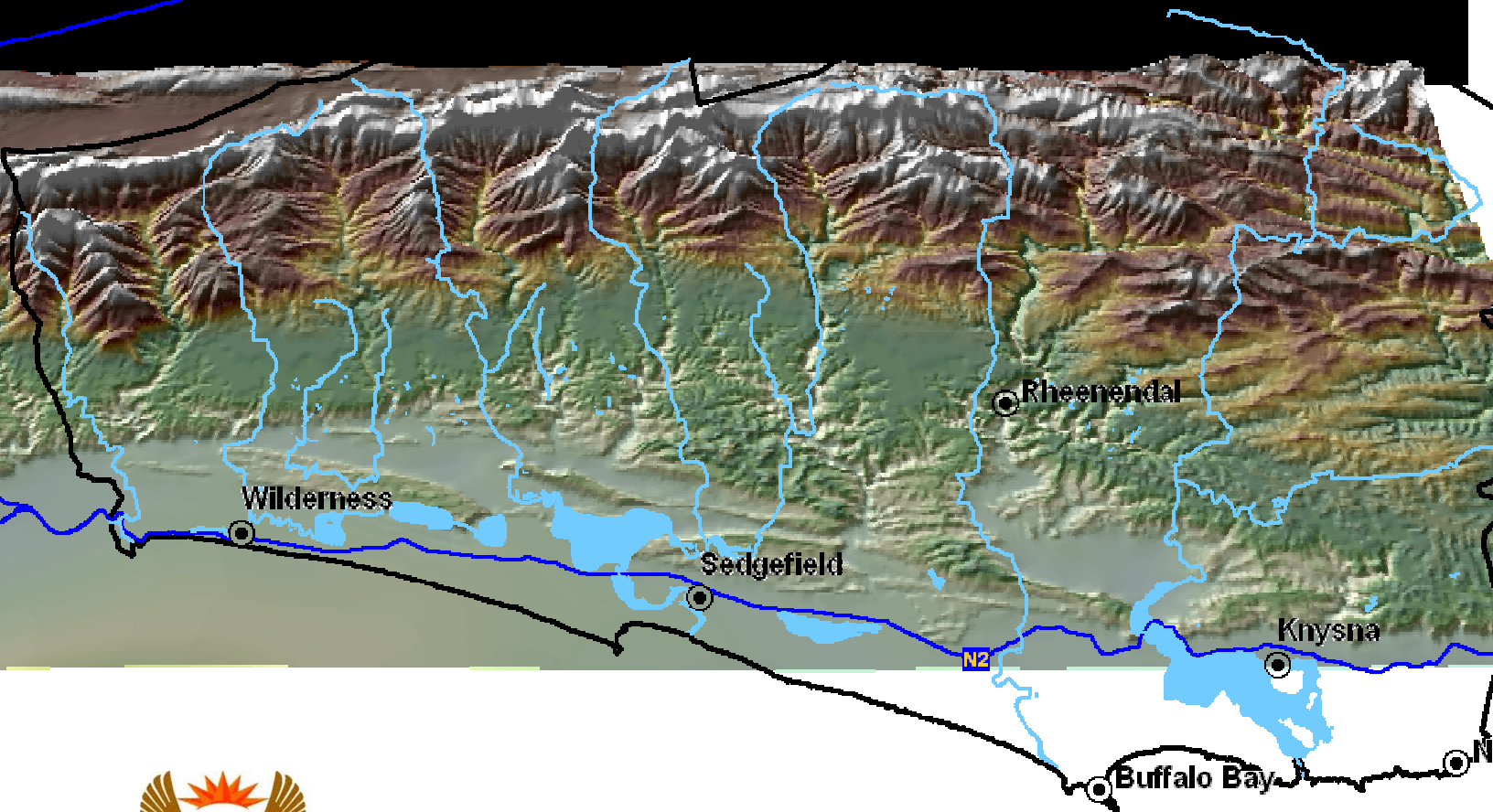


The Garden Route Environmental Management Framework



Garden Route: Environmental Management Framework Background Information Document

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Introduction

South Africa is currently experiencing a situation of accelerated economic growth, with the effects being noticeably felt on regional and local level. Similarly however, development pressures of urban areas are a continuous process of land use change over time. The Garden Route Area of the Western Cape Province is no exception with soaring property prices and an insatiable demand for development opportunities and development land. What makes development and expansion even more intricate in the Garden Route is its mosaic of inherent environmental, cultural and visual / aesthetic sensitivity within a geographically confined and diverse landscape.

The Department of Environmental Affairs and Tourism (DEAT) appointed earthINC, an independent service provider to develop a decision support tool in the form of an Environmental

Management Framework (EMF) for the selected geographical area (see location) within the Garden Route.

Purpose of the EMF

Due to significant development pressure in the project area, the volume of applications for environmental authorisation and the current poor basis for decision making the Directorate: Environmental Impact Evaluation of DEAT requires a decision support system to assist in making informed decisions regarding development applications. This will be specifically focused at environmentally sensitive areas, and the interphase with land use areas under the mandate of DEAT. The overarching purpose of the EMF must be to facilitate consistent and informed decision making in respect to development and environmental protection in an integrative manner across authority mandates.

The EMF will establish the general environmental sensitivity of the Garden Route, identify and highlight the environmental opportunities and constraints with respect to development, and establish control zones for the management of development in particularly sensitive areas. Control zones will be represented by guidelines which will assist in decision making, establishing priorities for a 'Desired State of the Environment'.

Technical Development of an EMF

Within the ambit of environmental management the EMF is intended to be a vehicle to assist in 'holistic' decision making

through the process of integration of various environmental management instruments to facilitate decision making holistically.

Conceptually the EMF must illustrate the following principles:

- Context specific: the EMF must be informed by the regional context within which the plan is being developed,
- Integrative: Integration of existing information and data, to avoid duplication, a repository of existing environmental and policy information ,
- Sustainable: The holistic focus of the EMF in terms of considering the 'larger picture' than just the consideration of individual and isolated development applications.

Technically the EMF is structured in the following 5 phases:

Phase 1: Baseline Information Collation (Database Component)

Existing baseline information will be collated with limited field verification. A plethora of information exists in various formats. One of the objectives of the EMF is the integration of existing information and the EMF will be a repository for decision making information.

Phase 2: Public Participation Process (PPP)

The intention of Public participation to inform potentially Interested and Affected Parties (I&AP) of the EMF, and to provide them opportunity to provide input into the process of establishing the EMF. The results of the EMF will be presented to the registered I&APs as well as general public is Open Day sessions.

Phase 3: Desired State of the Environment

Specific environmental aspects will be identified during the baseline and PPP processes. These will determine the framework of environmental objectives for the establishment of the 'Desired State of the Environment'. These objectives for environmental improvement, health and establishment of priorities will inform the development of a Strategic Environmental Management Plan, which will provide guidelines and strategies for the implementation of these objectives.

Phase 4: Environmental Control Zones

Based upon the inherent sensitivity of the Environment to specific development impacts critical focus areas will be identified. The opportunities and constraints with respect to environment / development conflict will be determined and illustrated spatially as **constraint zones**. These are the key elements to the EMF, and the purpose is not to assign specific land uses to land, but rather to indicate which land uses can generally be allowed, and the degree of assessment required.

Control zones are established as the main administrative instrument of the EMF. They will assist to focus the attention of the authorising agencies on the important areas and to streamline applications proposed in less sensitive areas. Similarly, they will reflect the norms and standards of the local community in respect to sense of place, and protection of ecologically sensitive areas and conservation features against inappropriate development.

Phase 5: Strategic Environmental Management Plan

The SEMP gives effect to the 'Desired State of the Environment' through the establishment of guidelines based upon management objectives for critical environmental components.

Based on the above the overall objectives of the EMF for the Garden Route is to:

- Develop the EMF for the geographical area as identified.
- Ensure that the EMF will indicate zones or areas suitable or not suitable for certain types of development based on the environmental sensitivity of the area.
- The EMF will contain sufficient GIS data/ information / layers to guide the relevant authorities with their decision in implementing the EIA regulations
- Stakeholders (including local government, provincial authorities , environmental interest groups, NGOs and CBOs and the general public) will be consulted in the development. Of the EMF.

Statutory Position & Mandate

The development and formulation of the EMF are subject to the statutory provisions provided for under Section 23 of the National Environmental Management Act, 1998, (Act no.107 of 1998), as defines the purpose of the section to "promote the application of

appropriate Environmental Management tools in order to ensure the integrated environmental management of activities. Section 24 provides for the mechanism to implement the application of the appropriate tools.

Section 24 (3) of NEMA provides for the Minister to compile information and maps that specify attributes of the environment in particular geographical areas, including the sensitivity index, extent, interrelationships and significance of such attributes which must be taken into account by every competent authority.

Section 24 (2) Provides for the Minister to identify:

(b) Geographical areas based on environmental attributes in which specified activities may not commence without environmental authorisation from the competent authority.

(c) Geographical areas based on environmental attributes in which specified activities may be excluded from authorisation by the competent authority.

(d) Individual or generic activities which may have a detrimental effect on the environment and in respect of which an application for an environmental authorisation must be made to the competent authority.

Section 24 (3) and Section 24 (2) specifically provides for the Minister to identify areas where an EMF can play a role.

The new EIA Regulations were promulgated on 21 April 2006 and came into effect on 3 July 2006. These regulations makes provision under Regulation 69 – 72 for the Minister to initiate the compilation of information and maps for a particular geographical area referred to in section 24 (3) of NEMA. It further enables the Minister to use and consider the information compiled in an Environmental Management Framework (EMF) for applications for environmental authorisation in a geographical area.

The mandate of DEAT is to ensure that the Lakes Area and specifically the land under the administration and protection of the South African National Parks (SANParks) are protected from development pressure, and in particular inappropriate development.

Under the above statutory provisions it is the intention of the DEAT that the EMF be adopted and gazetted.

The EMF will focus on the following legislation:

- NEMA (Act 107 of 1998)
- NEMAA (Act 8 of 2004)
- The South African Constitution (Act 108 of 1996)
- The NEMA EIA regulation Government Notices 385, 386 and 387 in term of chapter 5 NEMA, 1998
- NEMA Biodiversity Act and Protected Areas Act
- Coastal Management Bill
- Guideline documents by DEAT regarding EIA and IEM series
- Other documents and guidelines available
- EMP as required in terms of NEMA, PAA, 2003
- Spatial development frameworks and EMF frameworks
- Local authority strategic planning documents

Geographic Information Systems

The EMF is developed on a Geographic Information System (GIS) platform. A typical information layer approach is applied which integrates the various spatial information layers and establishes queries on data input providing applied scenarios.

How you can get involved...

The Public Participation Process is structured to provide Interested and Affected Parties as well as the general public opportunity to provide meaningful input into the development of the EMF. This Background Information Document (BID) forms part of this process and provides preliminary information with regards to the EMF. It is imperative that all I&APs register as part of the process to be taken into consideration in further process progress. It is envisaged that 3 open days will be conducted during the course of the EMF development particularly at phases 1, 3 & 4, and 5; at a convenient location in the Garden Route.

Please complete the registration form provided or forward your contact details and interest in the matter to the address as per the project details on page 4 of this BID.



Project Extent

The selected geographical area of this EMF is located between the Kaaimans River, in the west, to Noetsie, in the east. The shoreline in the south, to the State forest and Outeniqua Mountain watershed in the north. The towns of Wilderness, Sedgefield and Knysna will be included as well as parts of George and Knysna Municipalities. All the lakes managed by SANParks and provincial Nature Conservation are also included.

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Garden Route: Environmental Management Framework

I&APs REGISTRATION AND COMMENT SHEET



Please register as an Interested and Affected Party (I&AP) by completing this form AND return it **as soon as possible**

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South Africa

Cell: 083 456 6945 or Cell: 073 166 6212

Email: Info@earthinc.co.za

Title :	Name:	Surname:
Date:	Nature of Interest	
Postal Adress		
Area	Postal Code	
Tel:	Fax:	
Cell:	Email:	
Kindly List any comments, concerns or suggestions to be considered during the EMF process (You may attach an additional sheet of paper if required)		Please provide the details of any of your friends/ neighbours/colleagues or other parties that may be interested or affected by the proposed development.
	Title:	Name:
	Surname	
	Company Name:	
	Nature of interest	
	Tel:	
	Fax:	
	Cell:	
	E-mail:	
	Thank you for participating	
	Please be assured that your comments Will be submitted to the deciding authority and will form part of the final EMF document	



Garden Route

Environmental Management Framework

EMF Report

January 2010

Produced for:

Department of Environmental Affairs and Tourism

In association with

Western Cape Department of Environmental Affairs and
Development Planning

Produced by:



earth **inc**

environment + development consultants

in association with:



CNdV africa

An aerial photograph of a coastal highway interchange. The highway, with multiple lanes, curves through a lush green landscape. In the foreground, a large, multi-level interchange is visible. To the right, a sandy beach stretches along the coast, with white-capped waves crashing onto the shore. The ocean is a deep blue, and the sky is clear. The overall scene is a mix of natural beauty and infrastructure.

Section A

INTRODUCTION



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Section A: Introduction

1. INTRODUCTION TO THE EMF DOCUMENT

1.1. Project Background

Environment, and specifically the sensitivity of the environment was historically never considered or integrated into framework legislation. The Environment Conservation Act, Act 73 of 1989, made provision for the identification of a list of activities which may have a detrimental effect on the environment, and for which some sort of assessment must be conducted before authorisation can be granted.

