as protected in terms of governing legislation, including the KwaZulu-Natal Nature Conservation Management Act (No.9 of 1997) or the NEM:PAA.
- Terrestrial areas that are formally protected by law and managed for the purpose of biodiversity conservation.
- Nature Reserves - Oribi Gorge, Skyline, Mbumbazi, Mehlomnyama, Umtamvuna, Vernon Crookes, Mpenjati, Ngele (managed by DAFF), Forest Side and Red Desert.
- Protected Environment – Weza.

4.2.4 Governance Framework

Laws & Policies	Plans & Programmes	Authorities
▪ National Environmental Management Protected Areas Act (NEM:PAA) (Act 57 of 2003) ▪ NEM:PAA: Norms and standards for the management of protected areas in South Africa (GN No. 528, 7 July 2014) ▪ KZN Nature Conservation Management Act (Act No. 09 of 1997) ▪ National Forests Act (Act 84 of 1998) ▪ Natal Nature Conservation Ordinance (15 of 1974) ▪ Regulations for the Proper Administration of Nature Reserves, 2012	▪ Management Plans (MPs) of Protected Areas (where relevant) ▪ Ugu DM BSP 2014	▪ EKZNW ▪ DEA ▪ DAFF
▪ *Refer to the Governance Framework associated with Terrestrial and Aquatic Biodiversity EMZs (where relevant to statutory Protected Areas).*		

Implementation Mechanisms	▪ Refer to the Implementation Mechanisms associated with Terrestrial and Aquatic Biodiversity EMZs (where relevant to statutory Protected Areas). ▪ Implementation of MPs for Protected Areas (where relevant), including operational management actions (e.g. conservation management, buffer zone protection, etc.). ▪ Development permits issued in terms of NEM:PAA. ▪ EKZNW may impose conditions in addition to (but consistent with) conditions set by other authorities and legislation. ▪ Rules for Protected Areas.

4.2.5 Management Guidelines for achieving the Desired State

Refer to the Management Guidelines associated with Terrestrial and Aquatic Biodiversity (where relevant to statutory Protected Areas).

Description	Responsible Parties
Planning Priorities	
▪ Increase the number and/or size of protected areas within the formal Protected Areas network. ▪ Biodiversity stewardship programmes between EKZNW and private organizations/institutions should be encouraged for those biodiversity priority areas identified that do not currently fall within the protected areas network. ▪ Priority should be given to sites with high biodiversity values but which are also threatened by anthropogenic activities. ▪ Establish and protect buffer zones for Protected Areas in terms of the norms and standards for the management of protected areas in South Africa (GN No. 528, 7 July 2014). ▪ Advocate community conservation ventures and commensurate activities in buffer zones of Protected Areas.	▪ DEA ▪ EKZNW
▪ Strategic planning processes to be informed by EKZNW's CBAs and BSP, including compliance with Land Use Management Objectives for the Terrestrial and Aquatic Conservation Categories, as well as Land Use Management Practices, Controls and Guidelines.	DM & LMs
Development Guidelines	
▪ Implement development in line with the MPs of the Protected Areas (where relevant).	EKZNW
Managing & Conserving Biodiversity	

Description	Responsible Parties
▪ MPs of Protected Areas serve as the framework within which these areas need to be managed, and these plans thus need to be adhered to. ▪ Prevent loss of biodiversity.	EKZNW
▪ Maintain working relationships between the various spheres of government to ensure a collaborative effort to conserve Ugu DM's Protected Areas and their adjoining buffer zones.	▪ EKZNW ▪ DEA ▪ EDTEA ▪ DMR ▪ DWS ▪ COGTA ▪ DM & LMs
▪ Dedicated catchment management for watercourses that feed into the Protected Areas.	DWS
Decision-making	
▪ Apart from the regulatory authority and other commentary authorities, specific requirements of EZKNW need to be met when conducting EIAs within buffer zones of protected area. Buffer zones to be regarded as 5 km from the proclaimed boundary of a reserve (as per GN No. R. 985 of 4 December 2014, as amended), or unless a specific buffer has been identified. ▪ Ensure that edge effects of proposed activities do not compromise the integrity of the Protected Area or adversely impact on its ability to maintain a functioning system.	Mandated authorities
Specialist Studies	
▪ Specialist disciplines required (where relevant) – Terrestrial Ecology (and associated sub-disciplines), Aquatic Ecology, Visual, Socio-economic, Social, Heritage, Geotechnical (note: list not exhaustive).	Developers/ Project Proponents

4.2.6 Compatible & Incompatible Activities

Compatible Activities	Incompatible Activities
▪ Adhere to Zoning Plans of MPs (where relevant). ▪ Comply with EKZNW's BSP.	▪ Activities that compromise the integrity of the Protected Area, or are in conflict with the MPs' Zoning Plans. ▪ No un-authorised developent in Protected Areas.

4.2.7 Performance Management

- To be aligned with target and indicators in respective MP's for Protected Areas (where relevant).
- Current coverage of Protected Areas.
- Percentage of biodiversity network under formal conservation.
- Ecosystem health and condition.
- Occurrence of invasive alien animal populations.
- Loss of protected species.
- Measurable edge effects from developments in the buffer zones.

4.3 Terrestrial Biodiversity EMZ

4.3.1 Mapped EMZ

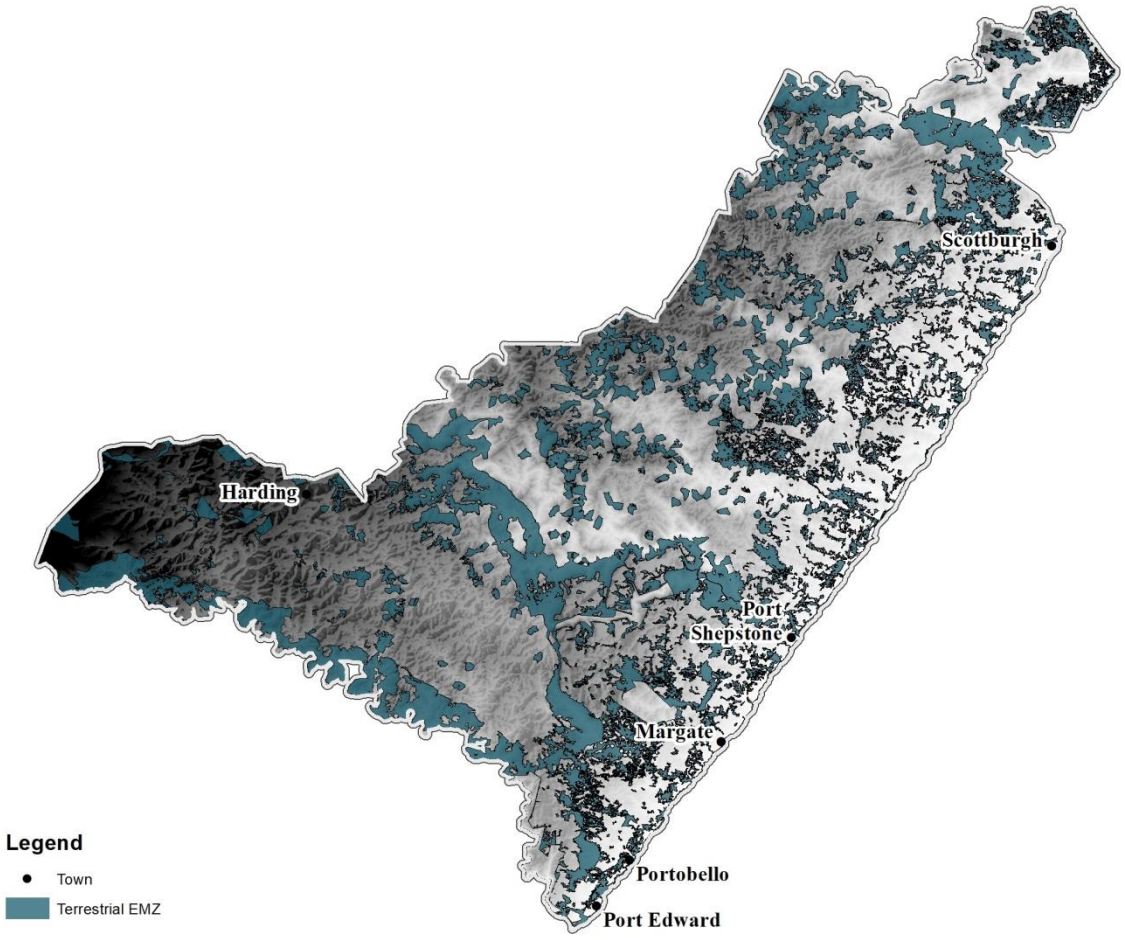


Figure 19: Terrestrial Biodiversity EMZ

4.3.2 Expression of Desired State

- Sustainably managed and safeguarded terrestrial biodiversity within the District.
- Protection of threatened species and species of special conservation concern and significance.

4.3.3 Environmental Features considered

- The areas that fall under this zone are located outside of formally protected terrestrial areas and exhibit high biodiversity or supportive functions, except for the landscape corridors that extend into formally protected area.
- Specific features include:
  - Important Bird & Biodiversity Areas
  - Terrestrial CBAs
  - Terrestrial ESAs
  - BSP Local Corridors
  - BSP Landscape Ecological Corridors
  - Ridges with slopes > 5°

4.3.4 Governance Framework

Laws & Policies	Strategies	Plans & Programmes	Authorities
▪ Multilateral Environmental Agreements, such as – ○ Rio declaration on Environment and Development, 1992 ○ Agenda 21, 1992 ○ Convention on Biological Diversity, 1992 ○ Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), 1979 ○ Convention on the Illegal Trade in Endangered Species (CITES), 1973 ○ Ramsar Convention on Wetlands Conservation, 1971 ○ United Nations Framework Convention on Climate Change, 1992 ○ Kyoto Protocol, 1997 ○ Protocol on Shared Water Courses, 2002 ○ African Convention on Nature and Natural Resources, 1968 ○ Man and Biosphere Programme, 1971 ○ SADC Protocol on Wildlife and Law Enforcement, 1999 ○ SADC Regional Biodiversity Strategy, 2006 ▪ NEMA ▪ NEM:PAA ▪ NEM:BA ▪ National Water Act (NWA) (Act 36 of 1998) ▪ National Environmental Management: Air Quality Act (NEM:AQA) (Act 39 of 2004) ▪ National Environmental Management: Waste Act (NEM:WA) (Act 59 of 2008) ▪ National Forests Act (Act 84 of 1998) ▪ Mountain Catchments Areas Act (Act No. 63 of 1970) ▪ National Veld and Forest Fire Act (Act No. 101 of 1998) ▪ Mineral and Petroleum Resource Development Act (MPRDA) (Act 28 of 2002) ▪ Conservation of Agricultural Resources Act (CARA) (Act 43 of 1983) and lists of declared alien invasive plants and weeds to be eradicated or controlled	▪ National Protected Area Expansion Strategy 2008 ▪ South Africa's National Biodiversity Framework (NBF) ▪ South Africa's National Biodiversity Strategy and Action Plan (NBSAP) 2005 ▪ National Biodiversity Assessment 2004 (updated 2011) ▪ National Grassland Biodiversity Programme 2011 ▪ National Strategy for Sustainable Development and Action Plan ▪ National Biodiversity Framework ▪ Mining and Biodiversity Guidelines. Mainstreaming biodiversity into the mining sector 2013 ▪ Ugu DM Climate Change Response Strategy	▪ EKZNW Systematic Terrestrial Conservation Plan ▪ Ugu DM BSP 2014 ▪ Stewardship programmes ▪ Municipal Strategic Environmental Assessments ▪ Threatened Ecosystems	▪ DEA ▪ EDTEA ▪ EKZNW ▪ Department of Water and Sanitation (DWS) ▪ Department of Mineral Resources (DMR) ▪ DAFF ▪ DARD ▪ South African National Biodiversity Institute (SANBI) ▪ District and Local Municipalities

Laws & Policies	Strategies	Plans & Programmes	Authorities
▪ White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity (July 1997) ▪ NEM:BA Alien and Invasive Species Regulations (GN No. 598, 1 August 2014) ▪ KZN Nature Conservation Management Act (Act No. 09 of 1997) ▪ Natal Nature Conservation Ordinance (15 of 1974) ▪ National Climate Change Response Policy, 2011 ▪ Municipal by-laws			

Implementation Mechanisms	▪ Species-based conservation (listed species). ▪ Area-based conservation (protected areas, protected eco-systems). ▪ Purpose-based conservation. ▪ State of Environment Reporting. ▪ Biodiversity stewardship. ▪ Permitting of activities (threatened species, alien species and listed invasive species. ▪ Terrestrial protected areas. ▪ Control measures for alien and invasive plant species. ▪ Authorisations in terms of prevailing legal framework. ▪ BSP's land-use planning and decision-making guidelines for Terrestrial CBAs and ESAs. ▪ Land management practices to prevent degradation, erosion, loss of ecosystem functionality, etc.

4.3.5 Management Guidelines for achieving the Desired State

Refer to the Management Guidelines associated with Aquatic Biodiversity (where relevant).

Description	Responsible Parties
Planning Priorities	
▪ Development of an Open Space System, particularly within development nodes along the coast could provide additional opportunities to provide some level of protection to remaining priority areas and should be explored. Areas included in the system could potentially be formally secured in time through stewardship agreements and / or biodiversity offset initiatives. ▪ Initiate a greening programme in urban and rural areas to provide shade, erosion protection, and beatification. ▪ Support and facilitate land planning and practices that safeguard and enhance the following: o Overall biodiversity values in the District; o Ecological corridors; o CBAs; and o Economic objectives based on wildlife industries that are compatible with the regions overall biodiversity values including ecotourism developments, stewardship	DM & LMs

Description	Responsible Parties
programmes, Community Conservation Areas (CCAs) and Protected Area Expansion Strategy (NPAES). ▪ Strategic planning processes to be informed by EKZNW's CBAs and BSP, including compliance with Land Use Management Objectives for the Terrestrial and Aquatic Conservation Categories, as well as Land Use Management Practices, Controls and Guidelines.	
Managing & Conserving Biodiversity	
▪ Conserve long-term viable and representatives of habitats of critically endangered species or any species of conservation importance (red data, specially protected species). ▪ Implementation of biodiversity stewardship initiatives in priority areas under private or communal ownership. ▪ Ecological linkages identified on the interface between the District and the bordering municipalities must be taken into account in conservation planning. ▪ Restore and conserve biodiversity and ecosystem patterns and processes. ▪ Support species-led programs to protect threatened species (e.g. cranes, blue swallows, and oribi). ▪ Actively encourage Working on Fire teams to assist in burning of priority grassland areas within CBA areas. ▪ Improved law enforcement, particularly in the case of illegal activities. ▪ Game farming to remain within the carrying capacity of existing veld resources. ▪ Promote investment in Ecological Infrastructure in Ugu DM. *See interventions - Aquatic Biodiversity EMZ.* ▪ Annual monitoring of fixed points as well as spot checks in the broader area. Mark all occurrences of rare and endangered species (GPS) (especially vegetation) and follow up its existence in following years. ▪ An inventory of popular medicinal plants must be drawn up and efforts to commercially produce these species must be encouraged. ▪ Prepare and implement an Invasive Species Monitoring, Control and Eradication Plan. ▪ Manage alien invasive species (terrestrial and aquatic). ▪ Rehabilitation of degraded areas: While degraded areas are not necessarily areas of highest biodiversity value, they often pose a threat to CBAs. Priorities include: o Prepare and implement an invasive plant species monitoring, control and strategic eradication plan on Municipal land. o Support and promote broader strategic alien invasive plant clearing in conjunction with local landowners and Working for Water. o Implementation of Land Care initiatives aimed at rehabilitating degraded lands to either be productive for agricultural use or enhancing their biodiversity value. o Address coastal management concerns through Working for the Coast initiatives. o Capacity building and empowerment, particularly in rural areas where overgrazing is a concern.	▪ DEA ▪ EDTEA ▪ EKZNW ▪ DWS ▪ DAFF ▪ DARD ▪ SANBI ▪ DM & LMs
Stakeholder Engagement	
▪ Work closely with the traditional authorities, the Ingonyama Trust Board, COGTA and other supportive government departments to find ways to integrate biodiversity conservation into decision making (e.g. land allocation) within traditional areas. ▪ Advocate community conservation ventures and commensurate activities in buffers of formally protected areas.	▪ DEA ▪ EDTEA ▪ EKZNW ▪ DAFF ▪ DARD

Description	Responsible Parties
▪ A programme to cultivate rare and endangered vegetation species should be initiated and the community should be included. Make us of indigenous knowledge. ▪ Training and education on the implications of overexploitation of medicinal plants must be conducted with the local communities. ▪ Include the local community in eradication programmes as an economic empowerment project.	▪ SANBI ▪ DM & LMs
Mitigation Measures	
▪ Measures to safeguard protected fauna and flora species. ▪ Remove and control terrestrial alien and invasive species. ▪ The use of residual biocides and insecticides to control nuisance animals must be reduced through education and extension. ▪ Implement effective veld fire management strategies. ▪ Where development proposals will result in irreversible biodiversity loss even after on-site mitigation, biodiversity offsets should be considered to offset for the residual impacts of development. ▪ Biodiversity offsets may also be considered as a means to secure conservation of priority areas, particularly along the coastal zone. ▪ Implement mitigation measures from the Ugu DM Climate Change Response Strategy. ▪ Manage collision of birds with overhead power lines. ▪ Maintenance of open space systems in settlements. ▪ Linear-type development (e.g. pipelines, transmission lines, roads) should be aligned along existing and proposed transport corridors rather than along point to point cross-country routes. ▪ Rehabilitation plans to be developed for natural areas, where disturbance occurs outside development footprint. ▪ Development footprint should be restricted to already disturbed areas, as far as possible.	Developers/ Project Proponents
Decision-making	
▪ Any irreconcilable activities in close proximity to ecologically sensitive species' habitats or initiatives / wildlife industries compatible with regions overall biodiversity objectives (e.g. conservation areas) should be discouraged or strictly controlled. ▪ CBAs need to be conserved and appropriately buffered from development and land use impacts, in consultation with EKZNW, DEA and DWS. ▪ Any irreconcilable activities in close proximity to ecologically sensitive species' habitats or initiatives / wildlife industries compatible with regions overall biodiversity objectives should be discouraged or strictly controlled. ▪ Ensure that edge effects of proposed activities do not compromise the integrity of sensitive ecosystems. ▪ Discourage any development activities on ridges with a slope of 5° or more. ▪ Specialist disciplines required (where relevant) – Ecological Assessments and associated sub-disciplines (note: list not exhaustive).	Mandated authorities
Specialist Studies	
▪ Specialist disciplines required (where relevant) – Ecological Assessments and associated sub-disciplines (note: list not exhaustive).	Developers/ Project Proponents

4.3.6 Compatible & Incompatible Activities

Compatible Activities	Incompatible Activities
Comply with EKZNW's CBAs and BSP, including compliance with Land Use Management Objectives for the Terrestrial and Aquatic Conservation Categories, as well as Land Use Management Practices, Controls and Guidelines.	