The National Department of Environmental Affairs and Tourism promulgated the revised Environmental Impact Assessment regulations in terms of Section 23 of the National Environmental Management Act, Act 107 of 1998 (NEMA), which replaced the 1997 EIA Regulations.

Section 23 of NEMA defines the purpose of this chapter as to “promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities ¹” whereas Section 24 of NEMA makes provision for the various mechanisms to implement the application of the appropriate tools.

Section 24 (3) of NEMA enables the Minister to compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationships and significance of such attributes which must be taken into account by every competent authority.

Further to the above Section 24 (2) provides for the identification of:

¹ Activities as defined by NEMA include policies, programmes, plans and projects

- (b) Geographical areas based on environmental attributes in which specified activities may not commence without environmental authorisation from the competent authority.
- (c) Geographical areas based on environmental attributes in which specified activities may be excluded from authorisation by the competent authority.
- (d) Individual or generic activities which may have a detrimental effect on the environment and in respect of which an application for an environmental authorisation must be made to the competent authority.

The integrated environmental management tool or mechanism which facilitates and underpins the implementation of section 24 (2) of NEMA is in concept, and technical theory the Environmental Management Framework (EMF). Although the EMF is considered by many as being the panacea for addressing environmental degradation, and the promise of integration of environmental sensitivity into future planning, it must be understood that the system can only be as proficient as the input data. Similarly, policy intervention and political will, will still determine to a large extent the full utilisation and acceptance of any particular EMF.

This particular EMF has been developed as a direct response to a specific set of drivers and pressures. The National Lakes Area, commonly known and referred to as the Garden Route, is characterised as such due to its' outstanding scenic quality and beauty. Similarly, the unique coastal lake systems, indigenous forests and rugged coastline, comprise an extensive network of protected areas; South African National Parks and Provincial Nature Reserves, often interspersed by urban development. It is this feature which makes the area unique; the juxtaposition between urban development on the doorstep of conservation areas of national, and international importance. This position makes the area complex from a management perspective.² In many instances EMFs are developed for areas which are not under any foreseeable development and degradation threat, and where the drivers for conducting the EMF are not clear. On the contrary, this EMF is being conducted as a response to the

² The Table Mountain National Park is the other National Park located within a developed urban landscape.

conflict between the development, perceived and entrenched land owner rights, and conservation requirements, as well as the need for economic growth. This approach requires a high level mechanism which establishes a management framework which will not only address long term conservation planning issues, but will facilitate and support development decision making on a local, provincial and national level. The administrative mandate of the National Department of Environmental Affairs and Tourism (DEAT) is the management and protection of the South African National Park system through SANParks. The development and urbanisation pressures on the National Parks comprising the National Lakes Area is clearly evident establishing the driver for the development of this EMF. Similarly, the uniqueness of the area is attributed to the sensitivity of the National Park system, topographical and scenic beauty, rural and agricultural sense of place, the lakes themselves, coastal frontage, indigenous and monoculture forests, small protected residential enclaves (villages), and large tracts of undeveloped landscape. It is obviously this attraction and perceived quality of life that has become a significant real estate marketing and selling approach over the past decade, with property prices reaching some of the highest in South Africa. This apparent demand has placed significant pressure on the Garden Route, from a land use, conservation, Genus Loci and resource utilisation perspective, fuelling the development of exclusive golf and lifestyle estates across the area, and numerous applications in process. The long term and cumulative impact of large scale land use and landscape character change is of great concern to local, provincial and national authorities, as well as the exacerbated direct and peripheral (edge effects) impact on the National Park system. With unchecked and uncontrolled development the Garden Route could very easily lose its appeal and attraction. Within this framework the Garden Route EMF will attempt to integrate decision making in support of the provisions of NEMA, and relevant local and provincial spatial planning imperatives without compromising the inherent sensitivity of the environment.

In an effort to address the abovementioned environmental related concerns the Department of Environmental Affairs and Tourism (DEAT) in consultation with the Western Cape Department of Environment and Development Planning (WCDEADP), the Eden District Municipality and the local authorities of George and Knysna, have

embarked on a process to develop an Environmental Management Framework for the Garden Route : National Lakes Area.

This document consists of the following sections, namely:

- Preface (Section A);
- Introduction (Section B);
- Status Quo (Section C).

1.2. Project Locality

The selected geographical area of this EMF is located between the Kaaimans River, in the west, to Noetsie, in the east. The project area extends to the shoreline in the south, and northwards to the State forests and Outeniqua Mountain watershed. The towns of Wilderness, Sedgefield and Knysna are included as well as parts of the George and Knysna Municipalities. All the lakes managed by SANParks and Cape Nature are included.



Figure 1 Project Study Area (demarcated in yellow)

The Knysna Municipality Area (KMA) is characterized by the Outeniqua Mountains, numerous hills, forests, dunes, rivers and estuaries. The town of Knysna is situated within a

natural amphitheatre bounded by a coastal plateau to the south and low, undulating hills to the east, north and west. The average elevation above sea level is approximately 220 metres. The amphitheatre is divided by the Knysna Lagoon which enters the Indian Ocean through the steeply sided Knysna Heads (SRK 1997 in Knysna Knysna Municipality , 2005).

The Municipal area of George is 1 068 square kilometres in extent and includes George, Wilderness, Herold's Bay, Victoria Bay, and Kleinkrantz, as well as the rural areas of Wilderness East, Geelhoutboom, Herold and Waboomskraal.

1.3. Purpose of the EMF

The core purpose and functioning of this EMF is to establish a framework and mechanism to support informed environmental decision making for the purposes of environmental impact management. These provisions are entrenched in the relevant sections of NEMA, which similarly establishes a procedure for the statutory adoption of the EMF through the gazetting process.

2. APPROACH AND METHODOLOGY

2.1. Introduction

A New Approach

The Environmental Management Framework proposes a need for a common approach and methodology to establish social equity and ecological parity in land use decision making. The EMF must be able to transcend disciplinary territoriality and be applicable and implementable at all levels of government, incorporating both social and environmental issues and concerns. It proposes an approach that can assist in establishing a platform and framework for informed decision making, and analyse the problems of a region as they relate to each other, to the landscape, as well as the local political economic structure. The EMFs are based upon the use of biophysical and socio-cultural information to suggest opportunities and constraints for decision making

about the use of the landscape, whereby the region is understood as a biophysical and social process comprehensible through the operation of laws and time. This can be interpreted as having explicit opportunities and constraints for any particular human use. The EMFs will reveal the most fit locations and processes.

McHarg the father of "Overlay Planning", the philosophy upon which the EMFs were developed in the late 1990's summarised the approach as follows:

"All systems aspire to survival and success. This state can be described as syntropic-fitness-health. Its antithesis is entropic-misfitness-morbidity. To achieve the first state requires systems to find the fittest environment, adapt it and themselves. Fitness of an environment for a system is defined as that requiring the minimum of work and adaptation. Fitness and fitting are indications of health and the process of fitness is health giving. The quest for fitness is entitled adaptation. Of all the instrumentalities available to man for successful adaptation, cultural adaptation in general and planning in particular, appear to be the most direct and efficacious for maintaining and enhancing human health and well-being (1981, 112-113)".

Arthur Johnson further elaborates on this philosophy as, "the fittest environment for any organism, artefact, natural and social ecosystem, is that environment which provides the (energy) needed to sustain the health or well-being of the organism / artefact / ecosystem. This approach is not limited by scale."

The EMFs primarily study the biophysical and socio-cultural systems of a geographically defined area to reveal where specific land uses may best be practiced.

The approach of the EMF is intrinsically suited in sustainability. The best-known definition of sustainable development was promulgated by the World Commission on Environment and Development (WCED) or better known as the Brundtland Commission, as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs". A more comprehensive definition was provided by the US National Commission on the Environment, as "a strategy for

improving the quality of life while preserving the environmental potential for the future, of living off interest rather than consuming natural capital. Sustainable development mandates that the present generation must not narrow the choices of future generations but must strive to expand them by passing on an environment and an accumulation of resources that will allow its children to live at least as well as, and preferably better than, people today. Sustainable development is premised on living within the Earth's means."

Ecological planning and design is the capacity to understand the ecological context within which humans live, to recognise the limitations, and ensure that limitations are not exceeded.

The environment is both a source and a sink, but its capabilities to provide both resources and to assimilate wastes are not limitless." The EMF approach makes reference to biophysical, sociological, planning and policy imperatives, and the integration of these. The following sections elaborate on the stages and technical content of the development of a typical Environmental Management Framework.

2.2. The EMF Philosophy

The development and compilation of an EMF can be divided into two major sections, namely the technical development and public awareness and involvement process. Both are inextricably linked. Previous environmental planning processes disregarded the valuable input provided by the public and participation processes. Inherently the EMF addresses land use conflict aspects of a geographical area through the integration of biophysical, social, economic, statutory and policy requirements. Environmental Management Frameworks are conducted or developed in a response to a specific environmental problem; or as a counter, measure or control to determine the potential impact of a policy, plan or programme.

In the case of the former the EMF is predominantly focused and developed as a response to a significant environmental problem, such as; development pressure on

sensitive ecological areas, land use conflict areas, resource conservation, amongst others. In the latter the EMF is developed on the basis of a neutral information input. The EMF functions as a platform or framework against which planning policy, programmes (Strategic Development Frameworks and other local authority planning frameworks) and land use decision making can be gauged with respect to environmental sensitivity, rights and responsibilities.

The EMF is composed of the following core philosophical development steps;

Step 1: Identification of Environmental and Planning Problems and Opportunities

As described above, in most instances the EMF is developed as a response to a critical environmental issue. The landscape is the interface between social and environmental processes. The EMF strives to address those issues concerning the interrelationship between humans and the receiving environment. Problems and opportunities obviously lead to specific environmental conflicts. This is illustrated by development on high potential agricultural land, development and conservation conflict, as well as development pressures on scenically located towns and hamlets.

Step 2: Establishing Policy Outcomes

As a democracy it is imperative that cognisance is taken of the issues identified in the political and administrative arena. Issues affecting a region are noted and identified, and goals are established to address the issues. These goals provide the platform and the framework for future land use and planning decisions.

Step 3: Regional level landscape planning and analysis

A logical geographical area is defined and identified to address the environmental problems spatially. As eluded to in step 1; the affected area is a landscape illustrating an interrelationship between social and environmental processes. Differing scale levels are applied, which is consistent with the levels of organisation as used by ecologists, where each scale level has its own unique properties. Similarly, what is considered a 'whole' on one level are reduced to parts on a 'higher' level. This is

illustrated by watersheds being the operative organisational level for landscape and ecosystem analysis, where drainage basins and finer catchment areas are useful levels for assessing landscape planning and natural resource management.

Step 4: Landscape level planning and analysis

The processes and interactions on a finer, more defined area are studied. The objective is to obtain a clear overview and insight into the natural and social processes influencing the study area. These are viewed as specific elements in the system, with the landscape as a visual expression of the system. The analysis of, and establishment of applicable and accurate baseline information is imperative forming a repository of appropriate physical, biological, and social elements comprising the study area, an interdisciplinary collection effort. Numerous information models and land classification systems exist from the McHarg layer-cake model to the UNESCO inventory. Illustrated below is a tabularised format of the McHarg layer-cake model.

Figure 1: Baseline natural resource categories

Resource Category	Resource Feature
Climate	<ul style="list-style-type: none"> • Temperature • Humidity • Precipitation • Wind velocity and direction • Inversions
Geology	<ul style="list-style-type: none"> • Rocks • Ages • Formations • Seismic activity • Rock slides • Mud slides
Soils	<ul style="list-style-type: none"> • Soil associations • Soil series

- Properties
- Depth
- Shrink-swell soils
- Compressive strength
- Agricultural potential

Groundwater hydrology

- Geological formations
- Aquifers
- Boreholes and wells
- Water quantity and quality
- Water table

Terrain and landscape

- Physiographic regions
- Features
- Contours
- Slope and aspect
- DTM
- Scenic landscapes

Surface hydrology

- Wetlands
- Rivers
- Streams
- Marshes
- Floodplains
- Spruits

Vegetation

- Types
- Associations
- Communities
- Species
- Compositions
- Rare and endangered species

Fauna

- Habitats

- Animal populations
- Rare and endangered species
- Distribution

Human elements

- Ethnographic history
- Settlement patterns
- Existing land use
- Existing infrastructure
- Population characteristics
- Economic activities
- Pollution and sources

Policy imperatives

- Strategic development frameworks
- Integrated Development Plans
- Government development priorities

Step 5: Details assessments

Detailed assessments entail typical suitability analyses. Suitability assessments are used to determine the fitness of a specific area for a variety of land uses based upon the baseline inventories and the values and inherent characteristics of land uses of the area, as well as the cumulative sensitivity illustrated through the integration of the information as per step 4 above. There are numerous methodologies for conducting suitability analyses, McHarg popularised the technique of 'overlaying' baseline data, assigning sensitivity weighting to individual criteria and integrating / superimposing the data on one another spatially. The result is a spatial representation of cumulative environmental sensitivity, and to identify opportunities and constraints for particular land uses.

Step 6: Development of Concepts, Options and Choices

In this stage priorities area identified and established. These priorities are best viewed as options for the future (i.e. Desired State of the Environment) based on the suitability for

the use that provide a general conceptual model or scenario of how problems may be solved. It is the establishment of goals and objectives. These priorities are logical and imaginative and are identified from the output of stages 4 and 5. The priorities provide the framework for establishing criteria for the future management and intervention in a specific project area, providing further platform for discussion where communities and authorities make decisions regarding their futures. The priorities inherently should illustrate a selection of choices, for varying land use options best fit for the respective environment and location.

Step 7: Plan and Design Implementation

Preferred options, priorities and plans are consolidated in a single management framework. The framework provides a strategy for the implementation of the identified priorities and development at the local scale. It provides for flexible guidelines for policy makers, land managers, competent authorities and land users on how to conserve, rehabilitate, or further develop an area. Changes over time in economic structure and social demands need to be taken into account in the use of the framework. The framework will include policy intervention and imperatives, as well as implementation strategies and a spatial representation of the management areas. In applying the framework the short-term benefits derived by land users and citizens have to be combined with the sustainability principles of long-term economic and ecological goals for the whole area.

Implementation employs various strategies, mechanisms and tools. Similarly, implementation should be underpinned by some form of legislative and statutory provision to ensure, especially within the South African context, that the framework is implemented and adhered to. On the local level different mechanisms exist to control the use of land and resources. They include legislative mechanisms such as zoning, environmental authorisation processes, strategic development frameworks / plans, and existing development rights.

Step 8: Administration and Monitoring

Administration requires implementation and monitoring of the framework on an ongoing basis and ensuring that the relevant and required updating of variable data occurs. Invariably to achieve the goals and objectives of the process, the implementation authorities (competent or delegated) should pay attention to the design of regulation review procedures and of the management of the decision-making process.

2.3. The EMF Methodology

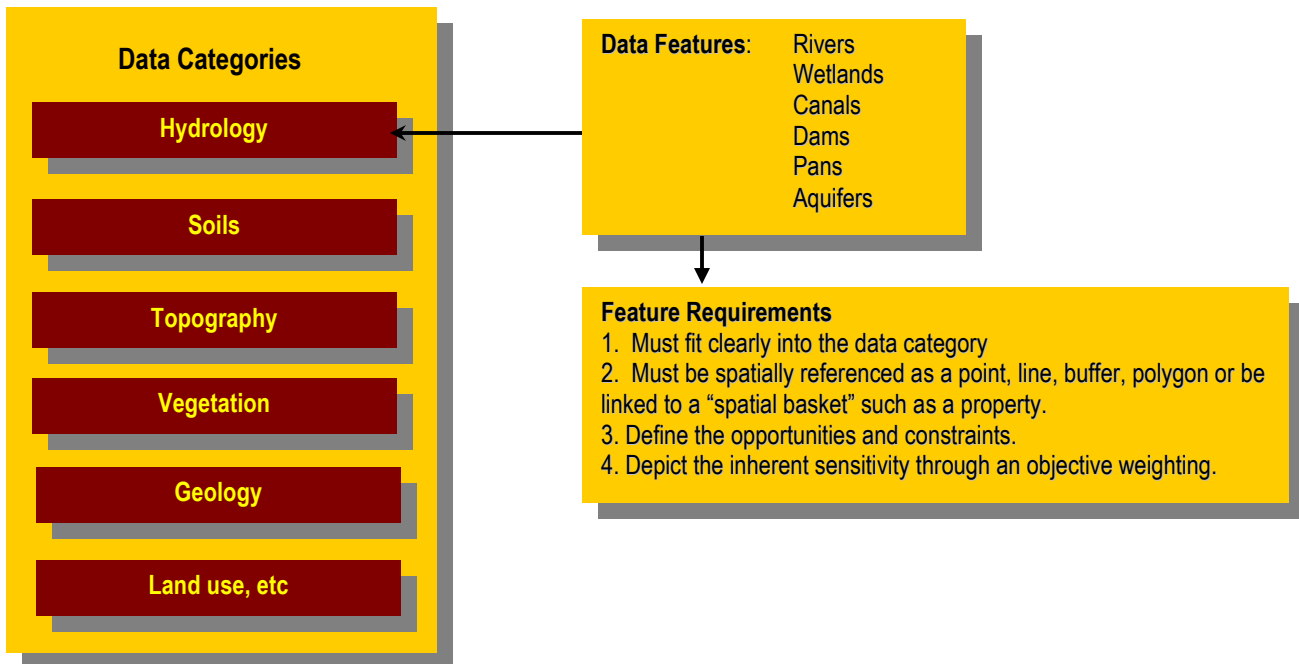
The technical approach to the development of the Environmental Management Framework can be categorised into the following components, bearing in mind the philosophy behind this development as described above:

1. Status Quo Assessment

Baseline Evaluations

Accurate and relevant baseline information is imperative to the successful spatial analysis and determination of applicable environmental opportunities and constraints. Garbage in, garbage out, rings true to the overall effectiveness, acceptability and implementability of the EMF. The Status Quo assessment forms the repository of all biological, physical, social and economic data, and where applicable and possible is represented spatially. The spatial mapping of baseline information constitutes the framework and platform upon which the EMF is further developed. The following diagram illustrates the various levels of information input and the interphase and relationship between the descriptive analytic data.

Figure 2 : Baseline Data Input



Data Categories and Features

The spatial data is arranged into broad data coverage categories. Data categories of a typical EMF include:-

Coverage Types for Predominantly "Green" Issues

- Geology
- Soils
- Topography / Terrain Morphology / Landscape Character Classification
- Hydrology / Geo-hydrology
- Vegetation
- Habitat Integrity Classification (based on principles of landscape ecology and including linkages)

Coverage Types for Predominantly Social Issues

- Cultural / Historical Landscape
- Sensitive Environmental Features (including visual landscape classification and special environmental features)

Coverage Types for Predominantly Brown/Grey Issues

- Land Use
- Land Cover
- Potential Pollution sources (including industrial parks and precincts, waste disposal sites / landfill sites, mining and quarrying activities, sewage treatment works and filling stations)
- Infrastructure
- Spatial planning priorities

Feature Status and Weighting

The status of each of the features is determined through legislative requirements, accepted norms and quality standards, as well as through technical and specialist input. The status of a feature will determine the type and extent of the management intervention required. Feature status can be improved through the establishment of stringent management requirements (parameters/responses). The weighting of each individual feature where possible should illustrate the features inherent sensitivity to development pressure or resilience to change. In order to retain a certain degree of objectivity the band or spectrum of weighting is kept narrow, as follows:-

Figure 3 : Feature Value Criteria

Weighting	Description	Sensitivity
-1	The inherent feature status and sensitivity is already significantly degraded. Any significant environmental – development change will not influence the current status.	Low / poor
0	The inherent feature status and sensitivity will not be influenced by any significant environmental – development change.	Undetermined
+1	Environmental – development change will influence the current status of the feature, either	High

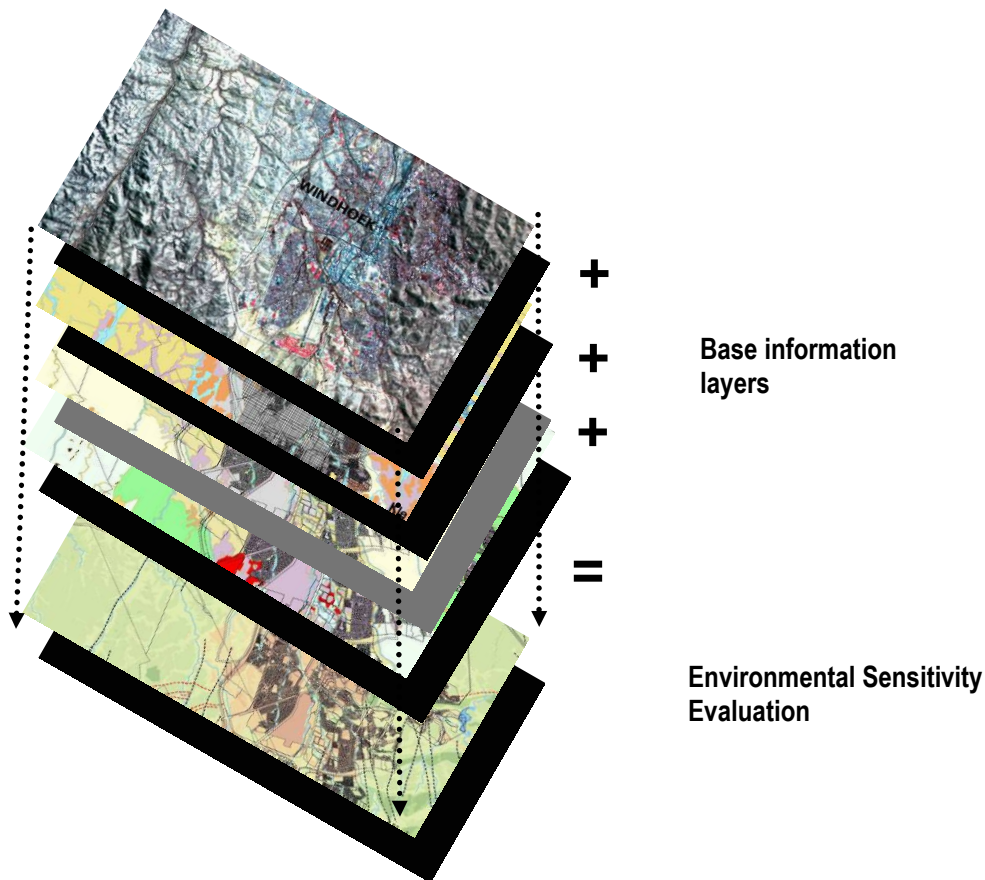
+2	<p>negatively or positively.</p> <p>Environmental – development change will significantly influence the feature, either negatively or positively.</p>	Very high
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Environmental Sensitivity Analysis

The Environmental Sensitivity Analysis is the product of the integration of the various baseline information layers as defined in the project Status Quo assessment, after assessing it in terms of current policies and discussions with key stakeholders. As depicted above the status of each of the features are allocated a weighting, or value. The subjectivity regarding the allocation of weighting is largely removed through the use of acceptable scientific knowledge. An environmental sensitivity evaluation, represented spatially in the EMF, comprises the integration of all the data categories and features. The specific feature weightings determine the level of environmental sensitivity, which ranges as low, medium, high and very high.

In this stage of the EMF baseline information is transformed into secondary information that attaches value to different features. The following figure illustrates the data integration process of baseline data to depict overall environmental sensitivity.

Figure 4 : Environmental Sensitivity Evaluation



2. Desired State of the Environment

The analysis and evaluation of the baseline information, issues raised throughout the Public Participation Process, and authority requirements identifies and provides basis for the establishment of environmental priorities. These priorities are expressed through a 'Desired State of the Environment' statement which underpin the objectives of the EMF. Further these objectives will establish principles on how the environmental resource should be managed to improve its environmental status. Priorities will be typically focused around critical environmental conflict points and will include:

- Conservation priorities
- Protection of cultural and heritage landscapes
- Natural resource protection

- Land use planning conflict priorities
- Amongst others

3. Environmental Constraint Zones - figure 5

These can also be considered environmental sensitivity zones, or land use opportunity and constraint zones. Environmental Constraint Zones are spatial representation of the critical environmental aspects identified in the foregoing processes. Further, Environmental Control Zones determine the fitness and environmental suitability of a specific area for certain types of development based upon the baseline inventories and the values and inherent characteristics of land uses of the area, as well as the cumulative sensitivity illustrated through the integration of the information as per step 2 above. The result is a spatial representation of land use opportunities and constraints for particular land uses. The following illustrates individual category constraint zones and the final integrated environmental constraint zone which illustrates the cumulative integration of each respective constraint category.

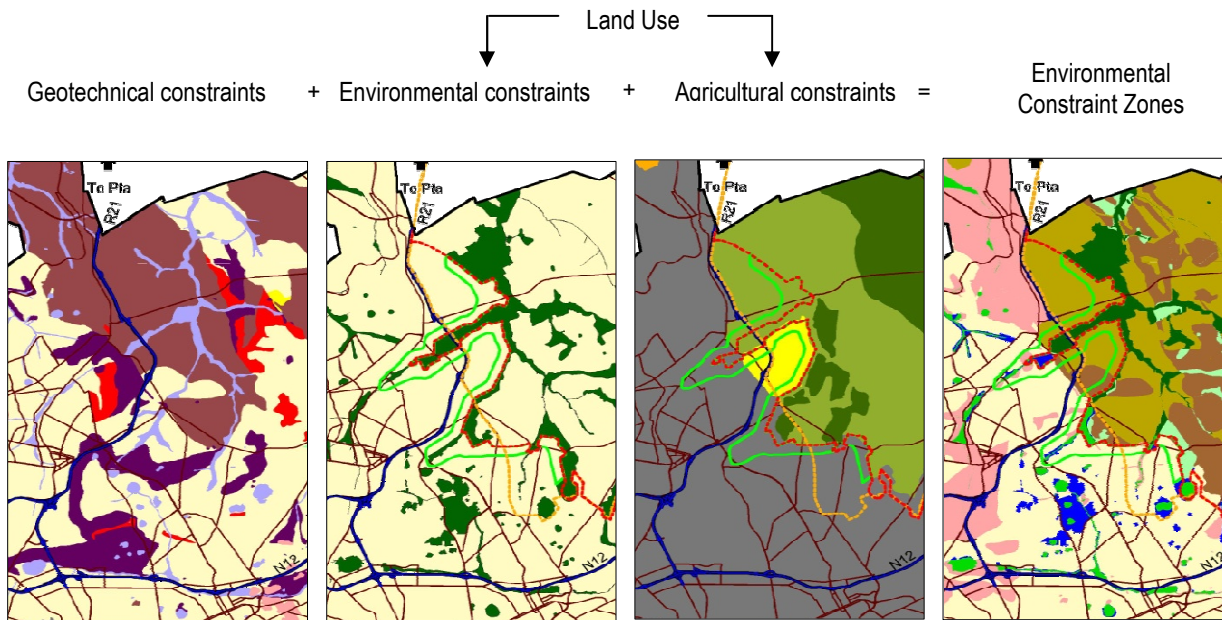
4. Environmental Control Zones

The purpose of Environmental Control Zones is to focus attention of the relevant authority on the important areas and to try facilitate effective decision making. Environmental Control Zones will also streamline applications for proposed activities in less sensitive areas. These zones are administrative in nature and are based upon the degree of sensitivity illustrated by the cumulative environmental constraint zone. Control zones are typically defined as:

- High control zone
- Medium control zone
- No to low control zone.