4.3.7 Performance Management

- Current coverage of CBAs and ESAs.
- Assess CBAs and ESAs in order to track the percentage of:
  - Areas under formal protection (including new stewardship agreements);
  - Areas that have been modified/lost, wholly or in part due to development;
  - Areas where increased development rights have been granted.
- Area (hectares) and % of district under 'local protected area' status (e.g. municipal open space system, municipal park, recreational areas etc.).
- Ecosystem health and condition.
- Proportion of land invaded by invasive alien plants.
- Areas cleared of invasive alien plants.
- Occurrence of invasive alien animal populations.
- Conservation status of natural vegetation, by type.
- Area (hectares) and threat status of vegetation types remaining within the District.
- Level of transformation (%) of each vegetation type.
- Percentage of biodiversity network under formal conservation.
- Threatened and extinct species.
- Population trends of selected species (e.g. oribi, blue swallows and cranes).

4.4 Aquatic Biodiversity EMZ

4.4.1 Mapped EMZ

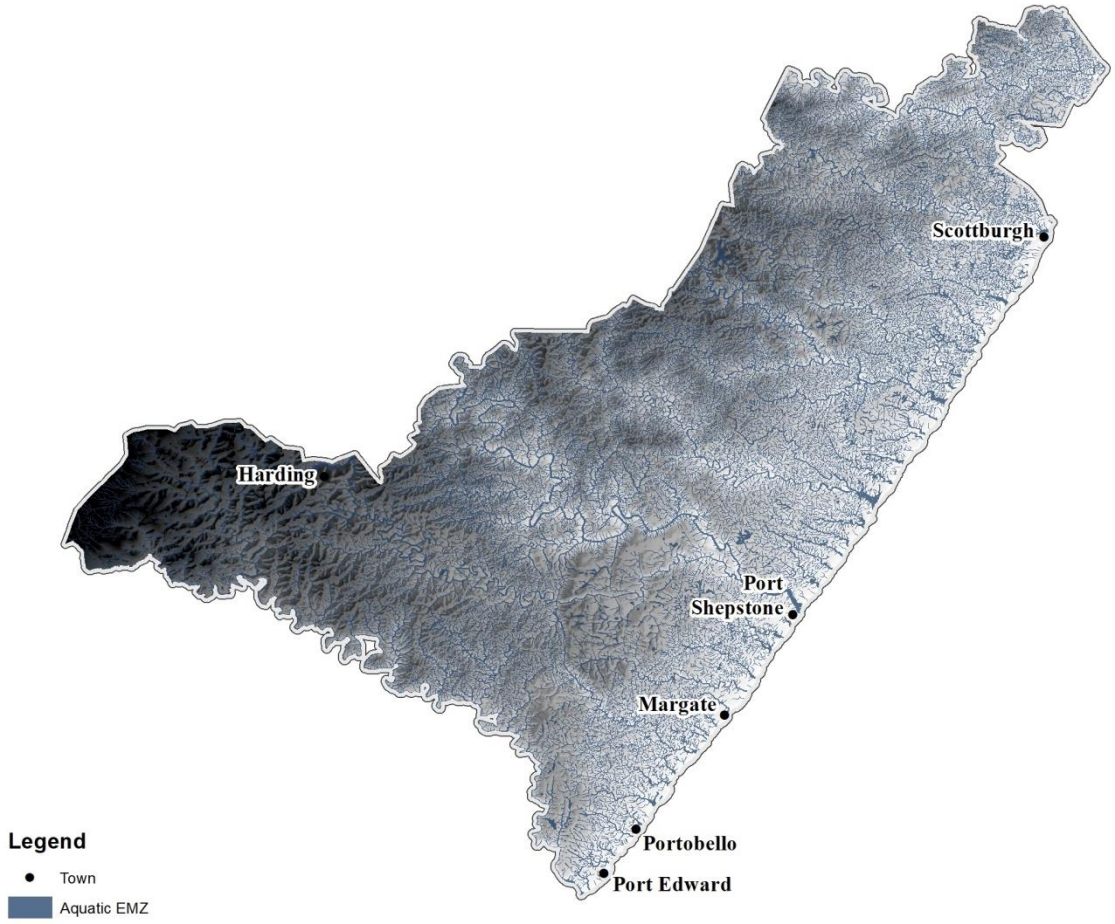


Figure 20: Aquatic Biodiversity EMZ

4.4.2 Expression of Desired State

- Sustainably managed and protected aquatic biodiversity and watercourses within Ugu DM.

4.4.3 Environmental Features considered

- This zone includes surface freshwater resources that are significant in terms of aquatic biodiversity or from a water yield perspective.
- Specific features include:
  - NFEPA and FEPA rivers with buffers
  - Perennial rivers with buffers
  - Non-perennial rivers with buffers
  - NFEPA and FEPA wetlands
  - NFEPA Wetland Clusters
  - EKZNW 2011 Wetland Coverage
  - BSP Wetlands

4.4.4 Governance Framework

Laws & Policies	Strategies	Plans & Programmes	Authorities
▪ Water Services Act (Act 108 of 1997) ▪ *Same as for Terrestrial Biodiversity EMZ*	▪ National Water Resource Strategy 2013 ▪ Internal Strategic Perspective ▪ Catchment Management Strategy ▪ Water for Growth and Development Strategy (where relevant) ▪ Groundwater Strategy (where relevant) ▪ *Same as for Terrestrial Biodiversity EMZ*	▪ Catchment Management Plan ▪ National Aquatic Ecosystem Health Monitoring Programme ▪ National Freshwater Ecosystems Priority Atlas 2011 ▪ EKZNW Freshwater Systematic Conservation Plan ▪ Waste Discharge Charge System ▪ Working for Water and Wetlands Programmes ▪ Blue and Green Drop Classification ▪ South African Water Quality Guidelines ▪ Same as for Terrestrial Biodiversity EMZ	▪ Catchment Management Agency (CMA) ▪ *Same as for Terrestrial Biodiversity EMZ*
▪ *Refer to the Governance Framework associated with Terrestrial Biodiversity EMZ (where relevant).*			

Implementation Mechanisms	▪ Resource Directed Measures – clear objectives for the desired level of protection of the resource through the Reserve, Classification System, and Resource Quality Objectives. ▪ Source Directed Controls – measures to control water use, e.g. water quality standards for waste water, waste water discharges, pollution prevention, and waste minimisation technologies. ▪ National monitoring and information systems – address the monitoring, recording, assessing and dissemination of information on water resources. ▪ State of Environment Reporting. ▪ Catchment Management Forum. ▪ Authorisations in terms of prevailing legal framework. ▪ Water Conservation and Demand Management. ▪ Disaster Management Plan. ▪ BSP's land-use planning and decision-making guidelines for Aquatic CBAs and ESAs.

4.4.5 Management Guidelines for achieving the Desired State

Refer to the Management Guidelines associated with Terrestrial Biodiversity (where relevant).

Description	Responsible Parties
Planning Priorities	
▪ Catchment and river management policies and guidelines to be integrated into land use and development planning. ▪ Ugu DM to ensure that provision is made in the LUMS to enforce the identification, establishment of required setbacks, protection and maintenance of wetlands and riparian zones. ▪ River and wetland condition maps need to be developed and circulated to all planning departments for integration into their planning and development authorisation processes. ▪ Flood prone areas to be managed to minimise flood risks and impacts. ▪ By-laws required for storm water management.	▪ DM & LMs ▪ DWS

Description	Responsible Parties
▪ Regulated areas and buffer zones for watercourses (based on DWS requirements) should be determined on a strategic priority basis as and when pressure for industry, mining, intensive agriculture or other development occurs. ▪ Comply with the Ugu DM BSP's land-use planning and decision-making guidelines for Aquatic CBAs. ▪ Transboundary management of water resources (e.g. upstream impacts, institutional relationships). ▪ Comply with the Resource Management Plans of the dams in the district (where relevant).	
▪ Identify and map areas of Ecological Infrastructure associated with aquatic ecosystems. Identify areas for interventions such as: o Clear invasive alien plants, especially in mountain catchments and riparian areas; o Rehabilitate wetlands; o Rehabilitate eroded areas and reinstate suitable ground cover; o Maintain buffers of natural vegetation along streams and rivers; o Reinstate buffers of natural vegetation between agricultural crops and rivers or wetlands; o Improve rangeland management practices (e.g. grazing regime, fire management); and o Monitor compliance with effluent standards for agriculture and industry.	▪ EKZNW
Development Guidelines	
▪ For any proposed water use or development in proximity to a watercourse, a delineation of the wetland / riparian habitat needs to be undertaken in accordance with the prevailing DWS Guidelines. ▪ Development should be located outside 1:100 year flood line and should not interfere with storm water drainage. No urban, mining or agricultural development within regulated area of the watercourse (i.e. 1:100 year flood line or delineated riparian / wetland habitat, whichever is greatest). ▪ Adopt a 30 metres buffer area from the boundary of the regulated areas of watercourses. Strict regulation of encroachment and incompatible activities. ▪ Adopt a 500 metres buffer area from the edge of wetlands, based on risks posed to the wetland by the development (refer to Risk-Based Water Use Authorisation Guidelines for Section 21(C) and (I) Water Uses, DWA 2009). Strict regulation of encroachment and incompatible activities. ▪ All watercourses (including delineated boundary and additional 30m buffer zone) should be regarded as sensitive until proven otherwise by a suitably qualified specialist. ▪ Storm water management plans to accompany large developments, where onsite attenuation should be promoted. ▪ Watercourse crossings need to undergo an authorisation process and need to adopt best practices (e.g. perpendicular crossings, avoid sensitive habitat, accommodate floods).	▪ DM & LMs ▪ Developers/ Project Proponents
Interventions	
▪ Promote water conservation and demand management through regulation where appropriate. Rainwater harvesting, grey water recycling, re-use of treated effluent from wastewater treatment works (WWTW) and similar technical enhancements should be encouraged. ▪ Dedicated catchment management for important water yield areas (notably the NFEPA and priority sub-catchments).	▪ DWS ▪ DM & LMs

Description	Responsible Parties
▪ Promote the restoration of the NFEPA to deliver basic ecosystem functions to surrounding environments. ▪ Support of the implementation of the Working for Water, Adopt a River Project and the National River Health Programme as well as other local and provincial conservation authority programmes related to water protection, conservation and sustainable use. ▪ Implement mitigation measures as part of the Ugu DM Climate Change Response Strategy. ▪ Ensure that water is fit for use as imposed by the water quality standards. ▪ Provision of adequate sanitation, storm water and waste management services. ▪ Rehabilitation of riparian areas affected by anthropogenic activities.	
▪ Rehabilitation of areas affected by sand mining.	▪ DWS ▪ DMR
Managing & Conserving Biodiversity	
▪ Maintaining the Ecological Reserve (Ecological Water Requirements) and watercourse classification.	DWS
▪ Wetland areas, streams and rivers to be protected, rehabilitated and managed to maintain ecological functioning. ▪ Comply with NFEPA Management Guidelines. ▪ Develop invasive species control plan in accordance with the NEM:BA Alien and Invasive Species Regulations (GN No. R. 598, 1 August 2014), with particular focus on stressed catchments. ▪ Strict protection of sensitive alluvial vegetation with significant ecosystem status.	▪ DWS ▪ EDTEA ▪ EKZNW
▪ Compile an inventory and guidelines for the protection of all wetland areas in the District.	▪ DWS ▪ DM & LMs
▪ Prevent the illegal removal of protected aquatic species. ▪ Remove and control aquatic alien and invasive species.	▪ EKZNW
Stakeholder Engagement	
▪ Encourage Ugu DM's participation in relevant water use fora.	▪ DWS ▪ DM & LMs
Mitigation Measures	
▪ Future developments should be excluded from regulated areas of watercourses and designed to minimize potential impacts to water resources through appropriate mitigation measures (e.g. establishment of suitable buffer zones). ▪ Storm water management should be integrated into existing and future development designs in order to prevent further flood risks and impacts to aquatic resources. ▪ Manage sand mining operations within sustainable limits to avoid unacceptable reductions in sediment inputs to rivers.	Developers/ Project Proponents
Decision-making	
▪ Mining and prospecting within the alluvial flood plains (outside of the regulated area) should not be permitted without relevant approvals and detailed after-use and rehabilitation plans.	▪ DWS ▪ DMR
Monitoring	
▪ National Aquatic Ecosystem Health Monitoring Programme to be extended to cover all major rivers in District. ▪ Implement a water quality monitoring programme and consider relevant water quality variables that pose a threat to the functionality of wetlands.	DWS

Description	Responsible Parties
▪ Database to be developed of chemical, physical and bacteriological water quality data for DWS monitoring points in the municipality.	
Compliance and Enforcement	
▪ Source directed controls (including compliance with licence conditions) for WWTW, mining, landfills and other sources of impacts to resource quality (i.e. flow, water quality, habitat and aquatic biota). ▪ Water abstraction rights need to be formalised in order to quantify the demand and to ensure that the overall Ecological Reserve can be maintained.	DWS
▪ Address illegal sand mining. ▪ Compliance and enforcement of conditions linked to approved sand mining sites.	DMR
Specialist Studies	
▪ Specialist disciplines required (where relevant) – Aquatic Ecological Assessments (and associated sub-disciplines), Hydrology, Geomorphology (*note: list not exhaustive*).	Developers/ Project Proponents

4.4.6 Compatible & Incompatible Activities

Compatible Activities	Incompatible Activities
Comply with EKZNW's CBAs and BSP, including compliance with Land Use Management Objectives for the Terrestrial and Aquatic Conservation Categories, as well as Land Use Management Practices, Controls and Guidelines.	