The control zones will similarly to 'red flag' critical environmental areas and ensure that any development applications lodged in these areas adhere to the management criteria. The supporting analysis tools include the use of matrices which 'map' the interrelationship between selected land use criteria and environmental conflict.

Figure 5 : Environmental Constraint Zones



5. Strategic Environmental Management Plan

The purpose of the Strategic Environmental Management Plan (SEMP) is to link management requirements to each of the environmental control zones. The SEMP is not prescriptive in terms of land use and does not indicate which land uses must occur in which zones. Rather, the SEMP indicates specific minimum environmental requirements, through management parameters, which have to be met satisfactorily before approval of a development application should be considered. Similarly the SEMP indicates the level of assessment expected and required in the specified zone/s. The SEMP should also be used as the environmental input for the LDO and IDP processes. The SEMP introduces a risk adverse approach to development planning decision-making. It fulfils the requirements of the environmental management mandates of DEAT and the WCDEA&DP, while it does not impose land uses on the planning mandate of the local authorities. The SEMP in effect establishes performance standards or criteria which must be met before a certain use will be permitted. These criteria usually involve a combination of economic, environmental, and social factors.

This leads itself to ecological planning criteria for specific land uses based on sustainability principles and suitability / fitness analyses.

2.4. The Role of GIS

The philosophy of overlaying spatial information layers originated as a manual paper system with the McHarg 'overlay' approach in the 1960's. This process was limited by the level and amount of spatial layers which could be 'overlaid'. With the dawning of the electronic and computer age this approach was significantly improved through the application of Geographic Information Systems (GIS) where the old laborious paper system was replaced by electronic data integration technology. Through the continual improvement of electronic technology and digital systems the current GIS platforms are able to integrate and process complex spatial information comprising multiple layers. Similarly, the current systems are able to provide a seamless integration between spatial and alpha-numeric (text and numerical) data. Current systems are also capable of running complex queries, such as defining overarching environmental sensitivity, and the various constraint and control zones required in an EMF.

3. LEGISLATIVE FRAMEWORK

3.1. REVIEW OF LEGISLATION

3.1.1. Introduction

It is important to understand the legislative and statutory framework within which the EMF should function. The following section provides the environmental legislative framework and contextualisation of the EMFs as well as alluding to other legislation which may have an influence on the implementation of the EMF, and visa versa.

This review further provides an understanding of the mandates and duties of a National, Provincial and Local Government Authority in the development and adoption of the Environmental Management Framework for the Garden Route : National Lakes Area.

The former parts of this section alludes to the powers, functions and duties of the various tiers of government in establishing the legal mandate and jurisdiction to develop and implement an EMF, while the latter part depicts the applicable environmental legislation relevant to the development of an EMF.

3.2. Background

The Eden District Municipality and the local authorities of George and Knysna currently do not have an EMF in place. It is currently not a prerequisite for any authority to conduct an EMF, although it is a legislative requirement to conduct the relevant environmental assessment for a listed activity. It is purely by discretion that an authority will commission the development of an EMF, and as mentioned above in most instances triggered by environmental conflict issues.

The EMF is one of the many spatial development tools (a spatial description of environmental attributes, development activities and development patterns and its relation to one another) that can be used to assist in achieving integrated environmental management. An EMF can be defined as a set of information that can be used by decision makers to assist them in determining the best approaches (either procedural and/or technical) to dealing with a variety of environmental challenges.

The EMF can also help to identify what range of factors needs to be taken into account in specialist studies undertaken as part of Environmental Impact Assessments (EIAs) for various development proposals. In addition, EMFs can indicate where different types of development are suitable or unsuitable for different kinds of environmental sensitivity.

The EMF has been endorsed by the Minister as one of the spatial decision support tools that can successfully be used to assist in forward planning, land use management and building control processes within the jurisdictional area of the Garden Route, since an EMF will certainly be complementary to the provincial SDF. The SDF guides spatial development in the Western Cape, specifically promoting integrated consideration of the Eden municipal areas.

3.3. PROVISIONS OF THE CONSTITUTION

The powers, functions and responsibilities of the various tiers of government must be reviewed in the context of the constitutional powers, functions and responsibilities of the different tiers of government and how these tiers interact with each other.

3.3.1. Constitutional arrangements in respect of the different tiers of government

Since 1994 a process designed to achieve the programmatic transformation of provincial government was initiated. Legislators sought to ensure the development of a system, which would facilitate the active participation of provincial government within the broader democratic context and which emphasizes the essential roles of local government in the economic and social development priorities of the country. This policy direction was encapsulated in the Constitution of the Republic of South Africa Act 108 of 1996 ("the Constitution").

The Constitution acknowledged the need to create a legislative framework, which would enable the transformation of local government in keeping with its constitutional imperatives. Amongst other things, the Constitution of the Republic of South Africa deals with matters of governance.

3.3.2. Spheres of Government

In terms of Section 40, government is constituted as national, provincial and local spheres of government. These spheres are distinctive, inter-dependent and inter-related and must observe and adhere to the principles in Chapter 3 of the Constitution and conduct their activities within the parameters that the Chapter sets out. Chapter 3 deals with the notion of "co-operative governance".

Section 41, in Chapter 3 of the Constitution provides that all spheres of government and all organs of State within each sphere must –

- preserve the peace, national unity and the indivisibility of the Republic;
- secure the well-being of the people of the Republic;

- provide effective, transparent, accountable and coherent government;
- be loyal to the Constitution, the Republic and its people;
- respect the Constitutional status, institutions, powers and functions of government in the other spheres;
- not assume any power or function except those conferred on it in terms of the Constitution;
- exercise its powers and perform its functions in a manner that does not encroach on the geographical, functional or institutional integrity of government in another sphere; and
- co-operate with other spheres of government in mutual trust and good faith."

3.3.3. National Sphere

The provisions relating to national legislative authority are set out in Section 44 of the Constitution. The Constitution confers on the National Assembly the power to:

- amend the Constitution;
- pass legislation with regard to any matter excluding a matter within the functional area listed in Schedule 4; and
- assign any of its powers, excluding the power to amend the Constitution, to any legislative body in another sphere of government.

The national executive may, however, intervene in the executive affairs of a province where the province cannot or does not fulfil an obligation imposed in terms of legislation or in terms of the Constitution (Section 100 of the Constitution). The national executive may issue a directive to the provincial executive requiring it to take stated steps to meet its obligations within a stated time or it may assume responsibility for that obligation where such assumption is necessary:

- maintaining essential national standards or meeting established minimum standards for the rendering of a service;

- maintaining economic unity;
- maintaining national security; or
- preventing the province from taking unreasonable action that is prejudicial to the rights and interests of another province or the country as a whole.

Therefore, where national government has set norms and standards, and provincial or local government fails to comply with such norms and standards, national government may intervene to ensure compliance. In the context of integrated environmental management, any norms or standards set by national government would have to be applied by provincial and local government.

3.3.4. Provincial Sphere

The powers listed in Schedule 5 are those over which provincial government has exclusive competence. In terms of Section 104 of the Constitution, the Provincial Legislatures have the power to:

- pass a constitution for the province and to amend that constitution;
- pass legislation for the province with regard to any matter within a functional area listed in Schedule 4 or Schedule 5, any matter outside those functional areas that is expressly assigned to the province by national legislation or any matter for which the provisions of the Constitution envisages the enactment of Provincial Legislation; and
- assign any of its legislative powers to a Municipal Council in the province.

National government is not competent to legislate on these matters unless such intervention in the province's area of competence is necessary to:

- maintain national security, economic unity or essential national standards;
- establish minimum standards required for the rendering of services; or
- prevent unreasonable action being taken by a province which is prejudicial to the interests of another province or the country as a whole.

In the context of integrated environmental management, national government may legislate to set minimum standards in respect of areas over which provincial government has exclusive competence. Provincial and local government would be required to comply with such standards and administer compliance.

3.3.5. Local Government Authorities / Municipalities

Chapter 7 of the Constitution deals with local government (municipalities). A municipality has the right to govern, on its own initiative, the local government affairs of its community, subject to national and provincial legislation. The objectives of local government are to -

- provide democratic and accountable government for the local community;
- ensure the provision of services to communities in a sustainable manner;
- promote social and economic development;
- promote a safe and healthy environment; and
- encourage the involvement of communities and community organisations in the matters of local government
- manage its administration and budgeting and planning processes to give priority to the basic needs of the community and participate in national and provincial development programmes (Section 153 of the Constitution).

3.3.6. Powers and Functions of Local Government Authorities / Municipalities
A municipality has executive authority in respect of and the right to administer the local government matters listed in Part B of Schedules 4 and 5 of the Constitution or any matter assigned to it by national or provincial legislation. A by-law that conflicts with national or provincial legislation is invalid (Section 156(3)). A municipal by-law may be enforced only after it has been published in the official Gazette of the relevant province (Section 162 of the Constitution).

3.3.7. Obligations of National and Provincial Government in respect of Local Government

In terms of Section 154 of the Constitution, national and provincial governments must support and strengthen the capacity of municipalities to manage their own affairs,

exercise their powers and perform their functions. National or provincial legislation that affects the status, institutions powers or functions of local government must be published for public comment before being introduced in such a manner that allows organised local government municipalities and other interested persons an opportunity to make representations with regard to the draft legislation.

National government and provincial governments must assign to a municipality the administration of any matter listed in Part A of Schedule 4 or Part A of Schedule 5 which necessarily relates to local government if that matter would be most effectively administered locally and the municipality has the capacity to administer it.

3.3.8. Concurrent Legislative Competence

The powers listed in Schedule 4 are those over which national and provincial government have concurrent legislative competences. These include air pollution, environmental management, municipal health services, and storm water management systems in built-up areas, water and sanitation services, water supply systems and domestic wastewater and sewage disposal systems.

National and provincial government have concurrent rights to legislate on these powers and functions and the executive authority to monitor the performance of municipalities in respect of these powers and functions. In the event of a conflict between national and provincial legislation falling within a functional area set out in Schedule 4 of the Constitution, national legislation that applies to the republic as a whole will prevail if:

- it deals with a matter that cannot be regulated effectively by provincial legislation;
- it deals with a matter that, to be dealt with effectively, requires uniformity across the nation and it provides that uniformity by establishing norms and standards, frameworks or national policies; or
- ***it is necessary for, amongst other things the protection of the environment.***

Therefore, national legislation on the topic of protection of the environment will always trump provincial legislation and, if it is to be effective, provincial legislation must comply with national legislation on this topic. Furthermore, any national legislation setting norms or standards will trump provincial legislation provided that such norms and standards are necessary to effectively regulate any matter.

3.3.9. Inter-Governmental Relations

Section 41(2) provides that an Act of Parliament must establish or provide for structures and institutions to promote and facilitate inter-governmental relations and provide for appropriate mechanisms and procedures to facilitate settlement of inter-governmental disputes. Organs of State involved in inter-governmental disputes are obliged to take every reasonable effort to settle the dispute by means of mechanisms and procedures provided for that purpose. All other remedies must be exhausted before an organ of State approaches a court to resolve a dispute.

When a municipality cannot or does not fulfil an executive obligation in terms of legislation, the relevant provincial executive may intervene by taking any appropriate steps to ensure fulfilment of that obligation (Section 139 of the Constitution). It may issue a directive to the municipal council describing the extent of the failure to fulfil its obligations and stating any steps required to meet its obligations.

3.3.10. Access to Information

There is a strong link between environmental law and administrative law. This is because administrative law is essentially concerned with administrative decision-making and environmental conflicts invariably turn on the exercise of administrative decision-making powers.

3.4. ENVIRONMENTAL STATUTES RELEVANT TO THE DEVELOPMENT OF AN ENVIRONMENTAL MANAGEMENT FRAMEWORK

3.4.1. Legislative and policy framework

The Constitution of the Republic of South Africa (Act 108 of 1996)

Section 24 of the Constitution, guarantees everyone the right:

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

Section 24(a) of the Constitution guarantees the right of every person to an environment that is not harmful to human health or well-being. An important feature of the Section 24(a) right is its negative phrasing – “an environment that is not harmful”. The effect is that the right enshrines a certain minimum standard (an environment that is not harmful) and not a right of indeterminate extent (a healthy environment).

Section 24(b) enshrines the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures which, among other things, prevent pollution and ecological degradation and secures ecologically sustainable development. Section 24(b) of the Constitution introduces the notion of “inter-generational equity” by guaranteeing the right to have the environment protected for the benefit of both present and future generations. Furthermore, Section 24(b) expressly requires that development in South Africa occurs in a manner that allows renewable resources to re-accrue. The environment should therefore be exploited in such a manner that it will be able to sustain human, plant and

animal life over the longest possible period. It is in this context that the Constitution places a positive duty on all spheres of government to take reasonable legislative and other measures to ensure that the issues listed under Section 24(b) are attended to.

3.5. The National Environmental Management Act, 107 of 1998 (“NEMA”)

NEMA essentially gives effect to section 24 of the Constitution, which is the environmental right. It is overarching legislation in that it sets out the general principles for dealing with environmental matters regardless of which organ of state is exercising jurisdiction in any given matter. The Act therefore also contains co-operative governance provisions and procedures for co-ordinating environmental functions exercised by the various organs of state. It is primarily this act which provides DEAT with the mandate to develop an EMF for the area.

DEAT as an organ of state as defined in section 239 of the Constitution, is bound by the principles of the NEMA and must therefore ensure that any policies, by-laws and decisions which it makes and which are relevant to the environment, is in line with the NEMA principles, and promotes sustainable development. Further more DEAT is the highest functionary and custodian of NEMA and is mandated with the implementation of NEMA, and in particular chapter two and five thereof which provides for the general principles of NEMA and Integrated Environmental Management (IEM).

Section (2) and (3) provides that environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably and that development must be socially, environmentally and economically sustainable.

Specific reference to relevant factors which should be taken into account from a sustainable development perspective is then listed in section (4)(a) to include the following:

- (i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- (ii) that pollution and degradation of the environment are avoided, or, where they

cannot be altogether avoided, are minimised and remedied;

(iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;

(iv) that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;

(v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;

(vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;

(vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and

(viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

Section (4) (b) to (r) then further provides that:

(b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.

(c) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.

(d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special



measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.

(e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.

(f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.

(g) Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.

(h) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.

(i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.

(j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.

(k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

(l) There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.

(m) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.

(n) Global and international responsibilities relating to the environment must be discharged in the national interest.

(o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.



(p) The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.

(q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.

(r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

Section 23(1) provides for the general objectives of integrated environmental management and states that the whole purpose of Chapter 5 is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities.

The general objective of integrated environmental management is to—

- (a) promote the integration of the principles of environmental management set out in section 2 of NEMA into the making of all decisions which may have a significant effect on the environment;
- (b) identify, predict and evaluate the actual and potential impact on the environment, socioeconomic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2 of NEMA;
- (c) ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;
- (d) ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;

- (e) ensure the consideration of environmental attributes in management and decision making which may have a significant effect on the environment; and
- (f) identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2 of NEMA.

Section 24 then goes on to provide the enabling mechanism to give effect to the general objectives of integrated environmental management laid down in Chapter 5 by providing the potential impact on—

- (a) the environment;
- (b) socioeconomic conditions; and
- (c) the cultural heritage,

of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorising, permitting, or otherwise allowing the implementation of an activity.

Section 24(2) specifically provides that the Minister may with the concurrence of the MEC, and every MEC may with the concurrence of the Minister, in the prescribed manner—

- (a) identify activities which may not be commenced without prior authorisation from the Minister or MEC;
- (b) **identify geographical areas in which specified activities may not be commenced without prior authorisation from the Minister or MEC and specify such activities;**
- (c) **make regulations in accordance with subsections (3) and (4) in respect of such authorisations;**
- (d) identify existing authorised and permitted activities which must be considered, assessed, evaluated and reported on; and

- (e) ***prepare compilations of information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every organ of state charged by law with authorising, permitting or otherwise allowing the implementation of a new activity, or with considering, assessing and evaluating an existing activity.***

The EMF has been identified as the tool that can be used to alert developers and authorities as to the key environmental attributes of an area that need to be taken into account in the planning and development processes.

It is however the Environmental Impact Assessment ("EIA") regulations promulgated under section 24(5) read with section 44 of the NEMA, that these enabling sections are regulated. Chapter 8, section 69(1) of the EIA Regulations provides that an EMF has several purposes, including:

- “(a) for the Minister or MEC with concurrence of the Minister to initiate the compilation of information and maps referred to in section 24(3) of the Act specifying the attributes of the environment in particular geographical areas; and
- (b) for such information and maps to be used as environmental management frameworks in the consideration in terms of section 24(4)(i) of the Act of applications for environmental authorisations in or affecting the geographical areas to which those frameworks apply”.

NEMA makes provision in terms of section 24(3) of the Act to compile information and maps specifying the attributes of the environment in specific geographical areas.

- (a) To assess and document the environmental attributes of a defined geographical area in sufficient detail to enable the Minister or MEC to make an

informed decision regarding the need for environmental authorization in respect of specific activities;

(b) identify conservation and environmental management priorities within a defined geographical area to facilitate the implementation of measures that support the management of such priorities

(c) identify specific areas or aspects that should be managed or protected;

(d) identify environmental considerations that should be taken into account in the formulation of strategic development frameworks and integrated development plans;

(e) provide information in respect of land uses that are, or are not, appropriate for the area, having regard to the environmental attributes of the area; and

(f) facilitate co-operative governance with respect to decision-making and the management and protection of the environment.

Whilst regulation 70(1) allows that the Minister or MEC with the concurrence of the Minister may initiate an environmental management framework for an area, section 70(2) provides that in order to initiate an environmental management framework for an area, the Minister or MEC must –

(a) compile a draft environmental management framework;

(b) subject the draft to a public participation process by –

(i) making the draft available for public inspection at a convenient place; and

(ii) inviting potential interested and affected parties by way of advertisements in newspapers circulating in the area and in any other appropriate way to inspect the draft and submit representations, objections and comments in connection with the draft to that person or organ of state; and

(c) review the draft in the light of any representations, objections and comments received.

The contents of an EMF is regulated by regulation 71 which provides that a draft environmental management framework must –

- (a) identify by way of a map or otherwise the geographical area to which it applies;
- (b) specify the attributes of the environment in the area, including the sensitivity, extent, interrelationship and significance of those attributes;
- (c) identify any parts in the area to which those attributes relate;
- (d) state the conservation status of the area and in those parts;
- (e) state the environmental management priorities of the area;
- (f) indicate the kind of activities that would have a significant impact on those attributes and those that would not;
- (g) indicate the kind of activities that would be undesirable in the area or in specific parts of the area; and
- (h) include any other matters that may be specified.

Once an EMF is adopted the EMF must be taken into account in the consideration of applications for environmental authorisation in or affecting the geographical area to which the framework applies.

Other framework national legislation which underpins the development of this EMF includes the following due to the sensitive biodiversity and existence of National Parks:

3.6. The National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA)

South Africa ratified the Convention on Biological Diversity (“CBD”) in November 1995. As a Party to the Convention, the country has obligations with respect to

implementation of the Convention. As the objectives of the Convention indicate, the CBD should be accorded high importance and priority. In addition to its important goals on conservation and sustainable use, the goal on fair and equitable sharing of the benefits arising out of utilisation of genetic resources, should be considered in a strategic sense particularly since:

- South Africa is the third most biological diverse country in the world, with many unique species occurring within its borders;
- South Africa well developed knowledge, western and traditional, of its biological diversity; and
- Biological resources underpin many economic sectors such as agriculture, forestry, pharmaceuticals.

The CBD brings a strategic and integrated approach to conservation and sustainable use of biodiversity – an issue which has previously been addressed in a fragmented way. Additionally, the CBD, highlights also political, economic and social issues relating to biodiversity. The fact that South Africa has sovereign right over its biological resources puts an obligation with respect to regulation so as to ensure sustainability of the resource as well as ensure that benefits arising from use of South Africa biodiversity accrue for the nation's benefit. The role of local communities and their knowledge is recognised by the Convention and this again requires, at national level, that mechanisms are in place to effect the goals of the Convention in this regard. The scope of the CBD therefore implies the need for effective co-ordination across sectors so as to ensure compliance.

The National Environmental Management: Biodiversity Act 10 Of 2004 came into operation on 1 September 2004, with the exception of sections 49, 57, 65, 66, and 71 and Chapter 7 (sections 87 to 96 inclusive): 1 April 2005; and Chapter 6 (sections 80 to 86 inclusive) and section 105: 1 January 2006. The Act has been updated to reflect these dates of commencement.

Some of the most important objectives of the NEMBA is to provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources and the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources.

In light of the interaction between the NEMBA and NEMA, the management and conservation of South Africa's biodiversity is strictly regulated. For instance the transformation or removal of indigenous vegetation of 3 hectares or more or of any size where the transformation or removal would occur within a critically endangered or an endangered ecosystem listed in terms of section 52 of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), requires a Basic Assessment and any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), requires a Scoping and EIA in terms of the NEMA EIA Regulations, 2006.

The National Biodiversity Strategy and Action Plan ("NBSAP") and the National Spatial Biodiversity Assessment, 2004 will form the basis of the National Biodiversity Framework (required in terms of Chapter 3 of the National Environmental Management: Biodiversity Act of 2004). The NBSAP is informed by the principles set out in a number of policies and legislation, in particular the Constitution of South Africa (Act 108 of 1996), the White Paper on the Conservation and Sustainable Use of Biodiversity (1997), the National Environmental Management Act (Act 107 of 1998) and related legislation.

Key principles are equity, sustainability, co-operative governance and participation. The Strategy is intended to be a long term (20 year) strategy and implementation will be prioritized through the Action Plan.

To achieve the overarching goal, Strategic Objectives have been identified. These strategic objectives include:

- An enabling framework integrates biodiversity into the economy;
 - The value of biodiversity to the economy and to people's lives is quantified;
 - Planned for and monitored to inform policy, strategy and action;
 - Biodiversity considerations are integrated into macro-economic, trade, industrial, fiscal and tax policy and practice
 - Key production sectors and industries integrate biodiversity into their policies, strategies, plans, procedures and operations;
- A biodiversity-friendly national planning and assessment framework informs all decisions regarding land use and spatial development;
- Human development and well-being is enhanced through sustainable utilization of biological resources and equitable sharing of benefits;
- An equitable access, rights and responsibilities regime promotes sustainable utilization of biological resources;
- An enabling framework for partnerships between government, the private sector, organized civil society and communities encourages entrepreneurship, innovation, investment and action at local level;
- An equitable access, rights and responsibilities regime promotes sustainable utilization of biological resources;
- The ecological and social sustainability of extractive use of indigenous biological resources is assessed and monitored and opportunities for improvement are identified;
- Use of biological resources is well managed to maximize sustainable benefits;
- Integrated land and water management across the country minimizes the impacts of threatening processes on biodiversity, enhances ecosystem services and improves social and economic security;
- National initiatives to manage land, water and biological resources are coordinated, developed and implemented with full stakeholder participation to contribute to sustainable socio-economic development;
- A multi-agency national programme deals with the full suite of impacts posed by invasive alien species (IAS) across the landscape and seascape;
- An integrated national programme facilitates adaptation to the predicted impacts of climate change on biodiversity across the landscape and seascape;

- Effective management and control measures minimize the potential risks to biodiversity and human health posed by Genetically Modified Organisms;
- Effective waste management and pollution control measures limit the impacts of pollution on biodiversity and human health;
- Biodiversity, including species, ecosystems and ecological processes, is effectively conserved across the landscape and seascape, with a particular focus on biodiversity priority areas;
 - Biodiversity, and pressures and threats to biodiversity at all levels, including landscapes, ecosystems, habitats, species and genes, is catalogued, assessed, planned for and monitored to inform policy, strategy and action;
 - The protected area network is secured, expanded and managed to ensure that a representative sample of biodiversity and key ecological processes are conserved; and
 - Biodiversity is managed across the landscape and seascape outside the protected area network, particularly in biodiversity priority areas
- Conservation and sustainable use of South Africa's biodiversity is enhanced through proactive engagement with the international community;
 - Proactive engagement and cooperation with the international community enhances conservation and sustainable use of shared resources and globally important biodiversity in the region;
 - Proactive engagement and cooperation with the international community minimizes major threats and negative impacts to biodiversity in the region
 - South Africa's obligations to the international community are met, with a particular focus on Africa; and
 - A coordinated, efficient and effective response to international agreements promotes sustainable development in South Africa
- Enhanced institutional effectiveness and efficiency to ensure good governance in the biodiversity sector-
 - The biodiversity sector is transformed and representative of South African society;

- Effective cooperation, coordination and alignment at all levels give effect to the principle of cooperative governance;
- Institutions with biodiversity related responsibilities, in the public, community and private sectors, are effective, efficient and adequately capacitated;
- Financial resources for biodiversity are adequate and effectively and efficiently used;
- Enforcement of regulations ensures compliance and discourages activities and processes that impact negatively on biodiversity;
- Targeted and focused research, monitoring and information management systems contribute to effective decision support for biodiversity management and mitigation of threats;
- A comprehensive and proactive national communication, awareness raising and advocacy strategy reaches all the people of South Africa and facilitates conservation and wise use of biodiversity; and
- Effective institutional arrangements facilitate the implementation of the NBSAP and the National Biodiversity Framework, including monitoring and review

The initiatives of SANParks, SANBI and the GRI with respect to the development and promulgation of the Garden Route National Park, incorporating existing national parks and the consideration of the park expansion plan will be taken into consideration in the EMF. This will be important in the consideration and identification of landscape linkages and biodiversity corridors in the study area.

3.7. The Conservation of Agricultural Resources Act No. 43 of 1983 (“CARA”)

One of the other important environmental related statutes to take into consideration when developing the EMF is the CARA, since this Act provides control measures which shall be complied with by land users. The most important objectives of the CARA are to provide for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land, by the combating and

prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.