4.4.7 Performance Management

- Current coverage of CBAs and ESAs.
- Aquatic ecosystem health and condition.
- Zero loss of wetlands.
- No encroachment into regulated area of a watercourse.
- Health of rivers as determined by the National Aquatic Ecosystem Health Monitoring Programme.
- Mean annual precipitation and evaporation.
- Improvement in the Blue and Green Drop Status of all municipalities within the District.
- Creation of awareness in terms of the water shortage predictions for the district.
- Reducing the total water loss occurring in the District to less than 10%.
- *See performance management indicators under the Terrestrial Biodiversity EMZ (as relevant).*

4.5 Coastal and Estuarine EMZ

4.5.1 Mapped EMZ

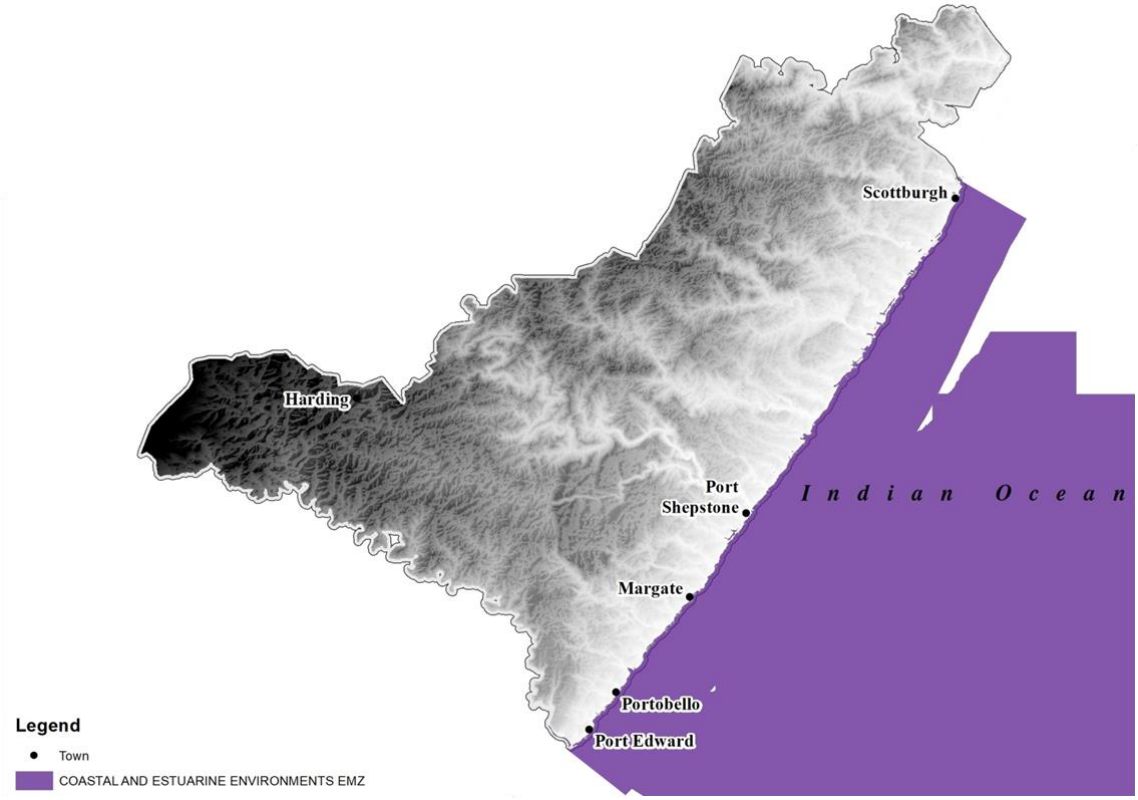


Figure 21: Coastal and Estuarine EMZ

4.5.2 Expression of Desired State

- Sustainably managed and protected coastal and estuarine environments within Ugu DM.

4.5.3 Environmental Features considered

- This zone considers the coastal protection zone, which is defined in NEM:ICMA as the land falling within 100m of the high-water mark in urban areas and within 1km in rural areas. This is regarded as the default protection area. Note that the high-water mark was not available for the entire coastline, and the aforementioned zone used the municipal boundary as the edge of the coastline. The future coastal management line may provide a more defined area along Ugu's coastline, however, until such time as this information is available a conservative approach is adopted.
- Specific features include:
  - Marine Protected Areas
  - Marine CBAs
  - Marine ESAs
  - Estuarine CBAs
  - Marine Benthic and Coastal Threat Status (CR, EN, VU);
  - CVI
  - Admiralty Reserve

4.5.4 Governance Framework

Laws & Policies	Strategies	Plans & Programmes	Authorities
▪ National Environmental Management: Integrated Coastal Management Act (NEM:ICMA) (Act No 24 of 2008) ▪ Marine Living Resources Act (MLRA) (Act No. 18 of 1998) ▪ Maritime Zone Act (Act No 15 of 1994) ▪ Sea Birds and Seals Protection Act (Act No 46 of 1973) ▪ White Paper for Sustainable Coastal Development in South Africa (2000) ▪ White Paper on National Environmental Management of the Ocean (2014) ▪ National Heritage Resources Act (NHRA) (Act 25 of 1999) ▪ International Conventions ▪ Regulations pertaining to access to the coastal zone and pollution at sea ▪ Municipal by-laws ▪ *Same as for Terrestrial Biodiversity EMZ*	▪ *Same as for Terrestrial Biodiversity EMZ*	▪ EKZNW Marine Systematic Conservation Plan (SEA Plan). ▪ Estuarine Systematic Conservation Plan for KZN (ESCP) ▪ National Coastal Management Programme (CMP) ▪ KZN CMP ▪ Municipal CMP ▪ Estuarine Management Plans ▪ Estuarine Mouth Management Plans ▪ Blue Flag Programme ▪ Working for the Coast Programme ▪ *Same as for Terrestrial Biodiversity EMZ*	▪ DEA Oceans and Coasts (O&C) ▪ EDTEA ▪ KZN Sharks Board ▪ Department of Public Works ▪ Same as for Terrestrial *Biodiversity EMZ*
▪ *Refer to the Governance Framework associated with Formally Protected Areas, Terrestrial Biodiversity and Aquatic Biodiversity EMZs (where relevant).*			

Implementation Mechanisms	▪ Authorisations in terms of prevailing legal framework, including rights, permits and licenses in terms of the MRLA. ▪ Management Plans of Marine Protected Areas. ▪ Oceans and Coasts Information System. ▪ State of the Coast Reporting. ▪ BSP's land-use planning and decision-making guidelines for Marine and Estuarine CBAs and ESAs. ▪ Various guidelines (e.g. sand mining in estuaries, coastal access, desalination, waste management, water quality).

4.5.5 Management Guidelines for achieving the Desired State

Refer to the Management Guidelines associated with Terrestrial Biodiversity (where relevant).

Description	Responsible Parties
Planning Priorities	
▪ Alignment with the coastal management objectives for the coastal zone, as contained in the KZN CMP. ▪ Maintain Blue Flag status, where already acquired and strive to improve more beaches to achieve this status.	▪ EDTEA ▪ DM & LMs

Description	Responsible Parties
▪ Develop and implement a Coastal Management Scheme for incorporation into the relevant town planning schemes. ▪ Coastal setback lines (in line with the NEM: ICMA) must be determined for the District and included in the relevant Municipal SDFs. These coastal setback lines must provide guidance to the socioeconomic development and town planning for the District, through providing an indication of appropriate development types within different zones along the coast, and prohibiting inappropriate developments where necessary and practical. ▪ In the absence of coastal setback lines, the 10 m above mean sea level contour must be considered the line below which development should be considered at risk due to coastal erosion. No private development below this line must be endorsed without a coastal erosion specialist confirming negligible risk to coastal erosion. Similarly, public developments must be done in consultation with a coastal erosion specialist, and where the risk of coastal erosion is moderate to high, development should only be endorsed where it is critical for the socio-economic development of the District and appropriate mitigation measures can be implemented; ▪ The railway along the coastline must be re-established to allow for transportation of produce and raw material. The railway line, however, must be realigned where its position is at risk of coastal erosion and mitigation measures would result in adversely impacting the stability and visual aesthetics of the coastal zone. ▪ Comply with the Ugu DM BSP's land-use planning and decision-making guidelines for Marine and Inshore conservation categories. ▪ Promote sustainable tourism activities along the coastline. ▪ Inappropriate uses within the coastal zone must be prohibited, and sustainable low-impact uses must be favoured over short-term high-impact uses.	
▪ Retain the Admiralty Reserve and allow no encroachment or clearing of vegetation within this zone. The Admiralty Reserve acts as a "protective green buffer", especially during coastal erosion events.	▪ EDTEA ▪ Department of Public Works ▪ DM & LMs
Development Guidelines	
▪ Implementation of the Municipal CMP and Monitoring Forum for managing the coastal zone within the District. ▪ Alignment with the management requirements contained within the Management Plans of Marine Protected Areas. ▪ Determine appropriate activities that may be carried out within the coastal zone if managed accordingly. Prohibit inappropriate activities. ▪ Management Plans of Marine Protected Areas need to be adhered to. ▪ Storm water infrastructure must not be positioned within the coastal zone in positions where it cannot be easily maintained and cleared of pollution (i.e. hydrocarbons and general litter). Storm water infrastructure should be designed to ensure a minimum possibility of beach and surf-zone pollution. ▪ Coastal waters discharge permits to be obtained for sewage sea outfall pipelines and other relevant activities. ▪ Developments within 500 m of the high-water mark of the beach, specifically within urban areas, must be connected to the municipal water-borne sewage system. Septic tanks and similar systems must not be used, so as to avoid the potential pollution of beach areas.	▪ EDTEA ▪ DM & LMs

Description	Responsible Parties
Interventions	
▪ Develop and implement Estuary Management Plans. ▪ Implement mitigation measures as part of the Ugu DM Climate Change Response Strategy with regards to the coastal environment. ▪ Beaches must be differentiated between high-use (e.g. bathing and festivals) beaches and low-use beaches (e.g. conservation and eco-tourism) and managed accordingly. High-use beaches must be managed to the level of achieving blue flag status, whereas green flag initiatives or similar must be explored for low-use beaches. ▪ Support Operation Phakisa and Working for the Coast initiative. ▪ Identify inappropriate encroachments and developments within the coastal zone that require removal and rehabilitation in terms of the NEM: ICMA. ▪ Develop procedures for coastal emergencies (e.g. pollution) for implementation as and when an emergency incident occurs, in a manner that minimizes potential harm to marine living resources. ▪ Implement measures for the identification and rapid response to alien and invasive marine species, particularly if aquaculture facilities and/or marinas are established. ▪ Discourage unpermitted artificial opening of estuaries. ▪ Encourage economic opportunities for local communities.	▪ DEA ▪ EDTEA ▪ DM & LMs
▪ Adequate management of sanitation and waste disposal facilities to prevent pollution of estuaries and marine environments.	▪ DM & LMs
Managing & Conserving Biodiversity	
▪ Establish coastal protection areas and set aside beaches for conservation and eco-tourism purposes. ▪ Ensure sustainable utilization of marine living resources through appropriate management, monitoring and compliance initiatives; ▪ Safeguard threatened ecosystems within coastal zone. ▪ Protect dune stability through maintaining natural vegetation.	▪ DEA ▪ EDTEA ▪ EKZNW ▪ DM & LMs
Stakeholder Engagement	
▪ Municipal Coastal Management Forum to guide coastal management within the District and represent the District at the Provincial Coastal Management Forum.	▪ EDTEA ▪ DM & LMs
Compliance and Enforcement	
▪ Manage sand mining operations within sustainable limits to avoid unacceptable reductions in sediment inputs to rivers, estuaries and the marine environment.	▪ DMR ▪ DWS ▪ EDTEA
Specialist Studies	
▪ Specialist fields required (where relevant) – Terrestrial, Aquatic, Estuarine and Marine Ecological Impact Assessments (and associated sub-disciplines), Heritage Impact Assessments, Hydrology, erosion risk assessments (*note: list not exhaustive*).	Developers/ Project Proponents

4.5.6 Compatible & Incompatible Activities

Compatible Activities	Incompatible Activities
Comply with EKZNW's CBAs and BSP, including compliance with Land Use Management Objectives for Marine and Inshore Conservation Categories, as well as Land Use Management Practices, Controls and Guidelines.	

4.5.7 Performance Management

- Current coverage of CBAs and ESAs.
- Number and % of estuaries with Estuary Management Plans.
- Zero loss of threatened ecosystems in coastal zone.
- No illegal encroachments into the coastal protective zone and high-water mark.
- Map and formally adopted coastal setback line.
- *See performance management indicators under the Terrestrial and Aquatic Biodiversity EMZ (as relevant).*

4.6 Agriculture EMZ

4.6.1 Mapped EMZ

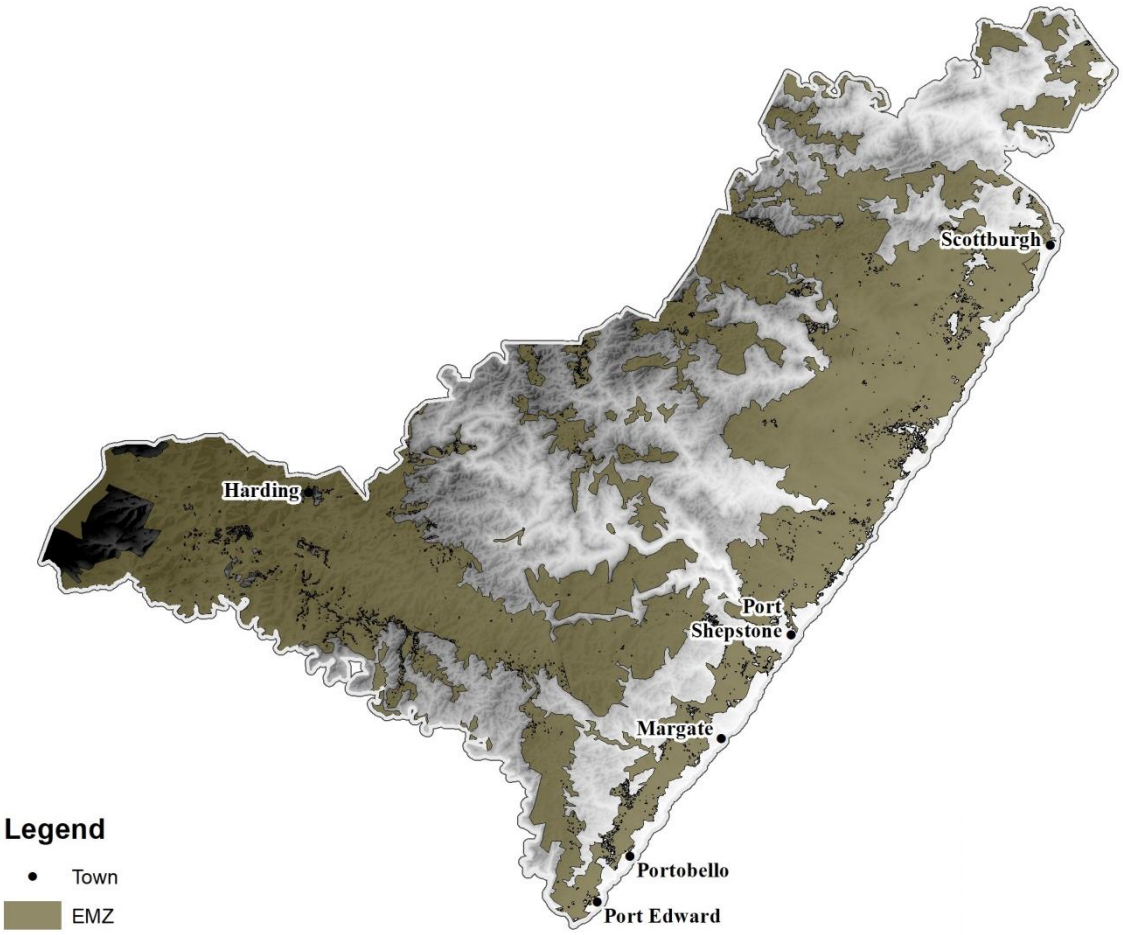


Figure 22: Agriculture EMZ

4.6.2 Expression of Desired State

- Sustainably managed and protected high agricultural potential land within Ugu DM.

4.6.3 Environmental Features considered

- The zone includes areas that are associated with high agricultural potential as well as those land parcels where Primary Agricultural Land Use is encountered.
- Specific features include:
  - KZN Agricultural Land Categories –
    - Category A: Irreplaceable;
    - Category B: Threatened;
    - Category C: Primary Agricultural Land Use.

4.6.4 Governance Framework

Laws & Policies	Strategies	Plans & Programmes	Authorities
▪ NEMA ▪ Conservation of Agricultural Resources Act (CARA) (Act 43 of 1983) and lists of declared alien invasive plants and weeds to be eradicated or controlled ▪ NWA ▪ Spatial Planning and Land Use Management Act (Act 16 of 2013) (SPLUMA) ▪ Agricultural Resource Conservation Regulations (R1048 of 1948) ▪ Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (36 of 1947) ▪ Agricultural Pests Act (36 of 1983) ▪ Foodstuffs, Cosmetics and Disinfectants Act (54 of 1972) ▪ Sustainable Use of Agricultural Resources Bill ▪ The Subdivision of Agricultural Land Act (Act 70 of 1970) ▪ White Paper on Agriculture ▪ Land Redistribution Policy for Agricultural Development ▪ National Climate Change Response White Paper 2011 ▪ National Spatial Development Perspective (NSDP) ▪ National Strategy for Sustainable Development and Action Plan (NSSD1) ▪ KwaZulu-Natal Policy for Agricultural Land Potential, Development Rights and Application Processes, 2015	▪ Strategic Plan for South African Agriculture 2013 ▪ Comprehensive Rural Development Strategy, 2009 ▪ Integrated Food Security Strategy, 2002 ▪ KZN Strategy for Agrarian Transformation	▪ Land Care Programme 1999 ▪ Integrated and Sustainable Rural Development Programme ▪ Agricultural Policy Action Plan 2014-2019 ▪ KZN Agricultural Land Categories Spatial Decision Support Tool ▪ Agricultural Sector Plan ▪ Working for Water	▪ DARD ▪ DAFF ▪ EDTEA ▪ DWS ▪ DM & LMs ▪ Department of Rural Development and Land Reform (DRDLR)

Implementation Mechanisms	▪ Authorisations in terms of prevailing legal framework. ▪ Soil conservation measures. ▪ Land capability and suitability assessment. ▪ Pollution prevention and remediation measures. ▪ Development controls for Agricultural Land Potential Categories A – E and areas with Combined Agro-biodiversity Designation.