In order to achieve the objects of this Act the Minister may prescribe control measures which shall be complied with by land users to whom they apply. Such control measures may relate to-

- the cultivation of virgin soil;
- the utilisation and protection of land which is cultivated;
- the irrigation of land;
- the prevention or control of waterlogging or salination of land;
- the utilisation and protection of wetlands, marshes, water sponges, water courses and water sources;
- the regulating of the flow pattern of run-off water;
- the utilisation and protection of the vegetation;
- the grazing capacity of veld, expressed as an area of veld per large stock unit;
- the maximum number and the kind of animals which may be kept on veld;
- the prevention and control of veld fires;
- the utilisation and protection of veld which has burned;
- the control of weeds and invader plants;
- the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded;
- the protection of water sources against pollution on account of farming practices;
- the construction, maintenance, alteration or removal of soil conservation works or other structures on land; and
- any other matter which the Minister may deem necessary or expedient in order that the objects of this Act may be achieved, and the generality of this provision shall not be limited by the preceding paragraphs of this subsection.

Further to the above, it is important to note that the CARA does not apply to any land that is situated in an urban area except in as far as it relates to combating weeds and

invader plants. The Regulations declare Category 1 plants as weeds and Category 2 and 3 plants as invader plants. Regulation 15A(1) states that Category 1 plants may not occur on any land or inland water surface other than in biological control reserves. A land user is required to control any Category 1 plants that occur on any land or inland water in contravention of the provisions of sub-regulation 1 by means of the methods prescribed in Regulation 15E.

3.8. The National Environmental Management: Protected Areas Act (Act 57 of 2003)

The National Environmental Management: Protected Areas Act (NEMPAA), provides for the continued existence of the South African National Parks, the declaration and management of protected areas in South Africa and cooperative governance in such declaration and management of protected areas.

There are a number of provisions relevant to a local government authority. The Minister, an MEC for environmental affairs or a municipality may by notice in the *Gazette* declare an area specified in the notice as a nature reserve; special nature reserve, protected environment or a part of an existing nature reserve special nature reserve or protected environment; determine the type of the relevant reserve and assign a name to the relevant reserve. The purpose for declaring an area as a relevant reserve or as part of an existing relevant reserve must be either: –

- to supplement the system of national parks in South Africa;
- to protect the area if the area –
 - (i) has significant natural features, species, habitats or biotic communities;
 - (ii) has a site of scientific, cultural, historical or archaeological interest; or
 - (iii) is in need of long term protection and the maintenance of its biodiversity;
- to provide for a sustainable flow of natural products and services to meet the needs of a local community;
- to enable a variety of traditional consumptive uses; or



- to provide for nature based recreation and tourism opportunities.

Only the following land may be declared as a relevant reserve or as part of an existing relevant reserve:

- land owned by the state or an organ of state;
- land under the exclusive physical control of the state or an organ of state; or
- land owned by a private person who has consented to the declaration by way of a written agreement with the Minister, the MEC for environmental affairs in the relevant province or the relevant municipality.

Before declaring an area as a nature reserve or protected environment, or as part of an existing nature reserve or protected environment area, an authority must follow a consultative process as may be appropriate in the circumstances;

- consult –
 - (i) the Minister and other national organs of state affected by the proposed declaration;
 - (ii) the MEC for environmental affairs in the province;
 - (iii) any other municipality that may have an interest in the declaration;
- allow community participation through mechanisms, processes and procedures established in terms of Chapter 4 of the Local Government: Municipal Systems Act, 2000 (Act No.32 of 2000); and
- give notice of the intention to declare the area as a protected area to each owner of land within the area, by registered post to the last known postal address of each such owner.

The declaration of private land as a protected area, or part of an existing protected area, may be initiated either by the Minister, the MEC for environmental affairs in the province, the relevant municipality or the owners of that land acting individually or

collectively.

3.9. National and Provincial Strategies and Policy Imperatives

On a National level, the Department of Provincial and Local Government, assisted by the Policy Unit in the Presidency is driving the process to complete the process of harmonising the National Spatial Development Perspective (NSDP), Provincial Growth and Development Strategies (PGDS) and the Municipal Integrated Development Plans (IDPs). It is in this context that DEAT should approach the development integration of the EMF to reflect the objectives, as far as it relates to environmental and planning issues. The EMF, in as far as it relates to the relevant environmental, planning and other sustainability policies and strategies, must take account of the objectives reflected in the NSDP, Western Cape SDF and local authority IDPs.

3.10. National Spatial Development Perspective (NSDP)

The NSDP may also play a valuable role in the development of the EMF since it identifies a number of key principles to guide government investment in different locations. These can be summarised as follows:

- Rapid economic growth that is sustained and inclusive is a pre-requisite for the achievement of other policy objectives;
- Government has a constitutional obligation to provide basic services to all citizens (water, energy, health etc);
- Beyond our constitutional obligations, government spending on fixed investment should focus on localities of economic growth and or economic potential to;
- In localities where there are both high levels of poverty and development potential, investment should include fixed capital investment beyond basic services to exploit that potential;
- In localities with low development potential, government spending should focus on providing social transfers, human resource development and labour market intelligence which would enable people to make choices: become more mobile and migrate to localities that are more likely to provide sustainable employment or other economic opportunities; and

- In order to overcome spatial distortions of apartheid, further settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to economic opportunities.

3.11. Western Cape Spatial Development Framework (WCSDF)

The provisions of the WCSDF are discussed in detail in the policy imperative and planning framework section of the Status Quo Report.

3.12. Integrated Development Plans (“IDP”)

A municipality’s Integrated Development Plan (IDP) sets out the overall strategy for achieving its developmental objectives. The IDP includes the municipality’s strategies for mobilising resources and capacity, and its internal transformation needs and to achieve service delivery for the municipality in an effective and sustainable way. The IDP should also include the municipality’s operational strategies which may also identify service that may be provided through an external mechanism. In short, the IDP is the municipality’s principal strategic planning instrument which guides and informs all planning and development and all decisions regarding planning management and development in the municipality (see section 35 of the Systems Act). Section 36 of the Systems Act provides that “a municipality must give effect to its integrated development plan and conduct its affairs in a manner which is consistent with its integrated development plan”.

The Integrated Development Plan for Knysna and George are discussed in detail under the policy imperatives and planning framework section of the Status Quo Report.

3.13. TABLE OF APPLICABLE STATUTES RELEVANT TO THE GARDEN ROUTE EMF

3.13.1. NATIONAL LEGISLATION	
Agricultural Pests Act, Act No 36 of 1983	Prevents agricultural pests.
Animal Health Act, Act No 7 of 2002	Regulates animal health.
Atmospheric Pollution Prevention Act, Act No 45 of 1965	Control and manages air pollution.
Conservation of Agricultural Resources Act, Act No 43 of 1983	Controls and regulates the conservation of agriculture.
Constitution of the Republic of South Africa Act, Act No 108 of 1996	Introduces a Constitutional framework for Municipalities in South Africa.
Development Facilitation Act, Act No 67 of 1995	Provides for development and planning.
Electricity Act, Act No 41 of 1987	Regulates and controls energy supply in South Africa.
Environment Conservation Act, Act No 73 of 1989	Provides for the effective protection, control and utilisation of the environment.
Hazardous Substances Act, Act No 15 of 1973	Controls substances that may cause injury or ill health to or death of human beings by reason of their toxic nature.
Health Act, Act No 63 of 1977	Regulates public health.
Local Government: Municipal Demarcation Act, Act No 27 of 1998	Establishes boundaries for local government purposes.
Local Government: Municipal Structures Act, Act No 117 of 1998	Provides for the structuring of local government institutions.
Local Government: Municipal Systems Act, Act No 32 of 2000	Establishes core principles, processes, and mechanisms relating to local government.
Local Government Transition Act,	Regulates the restructuring of local

Act No 209 of 1993 Minerals and Petroleum Resources Development Act, Act No 28 of 2002	government. Provides for equitable access to and sustainable development of mineral and petroleum resources.
National Environmental Management Act, Act No 107 of 1998	Provides for co-operative environmental governance.
National Environmental Management Amendment Act, Act No 56 of 2002	Amends the National Environmental Management Act.
National Heritage Resources Act, Act No 25 of 1999	Provides for the protection of heritage resources.
National Nuclear Regulator Act, Act No 47 of 1999	Establishes the National Nuclear Regulator.
National Parks Act, Act No 57 of 1976	Regulates the control, protection and management of National Parks.
National Veld and Forest Fire Act, Act No 101 of 1998	Regulates veld and forest fires.
National Road Traffic Act, Act No 93 of 1996	Regulates national road traffic.
National Water Act, Act No 36 of 1998	Regulates all matters relating to water.
Occupational Health and Safety Act, Act No 85 of 1993	Provides for the regulation of labour, danger, environment, hazard, health, risk, safety and substance.
Promotion of Access to Information Act, Act No 2 of 2000	Promotes access to information.
Promotion of Administrative Justice Act, Act No 3 of 2000	Provides for the promotion of administrative justice.
Promotion of Administrative Justice Amendment Act, Act No 53 of 2002	Amend the Promotion of Administrative Justice Act.
SA National Roads Agency Limited and	Establishes the South African National

National Roads Act, Act No 7 of 1998	Roads Agency and other matters relating to the road such as control road related waste disposal.
Water Services Act, Act No 108 of 1997	Regulates the right of access to basic water supply and basic sanitation as well as other related matters.

INTERNATIONAL ENVIRONMENTAL LEGISLATION

Vienna Convention for the Protection of the Ozone Layer, 1985	Obliges countries to generally reduce their outputs of ozone depleting substances into the atmosphere
Montreal Protocol, 1985	Regulates substances that deplete the Ozone Layer by incorporating the precautionary principle
United Nations Framework Convention on Climate Change, 1992	Addresses the threat of global climate change by urging governments to reduce the sources of greenhouse gases
Kyoto Protocol, 1997	Addresses the reduction of greenhouse gases and emissions.
The Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal, 1989 (the Basel Convention)	Regulates the international reduction of the production of hazardous waste and the restriction of transboundary movement and the disposal of such waste.
Convention on Wetlands of International Importance Especially as Water Fowl Habitat (the Ramsar Convention)	The broad aims of this Convention are to stem the loss of wetland habitats and to promote wise use of all wetlands.

Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (CITES)

Regulates the international protection of endangered species, the economic utilisation of species and the control of illegal trade in species of wild fauna and flora

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)

The Convention was a response to the need for nations to co-operate in the conservation of animals that migrate across their borders.

Convention on Biodiversity, 1992

The aim is to effect international co-operation in the conservation of biological diversity and to promote the sustainable use of living natural resources worldwide

4. PUBLIC PARTICIPATION

4.1. Background and Introduction

According to the provision of NEMA and the specific requirements of the Regulations, Public Participation (PP) is an integral component of the development of any environmental management regulatory mechanism or tool. In the spirit of NEMA the following is required with respect to section 70 (2) (b) of Government Notice R.385:

Section 70 (2)

(b) subject the draft to a public participation process by-

(i) making the draft available for public inspection at a convenient place; and

(ii) inviting potentially interested and affected parties by way of advertisements in newspapers circulating in the area and in any other appropriate way to inspect the draft and submit representations, objections and comments in connection with the draft to that person or organ of state; and

(c) review the draft in the light of any representations, objections and comments received.

This section defines and documents the Public Participation Process (PPP) followed and implemented in the development of the Garden Route National Lakes Area EMF. It not only covers the process followed but provides analysis of the results of public opinions expressed through questionnaires and interviews. Specific milestone public open days were conducted and summary feedback regarding these are provided. Strategic sessions conducted with the project steering committee are summarised as well with respect to specific issues and concerns raised.

4.2. Philosophical evaluation of typical community profile types

Experience in the development of EMFs in the SADC region has illustrated that in most cases there is generally apathy by local inhabitants and residents to spatial environmental issues affecting their areas. The amount of response elicited depends very much on the profile of the community. The profile of the community is again dependent on specific factors such as economic and income status, age and gender. Generally, (although this should not be considered as the rule) community profiles and structures where the population age is relatively young (late 20's to 40's), middle income blue and white collar professionals are largely concerned by significant issues which would affect their immediate well being drastically.

On the contrary; community profiles and structures where the population are predominately retired and older (established), of stable economic stature (often affluent) seem to be a lot more vociferous regarding issues which may to the general public be insignificant or of lower interest value, not influencing a large spectrum of society directly and drastically.

Similarly, certain specific environmental factors also influence the level of participation and interest stimulated in an area. These are focused on areas where there is probably a healthy mix of the two population profiles discussed above. A sensitive environment; biophysically and aesthetically, elicits a lot more emotion and interest, than degraded surroundings, due to the perception that there is a lot more at stake.

The National Lakes Area of the Garden Route can be considered as such an area.

4.3. Public participation process framework

Following from the requirements of NEMA as per above the overarching objectives of the Public Participation Process (PPP) will be to:

- Inform Interested and Affected Parties (I&APs) of the EMF and its goals
- Provide I&APs the opportunity to provide input
- Provide feedback to stakeholders on the outcomes of the following phases namely the,:

- Status Quo Assessment,
- Environmental Sensitivity and Constraint Zones, and
- Environmental Control Zones and Final EMF report.

The PPP comprises the following detailed steps:

- Identifying Interested and Affected Parties and core stakeholders,
- Notification to stakeholders,
- Distribution of the Background Information Document
- Maintain a stakeholder database,
- Advertising in the press,
- Press coverage,
- Hosting public open days (at the three critical project milestones),
- Distribution of general environmental opinion questionnaires to stakeholder database,
- Analysis of data interpreted and synthesised from returned questionnaires,
- Make final document available for public comment.

4.4. Identifying Interested and Affected Parties

The objective of this phase will be to identify the various groups such as; Public interest groups, Non-Governmental Organisations, Government organizations, Developers/Industry that may have an interest in or be affected by the EMF. The identification of Interested and Affected Parties will be comprised through a process of “horizontal” (geographical) and “vertical” (institutional) networking. Horizontal networking will involve the identification of institutions and individuals that might be affected by, or could make a contribution to the project, but who are not necessarily in its direct sphere of influence.

4.5. Stakeholder Database

The register of the names, designations and contact details of interest and affected parties will be compiled, and will be expanded and updated throughout the course of

the project. Important communications regarding the project and the public participation process will be sent to all parties listed in the register. All participants that attend any public event, meeting, register as I&APs, or ask for specific information will also be registered on the I&APs database.

4.6. Notification of Registered Stakeholders

The aim of this phase of the project is to inform the I&APs of:

- What the project entails
- The project and how it will benefit the environment and surrounding communities.
- What they should do to become involved in the Public Participation Process.

I&APs are notified by means of advertisements, Notices and Background Information Documents (BIDs) see Appendix B, which will contain all the relevant information about the proposed project.

The BID also contains a response sheet, that allows I&APs to register as stakeholders and to communicate issues and concerns to the project team.

4.7. Public Open days

The next stage of the Public Participation Process focuses on providing more detailed information on the project, the soliciting of inputs from the I&APs with regard to their issues and concerns. This is facilitated by Public Open Days, where information regarding the project will be presented to the broader public and additionally to note issues, concerns and suggestions on the specific project milestone.

BIDs are issued at the Public Open Days and allow I&APs to comment further, if required.

Three open day sessions are planned to interphase with the completion of the three core project components; namely

- Status Quo Assessment,

- Environmental Sensitivity and Constraint Zones, and
- Environmental Control Zones and Final EMF report.

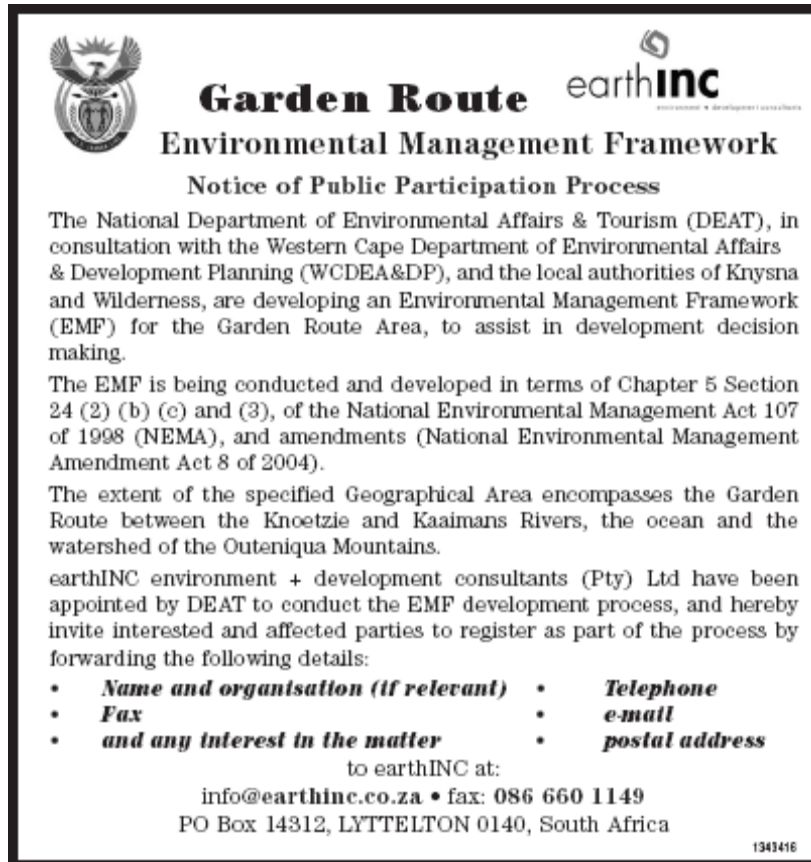
The open days associated with the Status Quo Assessment and Project Inception were conducted on the 1st and 2nd of July 2008, in Knysna and Sedgefield respectively.







4.8. Press notifications and coverage

Due to the extensive and widespread interest in the area the EMF was advertised in the Sunday Times of 18 May 2008 Business Times Section.



The notice is a public participation process for the Garden Route Environmental Management Framework. It is issued by the National Department of Environmental Affairs & Tourism (DEAT) in consultation with the Western Cape Department of Environmental Affairs & Development Planning (WCDEA&DP) and the local authorities of Knysna and Wilderness. The notice explains the purpose of the EMF, the legal basis for its development, and the geographical area it covers. It also lists the consultants (earthINC) and provides contact information for interested parties to register.

 **Garden Route** 
Environmental Management Framework

Notice of Public Participation Process

The National Department of Environmental Affairs & Tourism (DEAT), in consultation with the Western Cape Department of Environmental Affairs & Development Planning (WCDEA&DP), and the local authorities of Knysna and Wilderness, are developing an Environmental Management Framework (EMF) for the Garden Route Area, to assist in development decision making.

The EMF is being conducted and developed in terms of Chapter 5 Section 24 (2) (b) (c) and (3), of the National Environmental Management Act 107 of 1998 (NEMA), and amendments (National Environmental Management Amendment Act 8 of 2004).

The extent of the specified Geographical Area encompasses the Garden Route between the Knoetzie and Kaaimans Rivers, the ocean and the watershed of the Outeniqua Mountains.

earthINC environment + development consultants (Pty) Ltd have been appointed by DEAT to conduct the EMF development process, and hereby invite interested and affected parties to register as part of the process by forwarding the following details:

- **Name and organisation (if relevant)**
- **Fax**
- **and any interest in the matter**
- **Telephone**
- **e-mail**
- **postal address**

to earthINC at:
info@earthinc.co.za • fax: 086 660 1149
PO Box 14312, LYTTELTON 0140, South Africa

1343416

There has been a marginal response from the press advert. To increase the participation base of the EMF and to provide further information to the larger community, a tabloid series on the EMF, specifically at the milestone events, was covered by the George Herald. Below are the two articles covered by the newspaper in the Status Quo phase of the project.

PROTECTION OF GARDEN ROUTE ENVIRONMENT

To be safeguarded in EMF

The protection of the Garden Route's precious natural environment is at the heart of an environmental management framework (EMF) which is being developed for the region. This EMF is to provide a support tool for authorities in their decision making relating to development applications. A "poor basis" for decision making currently exists, says a document of earthINC, the consultants appointed by the Environmental Affairs and Tourism

Department to develop the EMF. Authorities are swamped with large volumes of development applications and they face a daunting task in making decisions that are not detrimental to the natural environment. The EMF will establish the general environmental sensitivity of the Garden Route, identify and highlight the environmental opportunities and constraints with respect to development, and establish control zones for the management of de-

velopment in particularly sensitive areas. Nicus Durieux of earthINC says an "insatiable demand" for development opportunities and development land exists in the region. "What makes development and expansion even more intricate in the Garden Route is its mosaic of inherent environmental, cultural and aesthetic sensitivity within a geographically confined and diverse landscape. "The overarching purpose of the EMF must be to facilitate con-

sistent and informed decision making in respect to development and environmental protection in an integrative manner across authority mandates," says Durieux. Environmental control zones will be established as the main administrative instrument of the EMF. These zones will assist to focus the attention of the authorising agencies on the important areas and will reflect the norms and standards of the local community in respect to sense of

place, and protection of ecologically sensitive areas and conservation features against inappropriate development. A public participation process forms part of the development of the EMF and interested and affected parties are invited to register. Send your details to Thomas van Viegen at info@earthinc.co.za or fax 086 660 1149, or to Danie Smit at the DEAT to e-mail dsmit@deat.gov.za or fax 012 310 3688.

The above article provided a summary background of the EMF project and invites I&APs to register. The article below was appeared in the George Herald of 26 June 2008, informing of the two public open days to be held on the 1st and 2nd of July 2008, in Knysna and Sedgefield respectively.

ENVIRONMENTAL MANAGEMENT

Public open days

The Environmental Management Framework (EMF) currently being developed for the Garden Route will establish the general environmental sensitivity of the Garden Route by identifying and highlighting the environmental opportunities and constraints with respect to development.

It will also establish control zones for the management of development in particularly sensitive areas. These will be represented by guidelines which will assist in decision making, establishing priorities for a 'desired state of the environment'.

A public participation process is underway which is structured to provide interested and affected parties as

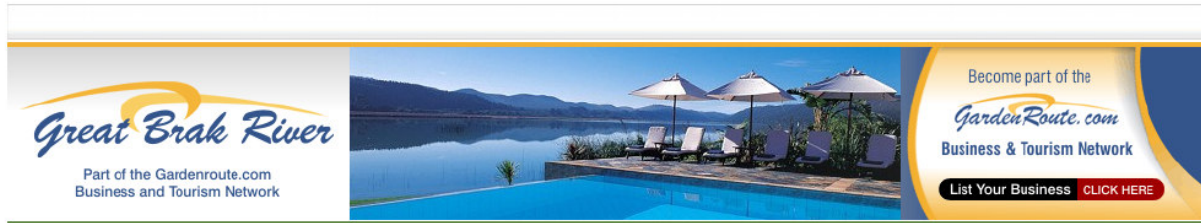
well as the general public the opportunity to review and comment on the status quo information and the opportunity to provide meaningful input into the development of the EMF. All relevant information will be on display for review and a questionnaire will be provided to comment.

Two open days will be held, namely on 1 July at the Knysna Townhall from 14:00 to 19:30 (located at Queen Street, Knysna) and on 2 July at the Sedgefield Council chambers from 14:00 to 19:30 (located 14 Flamingo Street, next to the Post Office).

One of the EMF's main components is a geographic information system (GIS) platform. It allows the integration of the various spa-

tial information layers and establishes queries on data input providing applied scenarios. The main components will determine the framework of environmental objectives for the establishment of the 'desired state of the environment' as specified in the DEAT's (Department of Environmental Affairs and Tourism) mandate. These objectives are focused on environmental improvement, health and establishment of priorities. The purpose is not to assign specific land uses to land, but rather to indicate which land uses can generally be allowed, and the degree of assessment required.

For more information, contact Nicus Durieux at earthInc at 073 166 6212.



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All Areas

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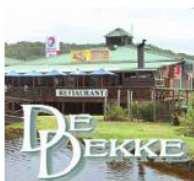
REAL ESTATE



All Areas

SEARCH

RESTAURANTS



All Areas

SEARCH

Environmental Management Framework For Region

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The protection of the Garden Route's precious natural environment is at the heart of an environmental management framework (EMF) which is being developed for the region. This EMF is to provide a support tool for authorities in their decision making relating to development applications. A "poor basis" for decision making currently exists, says a document of earthINC, the consultants appointed by the Environmental Affairs and Tourism Department to develop the EMF.

Authorities are swamped with large volumes of development applications and they face a daunting task in making decisions that are not detrimental to the natural environment. The EMF will establish the general environmental sensitivity of the Garden Route, identify and highlight the environmental opportunities and constraints with respect to development, and establish control zones for the management of development in particularly sensitive areas. Nicus Durieux of earthINC says an "insatiable demand" for development opportunities and development land exists in the region. "What makes development and expansion even more intricate in the Garden Route is its mosaic of inherent environmental, cultural and aesthetic sensitivity within a geographically confined and diverse landscape.

"The overarching purpose of the EMF must be to facilitate consistent and informed decision making in respect to development and environmental protection in an integrative manner across authority mandates," says Durieux.

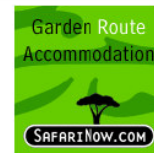
Environmental control zones will be established as the main administrative instrument of the EMF. These zones will assist to focus the attention of the authorising agencies on the important areas and will reflect the norms and standards of the local community in respect to sense of place, and protection of ecologically sensitive areas and conservation features against inappropriate development.

A public participation process forms part of the development of the EMF and interested and affected parties are invited to register.

Send your details to Thomas van Viegen at info@earthinc.co.za or fax 086 660 1149, or to Danie Smit at the DEAT to e-mail dsmit@deat.gov.za or fax 012 310 3688.



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Appendix A: I&AP Register

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Appendix B: Background Information Document

An aerial photograph of a wide river valley. The river flows from the upper right towards the lower left. The valley floor is a mix of green fields, dense forests, and a large, brownish wetland area with intricate water channels. In the background, there are rolling hills and mountains under a blue sky with scattered white clouds. A dirt road curves along the right bank of the river, and a small bridge crosses it. The overall scene is a natural landscape with significant water features.

Section C

MANAGEMENT ANALYSIS

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Section C: Management Analysis & Provisions

1. ENVIRONMENTAL SENSITIVITY EVALUATION

1.1. Introduction

This section of the EMF deals specifically with interpreted data and spatial analysis based upon the input data of the EMF derived during the status quo assessment, and after key stakeholders were consulted. The tertiary level of analysis entails the development of environmental constraint zones, and the identification of sensitive geographical areas.

The purpose of the Management Analysis is to establish and represent sensitive geographical areas spatially, with direct linkage to specific management criteria and provisions, for the management of the resource as well as establishing parameters within which development activity must occur.

The management guidelines do not specify which activities should occur in the sensitive geographical area, but indicate specific minimum requirements which must be met before applications for authorisations for development activities can be considered. The management guidelines also stipulate what input requirements will be necessary for assessments in certain sensitive areas.

1.2. Sensitivity Evaluation

The integrated sensitivity analysis for the Garden Route National Lakes Area provides a composite interpretation of the overarching sensitivity of the study area, figure 11.