4.6.5 Management Guidelines for achieving the Desired State

Description	Responsible Parties
Planning Priorities	
▪ High potential, unique agricultural land and land under irrigation with approved water rights should be protected.	▪ DARD ▪ EDTEA

Description	Responsible Parties
▪ Retain protective "green buffers" along the coastline with no further clearance of natural vegetation for crop production within 100m of the high-water mark of the sea. ▪ Areas which are under 12% slope and at the same time suitable for arable forms of production should be retained in planning schemes and other legal provisions for arable production by large, medium and small scale producers irrespective of landownership of the areas in which such high value land is located. That is, irrespective of type of development or landownership, these lands should not be used for non-arable forms of development. ▪ Those areas which are suited to sub-tropical fruit production on slopes which are up to 25% should also be included in the municipality schemes for protection from other forms of development because the availability of land along the coast and associated river valleys is very limited for this type of production and could be expanded to include a number of additional crops. As in the case of arable, management and protection of these lands against degradation is necessary and should include farms on commercial, traditional and state land areas. The remaining areas of natural grasslands in Ugu need to be assessed from both a biodiversity and an agricultural perspective to establish condition and carrying capacity. Where grasslands are in a favourable condition and do not compromise eco-services production, livestock and/or game production could be considered on a commercial and/or subsistence basis, but subject to strict management conditions, which include working within prescribed stocking rates, rotation, camping and supplementary feed where required. Such grasslands need to be managed for optimum eco-services production over the long term where livestock and game management can be used as a management tool to achieve this objective. The area is best suited to game production (limited number of species only) in Ugu is limited to remaining grasslands, river valleys (valley bushveld) and remaining areas of indigenous forest. These areas need to be identified for conservation protection for eco-services production purposes in conservation proclamations and schemes. ▪ In the interests of biodiversity and water production, timber production should not be permitted on slopes in excess of 30%, particularly in the sensitive upper catchments located in the District on state, traditional and commercially owned land.	▪ DM & LMs
▪ Land identified for commercial timber production is and should in future be defined by the DWS permitting system, which is designed to protect the water production potential of catchments.	▪ DARD ▪ DWS
Development Guidelines	
▪ Adhere to KZN Agricultural Land Categories Spatial Decision Support tool. ▪ Apply the principles of the KZN Policy for Agricultural Land Potential, Development Rights and Application Processes (2015) when considering any development application on agriculturally designated land.	▪ DARD ▪ EDTEA ▪ DM & LMs
▪ Comply with legal requirements for change of land use from agriculture to any other land use. ▪ Manage impacts from polluted (e.g. saline) return flows from agricultural activities. ▪ Best practices to be employed, including contour farming, organic farming, use of fertilizer and pesticides, management of return flows, water conservation, soil preservation, stocking densities. ▪ Apply water management measures in irrigation agriculture.	▪ Developers/ Project Proponents
Interventions	
▪ Harness agricultural potential in the district.	▪ DARD

Description	Responsible Parties
▪ Invest in agricultural education and land care programmes. ▪ Build capacity surrounding farming methods to local subsistence farming. ▪ Diversification of agricultural practices to prevent monoculture crop production and establish good farming practices. ▪ Support small producers and emerging farmers. ▪ Climate change adaptation and mitigation. ▪ Action plan required to control desertification. ▪ In line with the Draft Ugu Growth and Development Strategy, explore and encourage aquaculture ventures along the coastline.	▪ EDTEA ▪ DAFF ▪ DM & LMs
▪ Priority areas (e.g. regulated areas of watercourses and steep slopes) affected by historical farming activities and that are no longer under cultivation need to be rehabilitated. ▪ Sugar, like timber, can be produced on slopes of anything from 0-40%. Unlike timber, the majority of the land that can be under sugar was established many years ago and hence many of the areas that were too steep for cultivation can only now be reclaimed and rehabilitated. This should be done in conjunction with the BSP – to recover steep land that has been lost to sugar and timber cultivation. It may be possible to compensate for loss of steep lands by investigating additional lands suited for sugar in traditional areas. ▪ Lands lost to timber in the 30-40% slope range should be considered for rehabilitation to indigenous land cover. ▪ There is major opportunity in all the drainage lines of the district for the initiation and on-going management of alien vegetation clearing and rehabilitation of these areas under indigenous vegetation cover to optimise eco-services production and in the process establish sustainable green job opportunities for local people.	▪ DARD ▪ EDTEA ▪ DWS ▪ DAFF ▪ EKZNW ▪ DM & LMs
Managing & Conserving Agro-biodiversity	
▪ Sustainable and environmental friendly irrigation practices. ▪ Sustainable grazing practises. ▪ Conserve agricultural genetic resources. ▪ Responsible management of diseases and pests. ▪ Enforcement of livestock carrying capacity. ▪ Integrated livestock and wildlife management. ▪ Control bush encroachment. ▪ Alien invasive species should be controlled under the Conservation of Agricultural Resources Act (Act 48 of 1983). Involve rural and affected communities.	▪ DARD ▪ EDTEA ▪ DWS ▪ DAFF ▪ EKZNW ▪ DM & LMs
Decision-making	
▪ Where potential competition exists between areas of high agricultural potential and other favourable land use, the relevant specialist studies will need to be conducted to allow for informed and balanced decision-making.	Mandated Authorities
Specialist Studies	
▪ The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist disciplines required (where relevant) – Agriculture and associated sub-disciplines. Note requirements in terms of KZN DARD's Natural Resources and/or Agricultural Survey Specifications.	Developers/ Project Proponents

4.6.6 Compatible & Incompatible Activities

Compatible Activities	Incompatible Activities
▪ Comply with KZN DARD's development controls for Agricultural Land Potential Categories. ▪ Activities that support primary agricultural production (including associated infrastructure). ▪ Agricultural supplies and services, including agri-industrial facilities. ▪ Private residential use associated with farming activities. ▪ Farm worker villages. ▪ Tourism (regulated and agriculture-focused).	▪ Comply with KZN DARD's development controls for Agricultural Land Potential Categories. ▪ Any activity which poses a threat to land with high agricultural potential. ▪ Poor farming practices, especially related to water conservation, soil degradation and water pollution. ▪ Mining. ▪ Heavy industries. ▪ Dense settlements.

4.6.7 Performance Management

- Current coverage of high potential agricultural land.
- Sustainable farming units maintained.
- Historical and unused agricultural areas in environmentally sensitive areas rehabilitated.

4.7 Heritage EMZ

4.7.1 Mapped EMZ

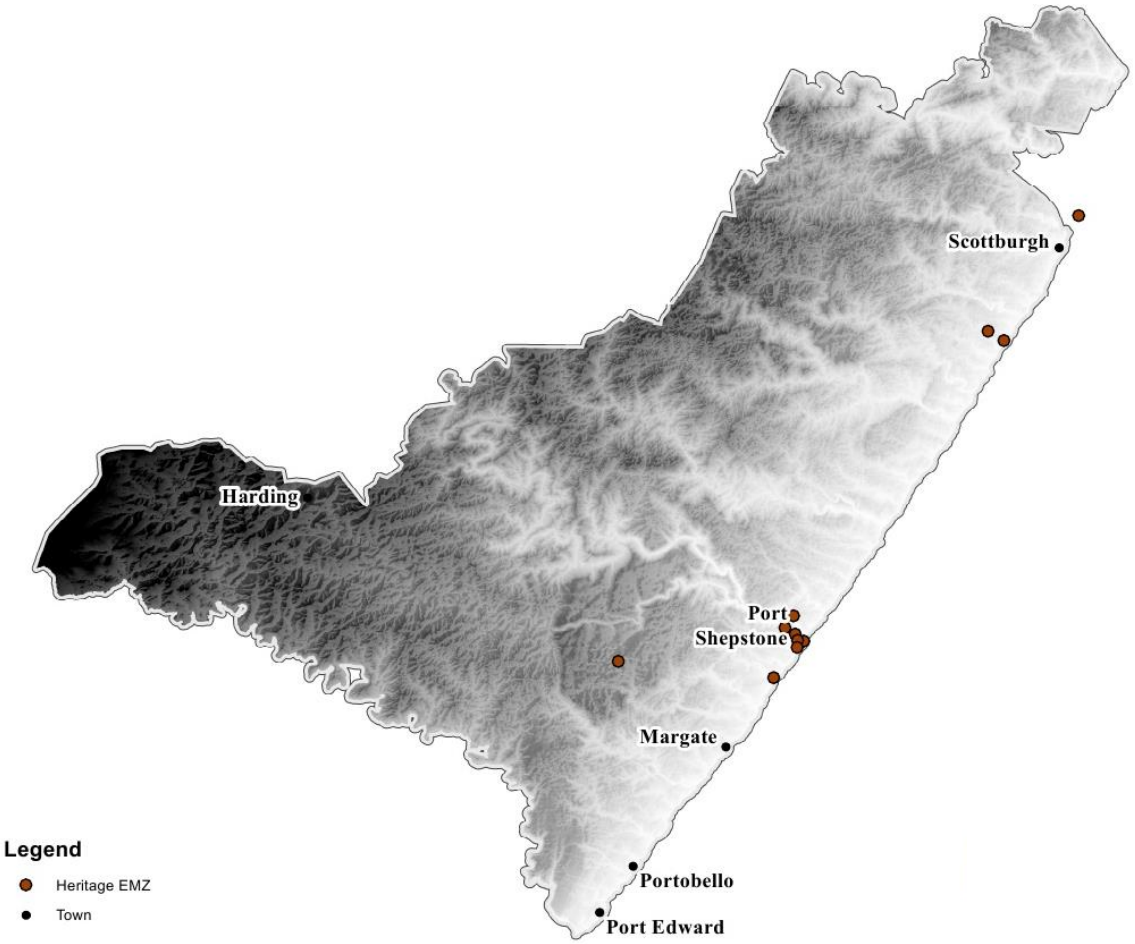


Figure 23: Heritage EMZ

4.7.2 Expression of Desired State

- Sustainably managed and protected heritage and cultural resources within Ugu DM.

4.7.3 Environmental Features considered

- All sites of significance from a heritage perspective are included in this zone. Note that no buffer area has been allocated to the heritage sites.
- Specific features include:
  - Buildings and Places
  - Provincial and Heritage Landmarks

4.7.4 Governance Framework

Laws & Policies	Plans & Programmes	Authorities
▪ National Heritage Resources Act (NHRA) (Act 25 of 1999) ▪ KZN Heritage Act (Act No. 04 of 2008) ▪ National Heritage Council Act (Act No. 11 of 1999) ▪ National Monuments Act (Act No. 28 of 1969) ▪ Amafa Policy Guidelines for the access of rock art	▪ Management Plans (generic and site-specific)	▪ South African Heritage Resources Agency (SAHRA) ▪ Amafa aKwaZulu-Natali ▪ Department of Arts and Culture ▪ DM & LMs

Implementation Mechanisms	▪ Conservation, protection and administration of both the physical and the living or tangible heritage resources. ▪ Issuing of permits for protection of heritage resources, graves, archaeological and paleontological sites. ▪ Issuing of permits in terms of national heritage site status before any changes or development is contemplated. ▪ Conduct Heritage Impact Assessments in terms of Section 38 of the National Heritage Resources Act (Act No. 25 of 1999). ▪ South African Heritage Resources Information System (SAHRIS).

4.7.5 Management Guidelines for achieving the Desired State

Description	Responsible Parties
Development Guidelines	
▪ Preservation of Ugu DM's heritage resources. ▪ Protection of heritage resources within Marine Protected Areas and other coastal protection areas. ▪ Sustainable utilization of heritage resources (e.g. lighthouses) within the coastal zone as key tourism attractions. ▪ Sense of place to be maintained.	▪ SAHRA ▪ Amafa ▪ DM & LMs
▪ Execution and approval of Heritage Impact Assessments for activities listed in Section 38 of the NHRA. ▪ Incorporate heritage considerations into development proposals.	Developers/ Project Proponents
Interventions	
▪ Audit all existing facilities, in terms of status, management and potential. Detailed inventories of Heritage Resources should be compiled and mapped. ▪ Clear institutional responsibilities at a municipal level for heritage preservation. ▪ Development of a Heritage Management Plan for the Ugu DM to guide and assist officials with dealing with heritage sites to ensure the protection and conservation of these sites. ▪ Amafa and the District Heritage Forum should compile integrated site management plans for all Provincial and Heritage Landmarks, places of conflict and other significant heritage resources. ▪ Existing resources such as oral histories and Heritage Impact Assessments submitted as part of the EIA process should be uploaded to SAHRIS. ▪ Buildings and structures should be assessed in terms of their various values (not just historical or architectural), including their contribution to streetscapes and townscapes. All buildings with heritage significance are protected by heritage legislation, not only those older than sixty years. However, such significance must be demonstrated to be in	▪ SAHRA ▪ Amafa ▪ DM & LMs

Description	Responsible Parties
the public interest. Amafa and the District Heritage Forum should compile a management plan for any heritage zones identified in future. ▪ An extensive public participation program should be undertaken to identify sites of cultural and historical significance, particularly places of significance of historically disadvantaged groups, living heritage and cultural landscapes. ▪ Optimise opportunities associated with tourism and job creation linked to the conservation of cultural and heritage resources.	
Managing & Conserving Heritage	
▪ Strict regulation of inappropriate development within footprint / buffer zone of National, Provincial and Local Heritage Sites. Buffer = 50 m in rural areas and 10 – 20 m in urban areas, or as established by an appropriate specialist and agreed to by Amafa. ▪ Strict regulation of any alterations, additions or new structures that are contradictory to protected buildings or the general character of area.	▪ SAHRA ▪ Amafa ▪ DM & LMs
Stakeholder Engagement	
▪ Relevant officials at DM and LMs to hold regular meetings with Amafa to discuss challenges and get support in managing heritage sites. ▪ Amafa and Ugu DM should create a functioning District Heritage Forum, as required in terms of Section 29 of the KwaZulu-Natal Heritage Act (Act No. 4 of 2008).	▪ SAHRA ▪ Amafa ▪ DM & LMs
Specialist Studies	
▪ Specialist disciplines required (where relevant) – Heritage, Archaeological and Palaeontological Studies, as well as associated sub-disciplines.	Developers/ Project Proponents

4.7.6 Compatible & Incompatible Activities

Compatible Activities	Incompatible Activities
▪ Conservation. ▪ Tourism (regulated; low impact). ▪ Ecological Corridors. ▪ Open space (regulated; low impact; excluding any permanent structures).	▪ Any activity that poses a threat to cultural and heritage resources. ▪ Illegal activities (i.e. not authorised).
▪ Note that certain heritage assets (e.g. graves) have a small footprint whereas other sites (e.g. physical structures) may encompass a larger area. The appropriateness of activities thus need to be established by a suitable specialist and based on the particular nature of the heritage asset in question, the risks posed by the proposed activity, and following consultation with Amafa aKwaZulu-Natali.	

4.7.7 Performance Management

- No illegal changes to or loss of heritage assets.
- Inventory of heritage resource.
- Functional District Heritage Forum.

4.8 Urban EMZ

4.8.1 Mapped EMZ

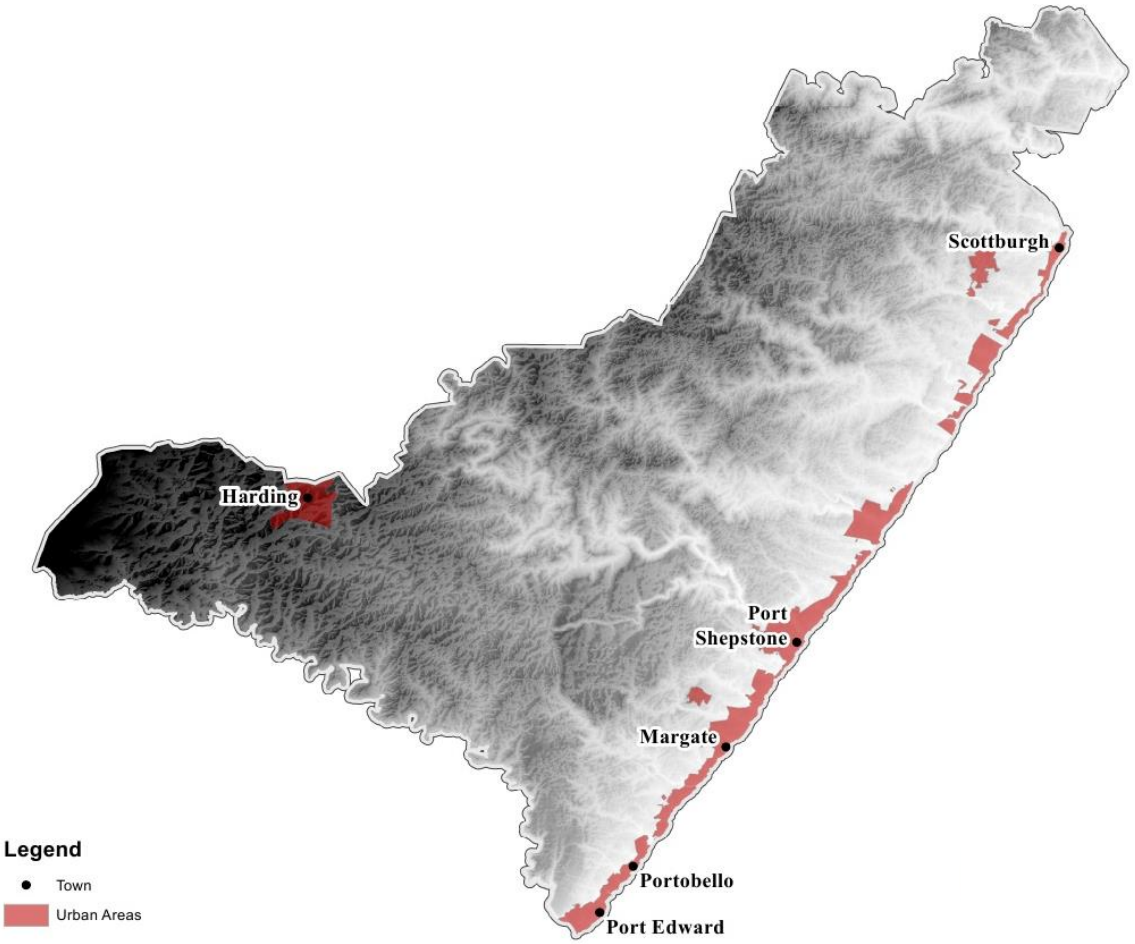


Figure 24: Urban EMZ

4.8.2 Expression of Desired State

- Sustainably managed urban areas within Ugu DM.

4.8.3 Environmental Features considered

- This zone includes areas situated within the urban edge (as defined or adopted by Ugu DM).
- Towns include:
  - Harding
  - Umkomaas
  - Scottburgh/Umzinto
  - Hibberdene
  - Margate
  - Impenjati
  - Umtamvuna
  - Pennington
  - Port Shepstone

4.8.4 Governance Framework

Laws & Policies	Strategies	Plans & Programmes	Authorities
▪ NEMA ▪ SPLUMA ▪ Municipal Systems Act (Act 32 of 2000) ▪ NWA ▪ NEM:WA ▪ National Housing Act (Act 107 of 1997) ▪ National Waste Classification and Management Regulations 2013 ▪ National Norms and Standards for the Assessment of Waste for Landfill Disposal ▪ National Norms and Standards for Disposal of Waste to Landfill 2013 ▪ NEM:AQA ▪ National Framework for Air Quality Management 2007 ▪ National Ambient Air Quality Standards ▪ Listed Activities and Associated Minimum Emission Standards 2013 ▪ National Climate Change Response White Paper 2011 ▪ Climate Change Policy ▪ Municipal by-laws	▪ National Framework for Sustainable Development 2008 ▪ National Waste Management Strategy 2011 ▪ Air Emission Inventory for KZN ▪ Growth, Economic and Redistribution Strategy ▪ Urban and Rural Development Framework ▪ Breaking New Ground - A comprehensive plan for the development of sustainable human settlements 2005 ▪ DAFF Urban Greening Strategy ▪ Air Quality Framework	▪ IDP's ▪ SDF ▪ Urban Regeneration Programmes ▪ Provincial Integrated Waste Management Plan ▪ Ugu DM Integrated Waste Management Plan ▪ Ugu DM Air Quality Management Plans ▪ Housing Sector Plans	▪ Ugu DM ▪ Local Municipalities and relevant units ▪ EDTEA ▪ DWS ▪ KZN Department of Human Settlements

Implementation Mechanisms	▪ Pollution prevention and remediation measures. ▪ SDF. ▪ LUMS. ▪ Authorisations in terms of prevailing legal framework. ▪ Municipal Open Space Systems.

4.8.5 Management Guidelines for achieving the Desired State

Description	Responsible Parties
Planning Priorities	
▪ The core objective of this zone is urbanisation and densification. ▪ Development must be aligned to the SDF and must conform to the LUMS. ▪ Avoid disparate or undesirable develoment outside Urban Edge, which does not adhere to land use planning frameworks (SDF, LUMS, etc.). ▪ Focus future settlement and economic development opportunities in Urban EMZ. ▪ Improve connectivity and mobility through an efficient movement network. ▪ Invest in places with high tourism value. ▪ Manage urban sprawl. ▪ Optimal densities for development should be identified for areas within the urban edge. ▪ Eradicate informal settlements.	▪ DM & LMs
Development Guidelines	
▪ Encourage infill development (i.e. development of land within built-up areas).	▪ DM & LMs

Description	Responsible Parties
▪ Ensure suitable storm water management measures are implemented, based on the nature of the development. ▪ Avoid encroachment into buffer zones of watercourses. ▪ Employ green building measures. ▪ Promote water conservation measures.	
Interventions	
▪ Address management priorities in the Ugu DM Air Quality Management Plan. ▪ Detailed emissions inventory to be developed for the District. ▪ Action plan for promoting renewable energy. ▪ Promotion of energy efficient heating and lighting. ▪ Awareness campaigns regarding dangers of local communities burning waste as a means of disposal. ▪ Provision of adequate waste management services. ▪ Establishment of municipal by-laws governing the burning of waste. ▪ Promote urban regeneration. ▪ Address service backlogs and provide adequate level of services - waste, water, electricity, sanitation and storm water. ▪ Climate change management. Development patterns and spatial planning with respect must take cognizance of climate change and the impacts it will have. The municipality should develop a Climate Change Response Strategy, which would identify the risks faced by the municipality and develop mitigation and adaptation measures to adjust the changing environment. ▪ Control illegal dumping and erradicate dumping hotspots.	▪ DM & LMs
▪ A clearly defined District wide Open Space System is required, with connectivity to CBAs and ESAs (where possible). Promote and safeguard urban open space system (including parks and recreational facilities). ▪ Establish buffer zones for air (e.g. WWTWs, landfills) and noise pollution, for restriction of undesirable activities and land uses.	▪ DM & LMs ▪ EDTEA
▪ Promote urban greening in partnership with DAFF.	▪ DM & LMs ▪ DAFF
Compliance and Enforcement	
▪ Waste disposal sites and WWTWs to be operated in accordance with legal requirements.	▪ DEA ▪ EDTEA ▪ DWS

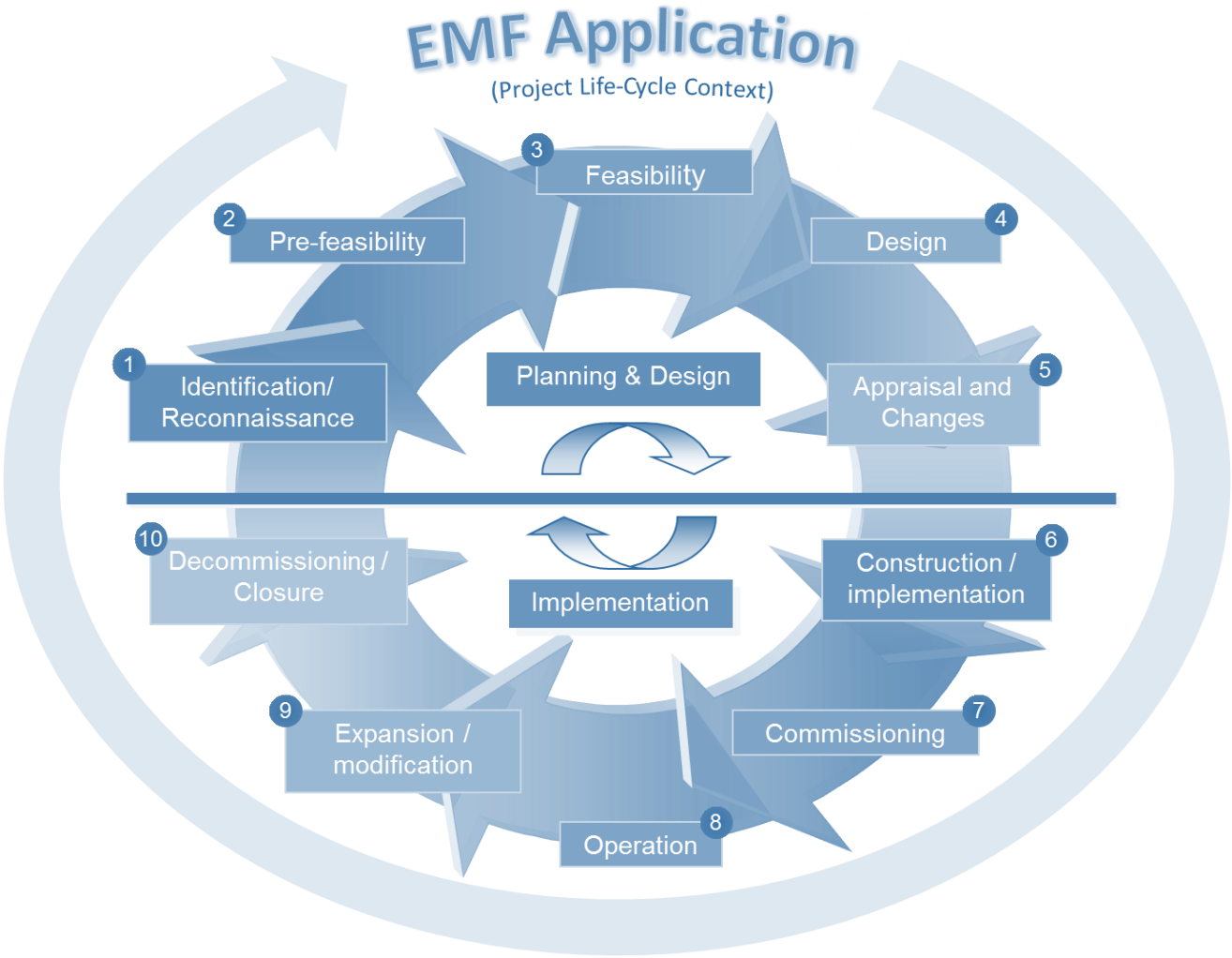
4.8.6 Compatible & Incompatible Activities

Compatible Activities	Incompatible Activities
▪ Development complementary to the LUMS. ▪ Infill development. ▪ Commensurate infrastructure and utility services.	▪ Development that clashes with the LUMS. ▪ Mining. ▪ Heavy industry. ▪ Agriculture (including agri-industry). ▪ Activities that threaten cultural and historical resources. ▪ Activities that encroach upon open space corridors.

4.8.7 Performance Management

- Avoidance of disparate development.
- Upgrading of un-serviced and informal areas.
- Prevent exceedance of pollution standards.
- Prevent loss of municipal open space.
- Control rate of urban regeneration.

IMPLEMENTATION STRATEGY



SECTION 4

5 IMPLEMENTATION STRATEGY

5.1 Cyclical Implementation Approach

A pragmatic approach to the implementation of the Ugu DM EMF is recommended, which is based on the commonly adopted management system of a Plan-Do-Check-Act cycle. This method acknowledges that it requires dedicated commitment to continual improvement to eventually achieve the desired management outcomes. The main steps in the cycle are presented in the table to follow.

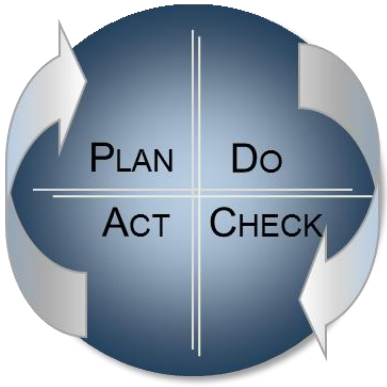


Table 13: Ugu DM EMF Implementation Cycle

1.	**Plan**	❖ Identify the EMF triggers. ❖ Define the scope of the EMF. ❖ Determine information requirements and key environmental features and attributes to be investigated. ❖ Develop and implement a public participation strategy. ❖ Determine context for environmental management, based on status quo, opportunities, constraints, issues, and desired state. ❖ Delineate management zones and assign management objectives and requirements. ❖ Develop implementation strategy. ❖ Seek formal adoption. ❖ Establish institutional arrangements.
2.	**Do**	❖ EMF training of stakeholders. Depending on the audience, training mechanisms can include manuals, tutored sessions, brochures, etc. ❖ Recruitment of EMF in appraisal of proposals / applications for activities or developments. ❖ Implementation of EMF management measures, including provisions and arrangements for accomplishing management objectives and desired state.
3.	**Check**	❖ Monitoring of EMF performance and overall implementation. ❖ Monitoring to include approriate environmental performance indicators
4.	**Act**	Taking stock of the lessons learnt during the implementation of the EMF and the outcome of the review stage, management actions need to be taken to ensure that the EMF is revised as needed. New information must also be incorporated into the EMF, and the GIS must also be updated.

5.2 Linkages with other Planning and Policy Instruments

5.2.1 SDF and IDP

The EMF attempts to be aligned with existing planning tools, in particular the municipal SDF and IDP. Likewise, the EMF will feed environmental information into these planning tools. The environmental priorities emphasised in the EMF should serve as a thrust in formulating new plans and guide the decisions on existing planning arrangements.

On a spatial scale, the EMZs should form the environmental layer of the SDF for the Ugu DM. Any conflicts that exist between the EMF and SDF would need to be identified and ironed-out in a balanced manner, with due consideration and integration of sustainability principles.

5.2.2 BSP

The BSP is intended to contribute to a range of multi-sectoral planning and assessment processes, such as EMFs, SDFs, Strategic Environmental Assessments (SEAs), EIAs and water use authorisations; and to support land use decision-making that impacts on biodiversity e.g. rezoning, agricultural and mining authorisations.

Where relevant, the provisions of the BSP were included in the SEMP, which included the CBA and ESA Maps (where available) and management requirements for these sensitive areas.

5.2.3 IEM Tools

The purpose of Chapter 5 of NEMA is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities. IEM has evolved to be an underlying philosophy and set of principles, supported by a range of environmental assessment and management tools that are aimed at promoting sustainability and providing a framework for environmental decision-making.

According to the Department of Environmental Affairs and Tourism (DEAT) (2004), "*IEM provides a holistic framework that can be embraced by all sectors of society for the assessment and management of environmental impacts and aspects associated with an activity for each stage of the activity life cycle, taking into consideration a broad definition of environment and with the overall aim of promoting sustainable development*".

Commonly used tools in support of IEM are listed in **Table 14**. Note that this list is not exhaustive. Further information pertaining to IEM is available in the documents that form part of the DEAT Integrated Environmental Management Information Series. **Figure 25** provides an indicative mapping of IEM tools in terms of the hierarchy of activity and stage in the activity

life cycle at which they could be applied. The choice of tools is informed by the needs expressed by stakeholders and decision-makers, the hierarchy of activity being undertaken (e.g. project, plan, programme or policy) and the stage of the activity life cycle. At the project level, this refers to the cycle of planning, design, establishment, operations and closure. At the policy level, this refers to the cycle of issue identification, options analysis, evaluation and monitoring (DEA, 2004).

Table 14: Examples of IEM Tools (DEAT, 2004)

IEM Tool	Description
Screening	Screening determines whether or not a development proposal requires environmental assessment, and if so, what type and level of assessment is appropriate.
EIA	Aims to predict both positive and negative environmental impacts of a proposed project and find ways to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers. This tool is designed to be project specific and site-specific, and not to be focused on strategic issues.
Stakeholder Engagement	The process of engagement between stakeholders during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement can therefore be described by a spectrum of increasing levels of engagement in the decision-making process.
Life Cycle Assessment (LCA)	A tool for the systematic analysis and evaluation of the environmental aspects of a product or service through all stages of its life cycle. LCA considers all inputs and all outputs. It could be done for a specific company/organisation or for a wider industry. LCA approaches are generally guided by standards.
Environmental Auditing	Environmental auditing is a process whereby an organisation's environmental performance is tested against numerous requirements, for example, clearly defined policies, legislated requirements and key performance indicators.
Environmental Accounting	A tool used to identify, quantify and allocate the direct and indirect environmental costs and benefits of ongoing operations.
Technology Assessment	Technology Assessment systematically examines the effects on society that may occur when a technology is introduced, extended or modified. It emphasizes those consequences that are unintended, indirect or delayed.
Cumulative Effects Assessment (CEA)	Cumulative effects assessment requires a systematic procedure for identifying and evaluating the significance of effects from multiple actions representing potential causes of impacts. CEA includes an analysis of the causes, pathways (linkages) and consequences of these impacts for receptors; and the recognition that such impacts may be additive, antagonistic or synergistic.
Cost-Benefit Analysis	Cost-Benefit Analysis is a tool used by decision makers either to rank projects or to accept/reject them. The ranking or decision is based on expected economic costs and benefits and the rule is simple – a project should be undertaken if lifetime expected benefits exceeds all expected costs. The art of the analysis process comes in the measurement of these impacts, their adjustment for market failure, and for the effects of time, income distribution, incomplete information and potentially irreversible consequences.
Environmental Economics	Environmental economics helps identify the costs and benefits (negative and positive environmental impacts) not taken into

IEM Tool	Description
	account by economic agents (i.e. external costs). In addition there are those cost and benefits the producers and consumers do take account of (i.e. private costs).
Risk Assessment	Risk assessment includes as a minimum the definition of the probability and severity of an undesired effect, expressed in the context of associated uncertainties. The risk assessment procedure can be integrated with the generic EIA procedure, as well as be applied at a policy level.
State of the Environment Reporting	State of the Environment (SOE) reporting is used to highlight changes in the environment, the causes of those changes, and identify appropriate responses. The reports provide a link between information that is often technical and the general public. In South Africa, the framework most often used for organising the SOE information is called the Driving Force - Pressure - State - Impact - Response (DPSIR) framework. This uses indicators to describe changes.
Indicators	Indicators evaluate and monitor the amount and direction of change occurring in the environment and whether developments or actions are operating at a sustainable level. They are used to assess and understand the interaction between development and the environment.
Strategic Environmental Assessment (SEA)	An SEA is a widely used tool for determining the environmental implications of decisions made at a policy, plan or programme level.
Sustainability Reporting	Sustainability Reporting is an organisation's public account of economic, environmental and social performance in relation to its operations, products and services – i.e. the triple bottom line.
Environmental Management Systems (EMS)	An EMS provides guidance on how to manage the environmental impacts of activities, products, and services. It details the organisational structure, responsibilities, practices, procedures, processes and resources for implementing and maintaining environmental management.
Environmental Management Plan (EMP) / EMPr	An EMP typically forms part of an EMS and specifies how an activity is to be managed to minimise potential impacts on the environment and enhance benefits, throughout the life cycle of the activity. An EMPr aims to ensure that the conditions of an authorisation associated with a project are fulfilled; and can be applied to the construction, establishment, operational or decommissioning phases of an activity.

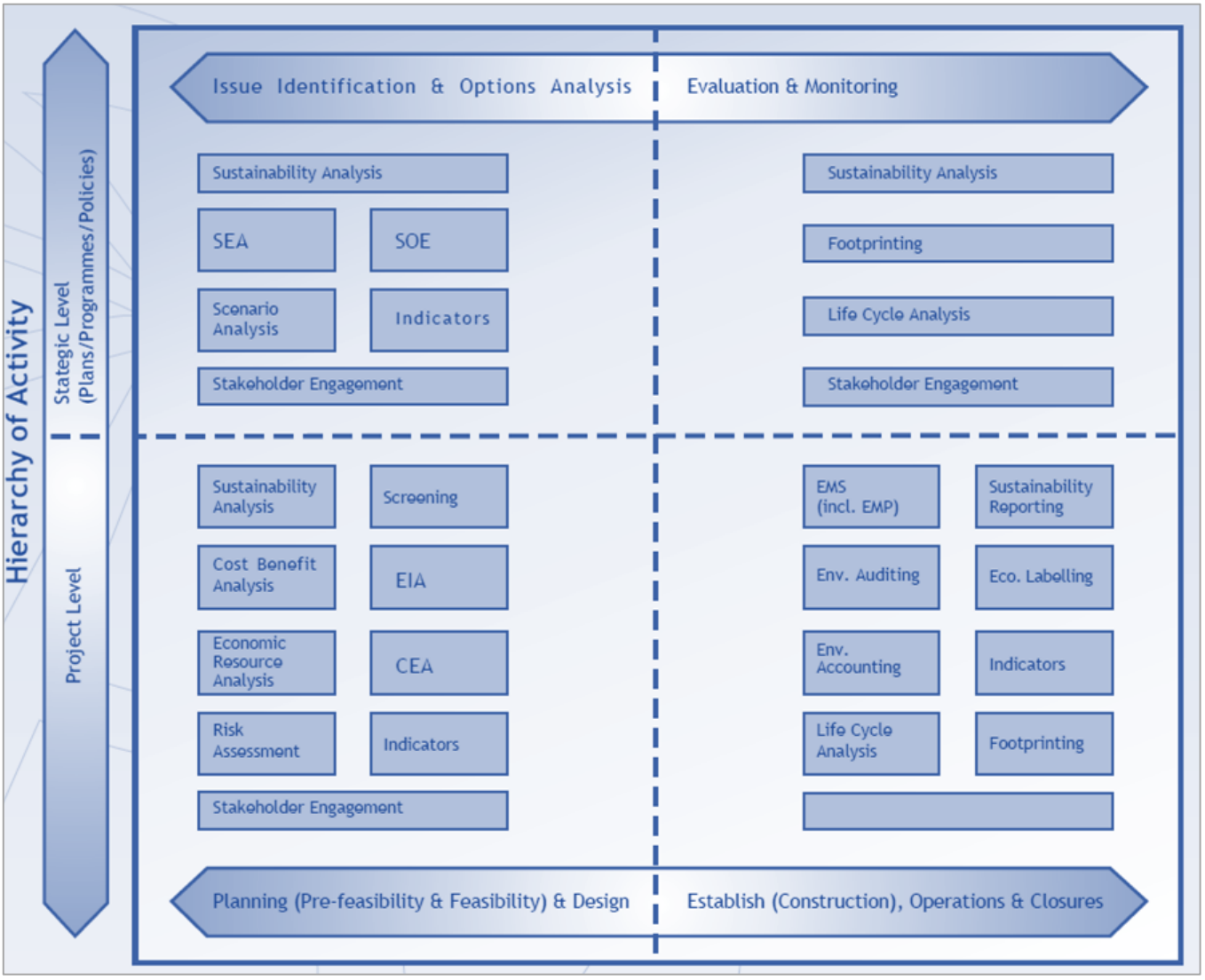


Figure 25: **Indicative mapping of IEM tools (DEAT, 2004)**

5.3 Striving towards the Desired State

Environmental Management Priorities contained in the SEMP emanate from the issues, opportunities and constraints identified during the EMF status quo assessment, and through feedback received during Public Participation.

In terms of the EMF development process, Management Priorities were not necessarily all taken forward in the mapping component of the EMF, where some of the objectives could not be presented spatially. However, the Management Priorities promote attaining the desired state of the EMF study area by playing an important role in setting Management Guidelines for the respective EMZs.

Outside of the functions of the EMF, the Management Priorities need to be captured in future environmental management strategies for the DM, which need to be championed by the responsible government bodies.

Mapping the path from the environmental vision to the realisation of the desired state relies on the disaggregtion of the vision into management objectives. These objectives are best presented in a hierarchy, which begins at its coarsest level with the vision and ends in a series of management objectives of increasing focus, rigour and practical achievability (see example presented in **Figure 26**).

The higher level vision and accompanying objectives (SEMP Management Priorities) relate primarily to upper management and societal values with statements of strategic intent, while the lower level objectives provide more specified and operational-type objectives that can be linked to specific targets. The lower level objectives, which represent the most detailed and most technical level of objectives, are not necessarily contained in the EMF and need to be developed as part of the roll-out of the tool through appropriate strategies, plans and programmes by the relevant stakeholders.

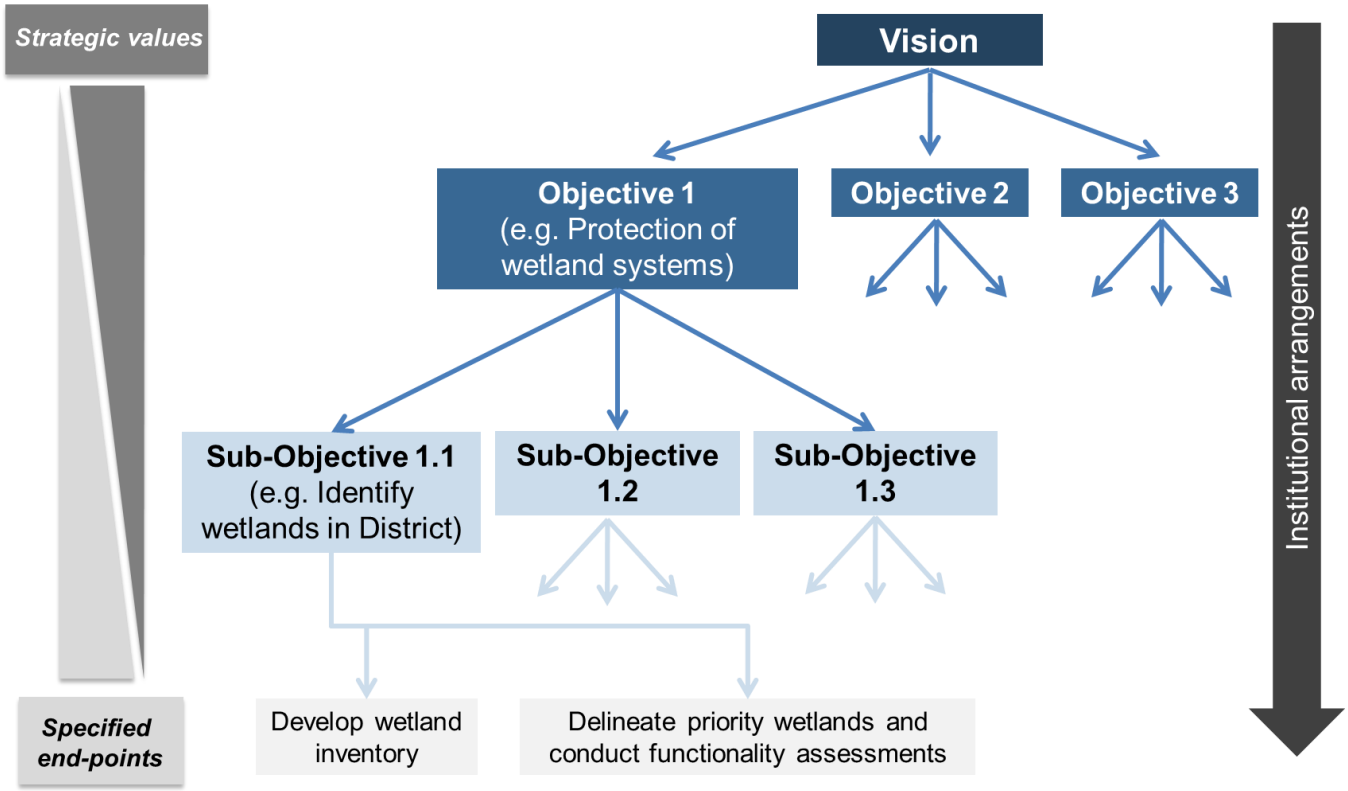


Figure 26: Objectives Hierarchy with example

The role of the EMF in striving towars the desired state includes the following:

- Provide context and guidance to policies, strategies and plans, where the environmental management requirements need to be taken into consideration;
- Planning initiatives need to support the management objectives for each EMZ;
- Developers and professionals need to screen proposals against the EMF and the appropriate EMZs to identify potential incompatibility. Should the activity not conform to the desired state established for the management zone, the proponent may revise the proposal or undertake detailed investigations to verify the EMF findings; and
- National (DEA), provincial (e.g. EDTEA, DMR, DAFF, DWS) and local (DM and LMs) authorities should use the EMF to facilitate environmental decision-making.

5.4 Giving Effect to the EMF

Institutional arrangements are regarded as the overall framework for sustainable development planning and decision-making, including political, legal, regulatory, policy and organisational frameworks and processes.

The sub-sections to follow discuss some of the high-level provisions that need to be in place to successfully implement the Ugu DM EMF.

5.4.1 EMF Enabling Institutional Arrangements

Provision needs to be made in terms of the capacity and ability of the Ugu DM and LMs to ensure effective IEM. In addition, the various environmental planning and management tools that are associated with various pieces of environmental legislation need to be in place.

The DM needs to ensure that the requisite enabling environment is created to facilitate the successful application of the EMF. The organisational arrangements required to give effect to EMF and IEM in general include the following:

1. Conduct a training needs assessment and provide environmental training to municipal officials.
2. Establish dedicated Environmental Management Units for DM and LMs to oversee the following –
   a. Planning, coordinating, implementing and monitoring all aspects of IEM;
   b. Coordinating environmental compliance (where the municipality acts as the developer or project proponent, fulfils functions or conducts activities) and governance (where the municipality acts as the commenting or regulatory authority);
   c. Creating environmental awareness within the municipality and ensuring task-specific environmental training is provided to municipal officials;
   d. Designing and managing pollution prevention, abatement, and control programmes;
   e. Applying legal and regulatory tools to achieve environmental sustainability;

f. Mainstreaming environmental sustainability within the municipal structure and functions.

3. Develop an internal system to screen all projects, functions and activities against environmental legislation and to initiate the relevant authorisation protocols.
4. Conduct environmental compliance monitoring of municipal projects.
5. Integrate EMF into the IDP, SDF and LUMS of the DM and LMs
6. Establish a co-operative environmental governance forum to engage with key environmental authorities from the various spheres of government.
7. Dedicated environmental officers in the DM and LMs to support the Environmental Managers by undertaking executing the following functions:
   a. Environmental compliance monitoring;
   b. Responding to environmental complaints;
   c. Roll-out of environmental education;
   d. Review of Environmental Impact Assessments, Environmental Management Programmes, planning applications, etc.;
   e. Implementing environmental projects;
   f. Assist in compiling environmental management tools.
8. Establish community environmental forums.

5.4.2 EMF Implementation Duties

In accordance with the EMF Regulations (GN No. R547 of 18 June 2010), various role-players are involved with the conclusion of the EMF development process, its formal adoption and the ensuing implementation of the framework. The key duties that need to be performed for the implementation of the EMF are listed in **Table 15**.

Table 15: EMF Implementation Duties

EMF Implementation Duty	Roles & Responsibilities
Finalise EMF	▪ Ugu DM ▪ EDTEA ▪ DEA
Endorse EMF	▪ Project Steering Committee (PSC)
Seek EMF approval	▪ Ugu DM – Council resolution ▪ EDTEA
Gazetting of EMF	▪ DEA ▪ MEC (EDTEA)
Broadcast the EMF (e.g. roadshow)	▪ Ugu DM ▪ EDTEA
Consideration of EMF during the review of activities / project proposals in terms of NEMA Section 24(4)(b)(vi)	▪ DEA ▪ DMR ▪ LMs ▪ EDTEA ▪ DWS
Set operational objectives and implementation plans for desired state	▪ Ugu DM ▪ EDTEA
Monitor the implementation of the EMF	
Review and update the EMF	

5.4.3 EMF Functionality

Figure 27 provides a broad outline of the application of the EMF in a project life-cycle.

According to the EMF Regulations (GN No. R547 of 18 June 2010), once an EMF is adopted by the Minister or MEC it must be taken into account in the consideration of applications for environmental authorisation in or affecting the geographical area to which the framework applies. The primary purpose of an EMF is thus to function as a support mechanism in the EIA process in the evaluation and review of development applications, as well as making strategic informed decisions regarding land use planning applications.

The EMF will provide applicants with an early indication of the areas in which it would be potentially appropriate to undertake an activity. If an area has been earmarked for a certain type of development where it will be incompatible with the desired state of the associated EMZ, the applicant will need to undergo a rigorous environmental assessment to determine the state of the receiving environment and the potential impacts to the features that contribute towards the sensitivity of the zone in question. As the compilation of the GIS was largely based on desktop spatial information, a certain level of ground-truthing that is suitable for the type of activity and status of the receiving environment will be required.

Other pertinent functions of the EMF include the following:

- The UDM and LMs, as well as key government departments (e.g. EDTEA, DWS, DMR) will use the EMF as a tool for planning, environmental screening, regulatory functions and overall decision-making.
- The EMF provides a compilation of information and maps illustrating attributes of the environment in the District. This provides valuable guidance in terms of planning processes in UDM.
- It is important to note that, while the SEMP outlines preferred activities within the EMZs, it does not preclude a developer/ planner from having to consider the underlying sensitive features or having to comply with relevant environmental legislation.

If a proposed development is not located within an EMZ it means that the EMF does not provide specific management requirements for this development. However, the prevailing environmental legal framework will still need to be taken into consideration by the project proponent.

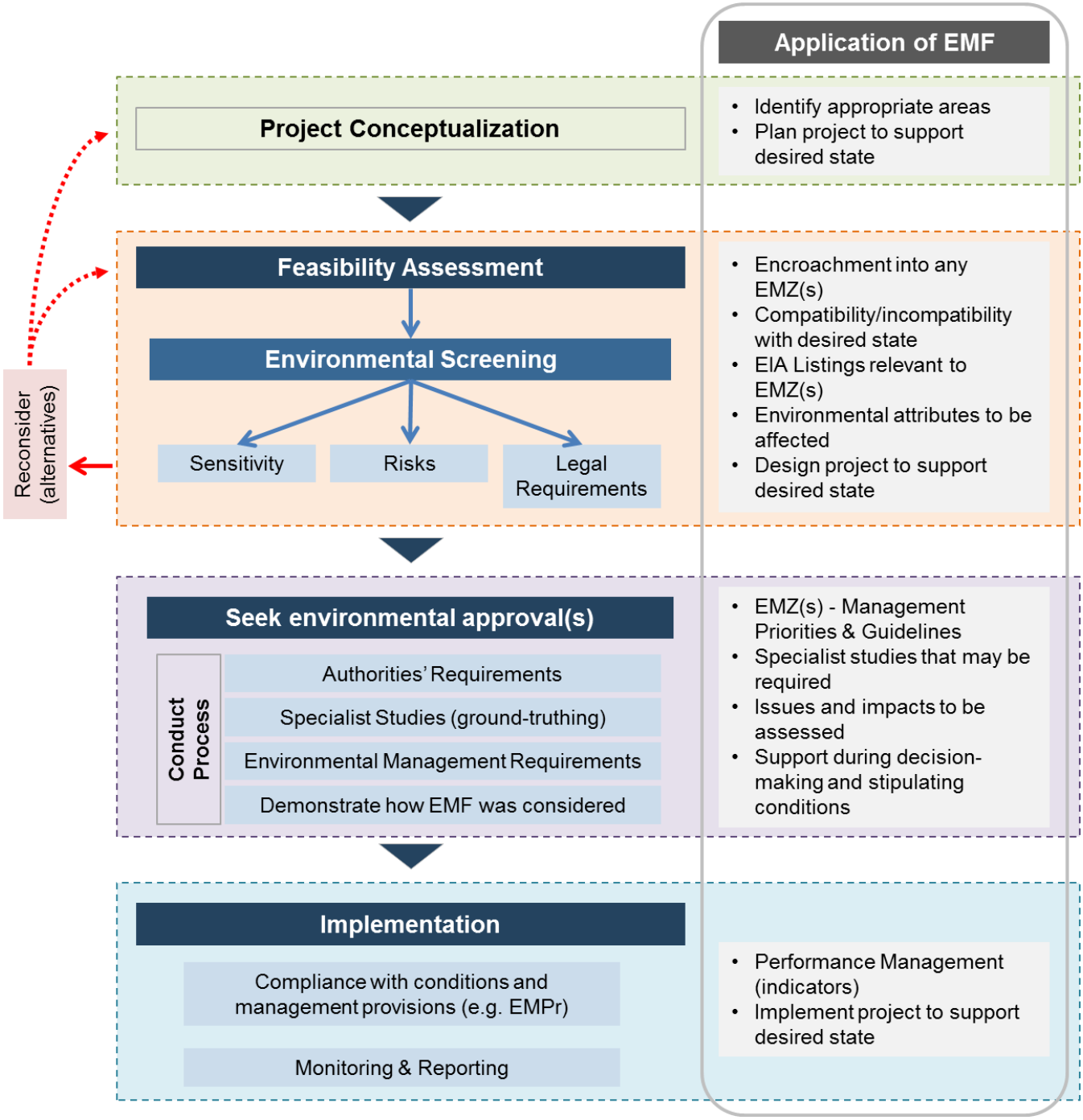


Figure 27: **Broad outline of the application of the EMF in a project life-cycle**

5.4.4 EMF Review

An EMF must be implemented and monitored on a regular basis to ensure that it achieves its purpose and goal. The Ugu DM EMF's intended use should be checked against the following performance indicators:

- Officials trained on the interpretation and application of the EMF;

- Appointment of dedicated Environmental Managers in the DM and LMs to oversee the implementation of the EMF;
- Outcomes of projects screened against EMF GIS;
- Manner in which projects were influenced by the EMZ requirements;
- Adherence to Management Guidelines; and
- Application of EMF guidance to EIA Listing Notices.

According to the EMF Regulations (GN No. R547 of 18 June 2010), an EMF may from time to time, on the initiative of the Minister or an MEC in concurrence with the Minister, or as specified in the revision schedule of the EMF, be revised, on condition that such revision is subject to a public participation process similar to that envisaged in the Regulations. It is proposed that the review and revision cycle of the EMF be coupled to that of the other planning tools (i.e. SDF and IDP). Accordingly, an overall update cycle of 5 years is recommended.

With the review of the EMF it is recommended that the following elements be investigated in greater detail for the next generation EMF for Ugu:

1. Agriculture –
   - Agro-biodiversity;
2. Terrestrial Biodiversity –
   - Require detailed ground-truthing for CBAs and ESAs, in particular for areas with high development pressure;
3. Aquatic Biodiversity –
   - Aquatic CBAs and ESAs, as approved by EKZNW;
4. Coastal and Estuarine Environment –
   - Estuarine CBAs and ESAs, as approved by EKZNW;
   - Marine Protected Areas under Operation Phakisa, once gazetted;
   - Approved Coastal Setback Line;
   - High-water mark to be used to refine the coastal protection zone;
   - Coastal management line;
   - Estuarine Functional Zone from ORI;
   - Micro estuaries;
5. Geohydrology –
   - Extent of groundwater resources and possible exploitation;
   - Identification of vulnerable groundwater resources;
   - Management requirements;
6. Climate Change –
   - Climate change risks in the district;

- Mapping of possible alternative energy sources;

7. Socio-economic Development –
   - The first generation EMF focuses heavily on sensitive environmental resources in Ugu DM, as reflected in the EMZs. Future versions of the EMF need to investigate the socio-economic development opportunities in the District in greater detail and dedicated management zones need to be considered that focus explicitly on these aspects.
8. A dedicated EMZ needs to be considered for tourism, especially considering the tourism-related opportunities in the district and the role that this industry plays in the local economy.
9. Further consideration needs to be given regarding inclusion of terrain and geotechnical conditions as an EMZ in the EMF.
10. Consideration of inclusions or exclusions in terms of the listed waste management activities under the National Environmental Management: Waste Act (NEM:WA) (Act No. 59 of 2008).
11. Investigate community conservation strategies for areas that are located alongside formally protected areas. Consider initiatives that will support the desired state of the protected areas and not jeopardise their ecosystem goods and services, while promoting socio-economic benefits to the local communities.

5.4.5 Cooperative Governance

This section provides an overview of the institutions which play a significant role in environmental management and decision making at the three levels of the government (i.e. national, provincial and local), which will be facilitated by the Ugu DM EMF. The environmental institutions identified at each level of government fulfil specific duties with regards to the critical environmental issues and features associated with the study area. The legal framework also assists in identifying mandated parties with regulatory functions in the environmental arena. According to Strydom and King (2009), three legislative mechanisms exist at a national level that afford protection to the environment. The first mechanism is the constitutional entrenchment of environmental protection through either a rights-based or regulatory approach in the Constitution. The second legislative mechanism is environmental protection through framework legislation, namely NEMA. Lastly, the third mechanism is to adopt specific environmental legislation that covers a range of environmental themes (e.g. biophysical elements).

A high-level overview of the environmental roles and responsibilities of key environmental authorities, which influence and guide environmental policies, strategies and plans in Ugu, follows.

Table 16: Environmental roles and responsibilities

Environmental Authorities	Key Objectives / Obligations / Services / Functions
DEA environmental affairs Department: Environmental Affairs REPUBLIC OF SOUTH AFRICA	▪ Promote the enhancement of natural resources for sustainable equitable use and protect and enhance the quality and safety of the environment ▪ Promoting the conservation and sustainable utilisation of our natural resources to enhance economic growth ▪ Protecting and improving the quality and safety of the environment ▪ Promoting a global sustainable development agenda ▪ Transformation ▪ Regulation and management of all biodiversity, heritage and conservation matters ▪ Promote and conserve our biological diversity and cultural and local natural resources and ensure the sustainable utilisation of resources ▪ Protect the environment in the interest of the health and well-being of the people ▪ Provide environmental information in support of effective environmental management and public participation in environmental governance ▪ Manage conservation the Transfrontier Conservation Areas and Protected Areas ▪ Promote and conserve our biological diversity and cultural and local natural resources and ensure the sustainable utilisation of resources for the benefit of the people of South Africa ▪ Provide programme management support service to Line Managers in managing Poverty Relief project
KZN EDTEA edtea Department : Economic Development, Tourism and Environmental Affairs PROVINCE OF KWAZULU-NATAL	Environmental services Include – ▪ Environmental Planning, Governance & Information Management ▪ Environmental Impact Assessment ▪ Environmental Empowerment & Sustainable livelihoods ▪ Coastal & Biodiversity Management ▪ Pollution & Waste Management ▪ Compliance, Monitoring and Enforcement ▪ Air Quality & Climate Change ▪ Alien Invasive Species Management

Environmental Authorities	Key Objectives / Obligations / Services / Functions
DMR mineral resources Department: Mineral Resources REPUBLIC OF SOUTH AFRICA	▪ Actively contribute to sustainable development - promote sustainable resource management and contribute to skills development and the creation of meaningful and sustainable jobs ▪ Promote and transform the minerals sector o Promote and facilitate value addition to mineral resources extracted in the Republic o Redress past imbalances through promoting investment, broader participation in the minerals sector, direct intervention in communities, and increased BEE and SMME participation inclusive of women, youth and the disabled. ▪ Regulate the minerals sector - developing new policies, reviewing of existing policies and amending legislation to make them current to evolving an environment and achieving transformation in the minerals and mining industry ▪ Promote health and safety in the minerals sector - provide clear policy and regulatory framework to manage health and safety risks and promote best practice in the mining sector ▪ Protect the environment – promote the reduction of the impact of mining activities on the environment and public health through management of rehabilitation of ownerless and derelict mines, research and development in mine environmental management and development of mine environmental policies. ▪ Efficient and effective service delivery - develop and review internal processes, understand stakeholder needs and improve turn-around times ▪ Enhance DMR culture, systems and people - attract, develop and retain appropriate skills, promote good organisational culture and make the Department an employer of choice. ▪ Ensure long term financial stewardship – ensure optimal utilisation of resources, manage budges effectively, implement risk management strategies and promote corporate governance
DWS water & sanitation Department: Water and Sanitation REPUBLIC OF SOUTH AFRICA	▪ Forecasting and balancing of water demand and supply ▪ Ensure adequate information and knowledge to sustainably manage water resources ▪ Improve water allocation ▪ Improve water use efficiency ▪ Improved water resource quality ▪ Ensure protection of water resource quality and quantity ▪ Ensure water service delivery through policy and regulation ▪ Regulate Water Services Authorities ▪ Develop and construct new infrastructure ▪ Asset management ▪ Percentage maintenance of infrastructure as per maintenance plan ▪ Ensure the provision of regional bulk water ▪ Rehabilitation and refurbishment of water resources infrastructure ▪ Ensure implementation of cooperation agreements ▪ Shape the global agenda on water ▪ Strengthen regional institutions of water ▪ Organisational growth and development ▪ To provide gender equality and woman empowerment solutions ▪ Contribute towards poverty alleviation through job creation initiatives

Environmental Authorities	Key Objectives / Obligations / Services / Functions
EKZNW	▪ To improve the state of biodiversity in KwaZulu-Natal for the benefit of people ▪ To provide quality conservation and ecotourism service delivery by being a well-resourced organisation whilst striving for sustainability. ▪ To be an efficient, transparent, honest and accountable public entity with good governance. ▪ To be the employer of choice through creating decent work and sustainable livelihoods.
Amafa aKwaZulu-Natali	▪ Amafa / Heritage KwaZulu Natali is the provincial heritage conservation agency for KZN. Amafa was established as a statutory body in terms of the KZN Heritage Act of 1997, replaced by the KZN Heritage Act of 2008. ▪ Protection and preservation of cultural and heritage resources through approvals for development permits.
Ugu DM	The Municipal Structures Act (Act No. 117 of 1998) makes provision for the division of powers and functions between the DM and LMs. It assigns the district wide functions to the DM and most day to day service delivery functions to the LMs. The powers and functions of Ugu DM include the following: ▪ Water supply and sanitation services ▪ Municipal Health services Shared functions include: ▪ Fire prevention and control ▪ Local Tourism ▪ Municipal Airports ▪ Municipal Public Transport ▪ Cemeteries and Crematoria ▪ Markets ▪ Municipal Abattoirs ▪ Municipal Roads ▪ Refuse Removal and Solid Waste ▪ Municipal Planning ▪ Air pollution The remaining municipal functions lie with the LMs, which include: ▪ Storm Water Management ▪ Trading Regulations ▪ Billboards and Public advertising ▪ Cleansing and maintenance ▪ Control of Public Nuisances ▪ Street Lighting ▪ Traffic and Parking ▪ Beaches and amusement parks ▪ Local Amenities ▪ Noise Pollution ▪ Pounds ▪ Public Places ▪ Street Trading ▪ Harbours and Ferries ▪ Local Sports ▪ Street Lighting ▪ Municipal Parks and Recreation ▪ Municipal roads ▪ Control of Liquor licenses.

The successful implementation of an EMF hinges on the various institutions adopting and putting into practice (where relevant) this environmental management tool. The various ways in which the EMF can assist and be applied by government departments include:

- Promoting cooperative governance. The EMF facilitates the coordinated management of the specific geographic area (Ugu DM in this case) by providing strategic environmental spatial information and management requirements;

- Informing decision-making. The EMF is directly linked to the decision-making framework of the DEA, KZN EDTEA and DMR in terms of applications for environmental authorisation under NEMA, where these respective government departments act as the designated competent authorities. Ugu DM (and local municipalities) is also obligated to employ the EMF during the review and decisions on land use applications under SPLUMA;
- Guiding spatial planning. The EMF serves as a repository of environmental spatial information for Ugu DM; and
- Incorporating the latest versions of spatial data and accompanying management provisions from the various environmental authorities, and thus providing a mechanism for updating (part of EMF review) and broadcasting environmental requirements to project proponents and decision-makers.

At the onset of the SEMP development a Project Steering Committee (PSC) was established, which included the various government role-players and decision-makers who will be directly affected by the implementation of the EMF (as listed in **Table 15**). The purpose of the PSC included providing high level guidance to steer the EMF towards achieving its intended objectives, assisting in obtaining information from the various government departments represented on the committee and reviewing the EMF products.

5.5 Monitoring and Evaluation Framework

The proposed Monitoring and Evaluation Framework, which serves to determine whether the Ugu DM EMF is achieving its intended objectives, is provided in **Table 17**. The results from the monitoring and evaluation will feed into the review of the EMF, and the framework provides a system to continuously improve the quality and accuracy of the EMF.

It must be noted that that the monitoring of the indicators and subsequent evaluation in terms of the EMZs is not the primary function of Ugu DM, but rather the various mandated authorities and institutions in terms of the prevailing governance framework for the specific environmental features and attributes that comprise each of these zones. In these instances, feedback on the performance management will be required from these respective parties to allow for an appraisal of whether the desired state of each EMZ is being supported.

Table 17: Ugu DM EMF Monitoring and Evaluation Framework

(Note: cells with yellow fill require feedback from the mandated authorities/stakeholders in terms of suitable targets per indicator)

Outputs	Tasks	Indicators	Frequency	Targets					Roles & Responsible
				2018/19	2019/20	2020/21	2021/22	2022/23	
Outcome: (1) The implementation of the EMF									
1.1 An enabling institutional environment for the EMF.	1.1.1 Establish dedicated Environmental Management Units for DM and LMs.	Revised municipal organogramme (where relevant).	-			100%			DM & LMs
		Environmental Managers appointed for DM and each LM.	-			100%			DM & LMs
		Environmental Officers appointed for DM and each LM.	-				100%		DM & LMs
		Training needs assessment completed for municipalities and sector partners.	on-going	100%		100%		100%	DM & LMs
		Municipal officials trained on the EMF.	on-going	100%		100%		100%	DM & LMs
	1.1.2 Establish a co-operative environmental governance forum to engage with key environmental authorities from the various spheres of government.	Schedule and minutes of meetings.	on-going		100%	100%	100%	100%	DM & LMs DEA EDTEA EKZNW DMR DAFF DWS DARD Amafa Other
1.2 Platform for community based involvement in environmental management in DM.	1.2.1 Establish community environmental forums.	Schedule and minutes of meetings.	on-going		100%	100%	100%	100%	DM EDTEA
1.3 An enhanced EMF.	1.3.1 Document lessons learnt during implementation.	EMF lessons learnt document.	on-going		100%			100%	DM EDTEA
	1.3.2 Incorporate new environmental information relevant to EMZs.	Record of receipt of updated / new environmental information.	on-going	100%	100%	100%	100%	100%	DM EDTEA
	1.3.3 Review EMF based on 5 yearly review cycle	Reviewed and approved next generation EMFs.	on-going					100%	DM EDTEA
Outcome: (2) Integration of information pertaining to strategic environmental management priorities in Ugu DM.									
2.1 Consolidated environmental information (policies, strategies, plans, programmes, spatial data) for Ugu DM.	2.1.1 Identify the relevant government departments / custodians and the environmental information available	Database of government departments / custodians and the type of environmental information available from each party.	on-going	100%					DM
		List of environmental information required and source.	on-going	100%					DM

Outputs	Tasks	Indicators	Frequency	Targets					Roles & Responsible
				2018/19	2019/20	2020/21	2021/22	2022/23	
	and required (e.g. based on environmental priorities) for Ugu DM.								
	2.1.2 Manage and keep record of the environmental information acquired. Consider the type of information, format of information, citation, description, use constraints, point of contact for source of information, data accuracy, etc.	Information metadata matrix.	on-going	100%	100%	100%	100%	100%	DM
		Document control procedure (capturing, indexing, storage, retrieval and integration of information obtained).	on-going	100%	100%	100%	100%	100%	DM
	2.1.3 Establish a mechanism to source the latest environmental information from the relevant government departments / custodians.	Agreements with government departments / custodians in place to obtain environmental information.	on-going	100%					DM & relevant departments
		Create a schedule of review cycles of environmental information (where applicable).	on-going	100%	100%	100%	100%	100%	DM
		Data exchange mechanism in place with government departments / custodians.	on-going	100%					DM & relevant departments
		Mechanism to update the environmental layer if the municipal GIS with new/updated information.	on-going	100%	100%	100%	100%	100%	DM EDTEA
Outcome: (3) Achieve the desired environmental state for Ugu DM.									
3.1 Spatial planning, projects and activities within Ugu DM to be guided by the provisions of the EMF.	3.1.1 Screening of projects / activities against EMF.	Proof of EMF information shared with project team during pre-application phase (e.g. minutes of meeting, email transmittal, etc.).	on-going	100%	100%	100%	100%	100%	DM & LMs DEA EDTEA DMR
		Demonstration of how the EMF was considered in project documentation / application / environmental assessment reports.	on-going	100%	100%	100%	100%	100%	Project proponent
	3.1.2 Develop an internal system to screen all projects, functions and activities against environmental legislation and to initiate the relevant	Documented screening of municipal projects against EMF and enviro-legal requirements.	on-going						DM & LMs
		Environmental compliance monitoring of municipal projects.	on-going						DM & LMs

Outputs	Tasks	Indicators	Frequency	Targets					Roles & Responsible
				2018/19	2019/20	2020/21	2021/22	2022/23	
	authorisation protocols.								
	3.1.3 Guide and inform development planning in the District.	EMF integration within IDP, SDF and LUMS.	on-going						DM & LMs
		EMF integration within sector plans.	on-going						DM, LMs and sector partners
3.2 EMF facilitate and informed decision-making.	3.2.1 Review of applications for environmental authorisation under NEMA against EMF.	Documented proof of review.	on-going		100%	100%	100%	100%	DEA EDTEA DMR DM & LMs
		Conditions linked to EMF management measures.	on-going	40%	100%	100%	100%	100%	
	3.2.2 Review of land use applications under SPLUMA against EMF.	Documented proof of review.	on-going						DM & LMs COGTA
		Conditions linked to EMF management measures.	on-going						
3.3 Performance management for specific EMZs.	3.3.1 Formally Protected Terrestrial Areas EMZ - Performance management	▪ To be aligned with target and indicators in respective IMP's for Protected Areas (where relevant). ▪ Current coverage of Protected Areas. ▪ Percentage of biodiversity network under formal conservation. ▪ Occurrence of invasive alien animal populations. ▪ Loss of protected species. ▪ Measurable edge effects from developments in the buffer zones.	on-going						EKZNW EDTEA DM
	3.3.2 Terrestrial Biodiversity EMZ - Performance management	▪ Current coverage of CBAs and ESAs. ▪ Assess CBAs and ESAs in order to track the percentage of: ○ Areas under formal protection (including new stewardship agreements); ○ Areas that have been modified/lost, wholly or in part due to development; ○ Areas where increased development rights have been granted.	on-going						EKZNW EDTEA SANBI DM

Outputs	Tasks	Indicators	Frequency	Targets					Roles & Responsible
				2018/19	2019/20	2020/21	2021/22	2022/23	
		▪ Area (hectares) and % of district under 'local protected area' status (e.g. municipal open space system, municipal park, recreational areas etc.). ▪ Proportion of land invaded by invasive alien plants. ▪ Areas cleared of invasive alien plants. ▪ Occurrence of invasive alien animal populations. ▪ Conservation status of natural vegetation, by type. ▪ Area (hectares) and threat status of vegetation types remaining within the District. ▪ Level of transformation (%) of each vegetation type. ▪ Percentage of biodiversity network under formal conservation. ▪ Threatened and extinct species. ▪ Population trends of selected species (e.g. oribi, blue swallows, cranes).							
	3.3.3 Aquatic Biodiversity EMZ - Performance management	▪ Current coverage of CBAs and ESAs. ▪ Zero loss of wetlands. ▪ No encroachment into regulated area of a watercourse. ▪ Health of rivers as determined by the National Aquatic Ecosystem Health Monitoring Programme. ▪ Mean annual precipitation and evaporation. ▪ Improvement in the Blue and Green Drop Status of all municipalities within the District. ▪ Creation of awareness in terms of the water shortage predictions for the district.							EKZNW EDTEA DWS CMA SANBI DM

Outputs	Tasks	Indicators	Frequency	Targets					Roles & Responsible
				2018/19	2019/20	2020/21	2021/22	2022/23	
		▪ Reducing the total water loss occurring in the District to less than 10%.							
	3.3.4 Coastal and Estuarine EMZ - Performance management	▪ Current coverage of CBAs and ESAs. ▪ Number and % of estuaries with Estuary Management Plans. ▪ Zero loss of threatened ecosystems in coastal zone. ▪ No illegal encroachments into the coastal protective zone. ▪ Map and formally adopted coastal setback line.	on-going						DEA O&C EDTEA EKZNW ORI SANBI DM
	3.3.5 Agriculture EMZ - Performance management	▪ Zero loss of high potential agricultural land. ▪ Sustainable farming units maintained. ▪ Historical and unused agricultural areas in environmentally sensitive areas rehabilitated.	on-going						DARD DAFF DRDLR DM
	3.3.6 Heritage EMZ - Performance management	▪ No illegal changes to or loss of heritage assets. ▪ Inventory of heritage resource. ▪ Functional District Heritage Forum.	on-going						SAHRA Amafa DM
	3.3.7 Urban EMZ - Performance management	▪ Avoidance of disparate development. ▪ Upgrading of un-serviced and informal areas. ▪ Prevent exceedance of pollution standards. ▪ Prevent loss of municipal open space. ▪ Control rate of urban regeneration.	on-going						DM EDTEA DWS COGTA
3.4 State of Environment reporting.	3.4.1 Reporting on the state of the environment in the District. Description and discussion of the condition of the environment, based	▪ Ugu DM State of Environment Report.	on-going	100%	100%	100%	100%	100%	DM DEA EDTEA

Outputs	Tasks	Indicators	Frequency	Targets					Roles & Responsible
				2018/19	2019/20	2020/21	2021/22	2022/23	
	on pre-determined indicators (including EMZ-specific indicators).								
3.5 Capacitated Traditional Authorities and ITB.	3.5.1 Guide and inform development on Trust land. Include the EMF in land allocation process on Trust land	▪ Condition within short-term lease, placing an obligation on the applicant to consider the EMF.	on-going						DM & LMs ITB COGTA EDTEA DRDLR Traditional House of Leaders
		▪ Demonstration of how the EMF was considered in project documentation / application / environmental assessment reports.	on-going						
		▪ Awareness programme with Traditional Authorities and ITB.	on-going						

5.6 Cross-boundary Environmental Management

The Ugu DM is bordered by the following municipalities:

- Umgungundlovu DM - north;
- eThekwini Municipality - north-east;
- Harry Gwala DM - west; and
- Eastern Cape - south-west.

Subsequent EMFs for the neighbouring DMs will need to take cognisance of the Ugu DM's EMZs and their associated Management Guidelines. This is particularly important for collaborative management of environmental features that traverse multiple administrative boundaries (e.g. major rivers and associated catchments, mountain ranges, coastline, protected areas, threatened ecosystems, CBAs, ESAs, etc.).

5.7 Land under Traditional Authorities

5.7.1 Overview

According to Ugu DM (2016), there are 42 Traditional Councils within Ugu. In addition, there are 7 elected traditional leaders who form part of the Ugu DM Council and all 7 traditional leaders serve in the respective Portfolio Committees.

The majority of the population in the District resides in the traditional areas where the densities are low. Settlement types in Ugu consist of three broad categories, namely urban, traditional and farms. The traditional settlement (58.7%) type is dominant followed by the farms (37,5%) (Ugu DM, 2016). Traditional settlements occur specifically in the inland and rural LMs, where natural areas and subsistence farming dominate.

Due to the substantial area covered under Trust land, as well as the risks posed by activities and land allocation within these areas, it was deemed necessary to provide a dedicated section with recommendations on how the EMF aims to support sustainable environmental management within the decision-making structure for Trust land.

5.7.2 Administration of Trust Land

The Constitution of South Africa recognised the role of Traditional Authorities and facilitates their involvement through COGTA. Traditional Authorities play an important social and economic role in the Ugu DM. In each LM there is a traditional body that communicates with the local ward committees and council forming part of the decision making body in the area. As land owners, Traditional Authorities directly shape the economic conditions of the area.

Without consultation and permission of Traditional Authorities there can be no coordinated development on Trust land.

The Ingonyama Trust was established in 1994 by the KwaZulu Ingonyama Trust Act (Act No. 3 of 1994) to hold the land in title for "the benefit, material welfare and social well-being of the members of the tribes and communities" living on the land. The Trust itself is separate from the Board, where the latter is a legal entity created to administer the affairs of the Trust. The Act places emphasis on the property clause as per Section 25 of the Constitution and gives a stronger mandate for the Board to protect the land and ensure the benefit of communities from the proceeds of the land. Section 2(2) of the Act establishes the framework for the administration of the land for the benefit of communities. Section 2(5) of the Act establishes the framework in which land rights are to be granted and at the same time protecting trust land.

The functions of a Traditional Council include, amongst others, to allocate land, to administer the affairs of the traditional community in accordance with customs and tradition, to promote service delivery and development in the community together with the local municipality and to promote peace, stability and social cohesion, upholding the traditional values of the community (Sutherland *et al*, 2016).

The following is noted in terms of Trust Land Rights (http://www.ingonyamatrust.org.za/trust-land-rights):

- Sales of Trust land -
  - ITB does not usually agree to the sale of land as this could have the effect of diminishing the area of land in Black ownership. Occasionally however, where the circumstances indicate that a sale is the logical approach and with the consent of the relevant Traditional Council (if any) land is sold.
- Leases of Trust land -
  - In most cases the Board prefers to enter into leases for the use of Trust land. Ownership thus remains with the Trust for ultimate transfer in due course to its beneficiaries.
  - It is standard policy, in the case of undeveloped sites, to issue a short-term lease for up to two years to enable would-be developers to obtain planning and environmental consents and to secure finance for the development. Thereafter a lease for a term of up to forty years with an option to renew for a further forty years is normally granted once the requirements of the short-term lease have been met.
  - Shorter-term leases are however granted for agricultural uses and for short to medium term developments. Unless there are exceptional cases the Board charges a market related rent and lessees are responsible for all outgoings including assessment rates

and other Municipal charges and for obtaining any necessary environmental or development planning consents.

- Permission to Occupy -
  - In addition to applications for commercial and agricultural purposes the Board processes many applications for residential sites. Many of these sites are the subject of Permissions to Occupy which were granted up until 1st April 2007.
  - Permissions to Occupy are no longer issued, except in exceptional circumstances as they afford limited security for funding and are not registrable interests.
- Servitudes -
  - The Board has a considerable amount of public infrastructure on its land such as roads, transmission lines, pipelines, bulk water and, railway lines. It is standard policy for such infrastructure to be evidenced by a registered deed of servitude.
- Applications for Tenure Rights -
  - Applicants for tenure rights on Trust land are required to submit a Tenure Option Application Form.
- Traditional Council Consent -
  - It is a requirement of the Ingonyama Trust legislation that the formal consent of the relevant Traditional Council be obtained before a tenure rights application can be processed.

5.7.3 Development Pressures and Issues

Most common land uses in Traditional Council areas include settlements, grazing, limited agriculture, limited commercial and community facilities. There is increasing pressure in some areas to allocate land for tourism, conservation, mining and other non-traditional settlement uses.

Critical challenges facing ITB and Traditional Councils in their land allocation function include the following (amongst others):

- Traditional councils and ITB are under pressure to allocate land for a range of uses. Without considering environmental factors, land uses may be designated in inappropriate locations (e.g. wetlands) and may potentially cause significant environmental impacts;
- The land tenure rights of the members of a community extend beyond a portion of land allocated to each household and include grazing, fire-wood collection, harvesting of herbs, etc. There is a need to balance land tenure and use rights against environmental sensitivity;
- The traditional land tenure system, and the way in which it is administered, does not align with environmental planning processes;

- Changes in land use patterns in the rural areas may cause the encroachment into sensitive areas, which may compromise environmental quality;
- There is a need for standards and norms in the allocation of different land uses in a rural context;
- There is a lack of clarity on the environmental factors that should be taken into account when allocating land for a range of uses; and
- Overlapping land rights arising from the lack of proper systems and procedures, and technical support.

Traditional Authorities may have the perception that environmental legislation unnecessarily hinders or delays development and the accrual of the associated benefits to the community.

5.7.4 Role of the EMF

The EMZs include large tracts of land administered by ITB in Ugu. This includes areas with high biodiversity value. The environmental governance framework still applies to this land and thus safeguards the sensitive features present by regulating activities that require authorisation prior to commencing. This includes promoting the integration of the principles of environmental management into the making of all decisions which may have a significant effect on the environment, in accordance with Chapter 5 of NEMA. According to the ITB (Bothath pers. comm., 2017), planning and environmental approvals need to be secured during the period of the short-term lease before the Board will issue the long-term lease. However, the legislative provisions are not necessarily applied during the land allocation process that takes place in the case where an individual is interested in acquiring land for residential purposes on Trust land.

The following measures are suggested to promote environmental management of Trust land, and to strive towards the desired environmental state:

- The implementation of the EMF on Trust land needs to take place through coordinated planning and collaborative decision-making. It is recommended that a forum be established that meets at the appropriate frequency, where applications for land allocations are presented to the relevant Traditional Councils and municipality, where the last-mentioned party will interpret the application in relation to the EMF and raise red flags for incompatible activities. Alignment is required with the efforts of COGTA in terms of providing guidance on land use applications on Trust land;
- EDTEA, GOGTA and municipalities are to screen emerging nodes or areas with economic development potential within Trust land against the EMF and to guide planning to ensure that sensitive environmental features are not compromised. The results of the screening need to be explained to the Traditional Authorities;

- Evaluate current land allocation practices based on indigenous systems and recommend improvements;
- Create a user-friendly guideline to assist the Traditional Authorities with understanding the EMF and EMZs, and environmental factors to be considered when allocating land;
- Provide maps showing the EMZs at an appropriate scale in relation to individual tribal areas;
- Create awareness amongst Traditional Authorities and ITB through campaigns, workshops, user-friendly documents and other suitable means in terms of the following –
  - Importance of ecosystem goods and services (contextualise in terms of specific areas related to audience);
  - Impacts of improper land use and activities on the environment;
  - Critical role of biodiversity in improving the quality of life or rural communities;
  - Benefits of environmental stewardship; and
  - Sustainable land allocation practices (e.g. designating activities in appropriate areas, employing environmental best practices).

It is further recommended that Traditional Authorities be involved as much as possible in the various programmes and ventures aimed at enhancing the environment on Trust land. Examples include the following:

- DEA's Natural Resource Management (NRM) Programmes (e.g. Working for Water, Working for Wetlands, Working for Land, Working on Fire) aim to address the threats to the productive use of land and water, and the functioning of natural systems, by invasive alien species, wild fires and land degradation (amongst others). These programmes include the rehabilitation of natural systems;
- EKZNW's Biodiversity Stewardship Programme, which allows for partnerships and cooperative management in terms of natural resource management and custodianship for natural assets; and
- KZN DARD land care programme aim at halting degradation of agricultural natural resources through promoting community participation in sustainable use and management.

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