Based upon the 'unioning' of the spatial baseline information it portrays an image of the areas which illustrate the highest combination of combined high weightings and areas with a combination of low weightings with regards to inherent sensitivity towards development change.

This does not mean that an area which 'scores' a lower sensitivity ranking is not sensitive, but may be sensitive for only a limited or single environmental feature. Areas depicting high sensitivity are indicative of multiple factor contributing to a higher ranking.

The environmental sensitivity evaluation acts as a control for the overall or overarching sensitivity of the study area.

2. ENVIRONMENTAL OPPORTUNITIES AND CONSTRAINTS

2.1. Introduction

The environmental sensitivity evaluation is based upon all the spatial input data as contained in the status quo assessment. However, during the status quo assessment phase and public participation process certain specific, critical environmental elements and issues would have been identified. These are specific environmental categories which are uniquely specific to the study area, and which require dedicated management intervention. These form the basis for the identification of environmental opportunities and constraints.

2.2. The Constraint Zones

The critical environmental aspects which have been identified in the Garden Route are the following:

- Vegetation
- Riparian and aquatic systems
- Slope aspect and steep slopes
- Sense of place – *genus loci* / visual influences on the character of the Garden Route-
Landscape Character
- Conservation Land Use
- Sensitive topography
- View shed

Four constraint zones were identified namely:

- Ecological constraints
- Topographical constraints
- Visual and sense of place constraints
- Conservation land use constraints

Ecological constraints - figure 12

This constraint zone is a composite of all critical biodiversity elements in the study area. It is an adaption of the Critical Biodiversity Areas as determined by the Garden Route Initiative (GRI). What strengthens this layer procedurally is the extensive reiterative consultative process (4 years) that was conducted in its formalisation. The ecological constraint zone consists of the following areas:

- Sensitive vegetation *figure 12a*
- Sensitive and critical remnant faunal habitat *figure 12b*
- Hydrological and aquatic systems (lakes)

Conservation land use activities have been separated from this layer so as not to cloud the physical environmental constraints with the land use character of conservation. Conservation as a land use has been considered as a separate constraint.

Within the ecological constraint zone conservation as a land use can continue unabated, except for supporting infrastructure such as engineering services, rest camps etc which will all require the appropriate level of assessment before construction can commence. General development activities will all be subject to the provisions of the management guidelines included in this section. The vegetation types of the Garden Route are a complex mosaic of coastal vegetation and thicket, extensive forest, fynbos (high diversity of types) and associated aquatic vegetation. The physical impact on vegetation sensitivity is of significant concern in the area. Biodiversity targets have not been met, and all development that has the potential to impact on critical vegetation types should not be allowed, either inside or outside of the urban edge, irrespective of any planning provision and allowance.

Similarly, the greatest asset of the Garden Route is the Lakes Area. Specific provisions as to the management and control of development around the lakes are contained in the management guidelines.

Topographical constraints- figure 13

The landscape of the Garden Route comprises an intricate mosaic of land forms which further supports its diverse ecological features. These features extend from coastal features, through to the lake system, framed by the backdrop of the high Outeniqua mountains. The area is similarly dissected by numerous rivers draining the highlands to the coast. The coastal landscape is characterised by sensitive foredune systems which are prone to erosion, and which perform critical ecological functions, and which similarly are sought after for residential property development. The area is characterised by cover sands on steep slopes surrounding the lakes and estuaries, which are unstable and unsuitable for development activity.

Topographical constraints can be considered from two aspects, firstly its sensitivity towards visual and sense of place disturbance, and secondly the physical impact on sensitive and unstable topographical features (such as dunes and exposed rocky headlands).

The management guidelines make specific recommendations with regards to development activity within sensitive topographical landscapes.

Visual and sense of place constraints – figure 14

The Garden Route has been named as such due to the visual and aesthetic quality attached to the region. Similarly, the region is considered as one of the most scenic in the country, attracting significant numbers of domestic and international tourist throughout the year. This asset is unfortunately one of the regions limiting factors. Due to the perceived high - quality of life associated with the region underpinned by scenic topography, quaint villages and hamlets, large tracts of natural open space systems supported by an extensive national park system (Garden Route National Park); the Garden Route has become the ideal location of retired individuals from the larger cities, as well as a growing international interest. This insatiable demand for development land for residential and tourism use is limited by the biophysical, physical and aesthetic constraints of the area. It is indeed the case of the “exact reasons for the attraction could become its downfall”.

The management of visual and aesthetic constraints is largely subjective as “beauty is perceived by the beholder”. The management provisions provide broad guidelines for aesthetic and visual control of development activities.

These management guidelines form the foundation for further development of aesthetic control for the Garden Route.

Conservation land use constraints – figure 15

One of the greatest attractions in the Garden Route is the extensive network of protected areas. The interconnectedness of the natural resource asset base (lakes, rivers, forests, dunes and beaches) and scenic topographical features are underpinned by conservation as a land use. Within the context of the Garden Route the national parks asset can be considered as the “goose which lays the golden egg”, supporting the tourism industry. Similarly, the past decade the area has been experiencing extensive drought and resource pressure. The management of these precious resources through the protected area network is of paramount importance.

In order to protect and to manage this resource sustainably, development activity (direct impacts, upstream and peripheral impacts) which will negatively impact on the viability of this asset should not be allowed.

The visual influence of surrounding land uses on the visual sensitivity and sense of place of The Garden Route National Park ie the backdrop to the conservation area, must similarly be considered in development applications.

3. SENSITIVE GEOGRAPHICAL AREAS

3.1. Introduction

This EMF has identified certain key environmental aspects which relate to the assessment of planning and development schemes. These aspects are classified into the following broad areas, depicted as Sensitive Geographical Areas;

- Topographically Sensitive Geographical Areas
- Visually Sensitive Geographical Areas
- Ecological Sensitive Geographical Areas
- National Parks and Protected Areas (Conservation Land Use Areas)

Within these areas DEA has through the EMF identified key attributes which are of environmental significance. These attributes are considered to be of the highest conservation value, and in need of consideration when initiating a development scheme or project application.

Summary of Sensitive Geographical Areas.

Areas defined as having the highest conservation and protection value have been identified by the EMF through the provisions of NEMA as Sensitive Geographical Areas that should be conserved. If a development proposal or planning scheme were to impact on any of the value areas as described below, it will attract a specific level of formal assessment and authorisation before commencement. The sensitive geographical areas have been divided into specific land forms and landscapes and each section contains management advice regarding possible impacts on the subject area.

3.2. Topographical Sensitive Areas – *figure 16*

The Garden Route has specific topographical features which define its Sense of Place. Not only are certain of the features and landscapes visually sensitive, but structurally as well. Although a distinction can be made with regards to the above, they have been consolidated in the spatial

coverage, with the distinction made in the management guidelines where appropriate. Topographically sensitive areas can further be elaborated upon as:

- The greater topography constituting the Garden Route, especially the landscape surrounding scenic routes (N2), and high tourism areas illustrating higher viewer incidence,
- The Outeniqua mountains as backdrop to the Garden Route,
- The coastline of the Garden Route,
- The National Lakes basin,
- Steep slopes, especially overstep slopes throughout the study area. Steep slopes on sandy dunes are extremely sensitive to structural risk, as well as steep slopes overlaid by cover sands,
- Unique topographical features such as exposed rocky headlands along the coastline, as well as ancient petrified dunes.

3.3. Ecologically Sensitive Areas- figure 17

The Garden Route EMF falls into the fynbos biome and more specifically the Cape Floral Kingdom, which is the smallest plant kingdom with the highest diversity. Due to the restricted and small extent of this plant kingdom the impact of development pressure, as well as poor land management (occurrence, distribution and concentration of alien invasive plant species) have altered the natural vegetation cover substantially. Most of the vegetation types, especially the fynbos types, are critically endangered, and are under threat. Ecologically sensitive areas for the purposes of this EMF can be considered as:-

- Land vested in the National Park System for the purposes of conservation of flora, fauna and sensitive ecological systems,
- Areas with rare vegetation communities, or assemblages considered by the provincial conservation authority and SANParks as not adequately represented in secure conservation areas in and outside of metropolitan areas,

- Land containing declared red data fauna and flora and the habitats of declared fauna and flora,
- Wetlands with rare vegetation communities considered by the national and provincial authority as not adequately represented in secure conservation areas,
- Watercourses with rare fauna and flora communities considered by conservation authorities as not adequately represented in secure conservation areas,
- Watercourses functioning as ecological corridors between remnant patches of intact and pristine natural habitat and vegetation communities,
- Estuaries and inlets – all estuaries and inlets are of importance to DEA and the conservation authorities, and have a specific role to play in their protection,
- Coastline and nearshore marine areas, as identified by DEA and included in SANParks and DEA management areas for inclusion in sensitive conservation purposes,
- Coastlines in areas reserved for Parks and Recreation / multi-use recreational areas management by DEA, the province, local authority and by SANParks,
- Coastlines with rare vegetation communities not adequately represented in secure conservation areas, or rare flora and fauna,
- Coastlines where recreational use is high, such as beaches in urban areas,
- Potable water supply systems – ie surface and groundwater resources and areas, including catchment areas.

3.4. Visually Sensitive Areas – figure 18a & b

One of the greatest attractions to the Garden Route is its' high scenic quality. The Garden Route is nationally and internationally acclaimed for its' tranquillity and visual appeal; hence the "Garden Route". The perceived high visual quality and sense of place is subjective, and largely depends on the eye and appreciation of the beholder. Similarly, there are many factors which will influence an

individual's perception of a visual resource. These are influenced by culture, local and regional differences, income levels and class status. Generally communities with a homogenous profile are less likely to illustrate large conflicting perception differences; while diverse, multi-cultural communities often have a significantly diverging appreciation for visual quality aspects. The visual quality of a landscape is similarly in the eye of the beholder. The more discerning and educated the viewer is the greater the disparity between perceptions, i.e. what would be acceptable to the general traveller could conversely be offensive to the educated traveller / viewer.

This is best illustrated by the following example: the N2 highway can be considered as the Gateway to the Garden Route and the epiphany of what the Garden Route is – visually. It is the very first impression that a visitor makes when arriving in the area. However, most of the landscape and vegetation along the N2 from George towards Wilderness and Knysna has been extensively transformed by alien vegetation, and in most cases is not offensive to undiscerning travellers and viewers. However, for the educated and discerning traveller and viewer the visual integrity of the area has been compromised.

The Garden Route is renowned for its scenic landscapes and the visually sensitive areas for the purposes of this EMF can be considered as:-

- The backdrop of high mountains (Outeniqua Mountains ,Coastal and inland dunes covered in fynbos vegetation,
- The diverse coastline comprising extensive sandy beaches,
- Rocky promontories, and high fossilised dunes,
- Indigenous forests and exotic plantations,
- Farming and rural / agricultural landscapes,
- The hamlets and villages of the Garden Route (Wilderness, Sedgefield, Knysna),
- The National Lakes System,
- Land vested in the National Park System for the purposes of conservation of flora, fauna and sensitive ecological systems. The visual influence of surrounding land uses on the visual sensitivity and sense of place of The Wilderness National Park ie the backdrop to the conservation area

3.5. Protected Areas – figure 19

One of the contributing factors to the sensitivity of the study area is the use of land, and specifically land used for conservation purposes. The extensive network of protected areas, especially national parks and provincial reserves have contributed substantially in keeping the Garden Route intact without the wholesale fragmentation of sensitive landscapes and ecosystems as experienced elsewhere along the coastline. Conservation land use areas for the purposes of this EMF can be considered as:-

- Land vested in the National Park system as well as Provincial Nature Reserve system for the purpose of conservation of fauna, flora, ecological systems and sensitive landscapes,
- Areas managed for multiple use where conservation is a defined use (Wilderness National Park and the coastal areas),
- Lakes nominated for protection,
- Wetlands recognised by international agreement because of their importance primarily for water birds and their habitats – RAMSAR Sites.

3.6. Conclusion

In the study area it is quite evident that the sensitivity of the environment is interrelated and complex. There is no one or single aspect which defines the sensitivity of a specific land facet, it is usually a combination of several features and aspects. The following chapter deals with specific management provisions necessary in practically maintaining the status quo and integrity of the identified sensitive geographical area as discussed above.

4. MANAGEMENT GUIDELINES AND PROVISIONS

4.1. Purpose

Environmental protection is the responsibility of the National Department of Environmental Affairs, as well as the Provincial and Local Authority Departments. The specific mandate of DEA is the conservation, management and protection of the South African National Park system, specifically where it entails development which may influence and affect the integrity of any National Park.

The key purpose of the EMF and specifically the management guidelines are to provide a policy framework within which development activity should be assessed and evaluated in terms of the Environmental Impact Assessment provisions of the National Environmental Management Act 107 of 1998, as amended.

This document provides:-

- Information with regards to the sensitivity of the environment of most concern to DEA, WC DEADP and the local authorities, such as national parks, critically endangered vegetation and floral types, and
- Assessment information to guide any proposed development activity that may have a potential influence on any sensitive environmental aspect or feature.

Similarly, these management guidelines have been compiled as a guide for:-

- Statutory officials in National, Provincial and Local Government, and
- Consultants, landowners and developers.

The Development Guidelines will provide development guidance with regards to specific norms and standards, as well as statutory requirements through;

- Identifying areas with the highest conservation value of interest to authorities,
- Identify and listing of potentially harmful activities which are undesirable in specific sensitive geographical areas, and which may require specific management,
- Providing policy advice regarding the management of environmental impacts of proposals which could have significant impact on the environment, and
- Proving thresholds to development for specific environmental attributes.

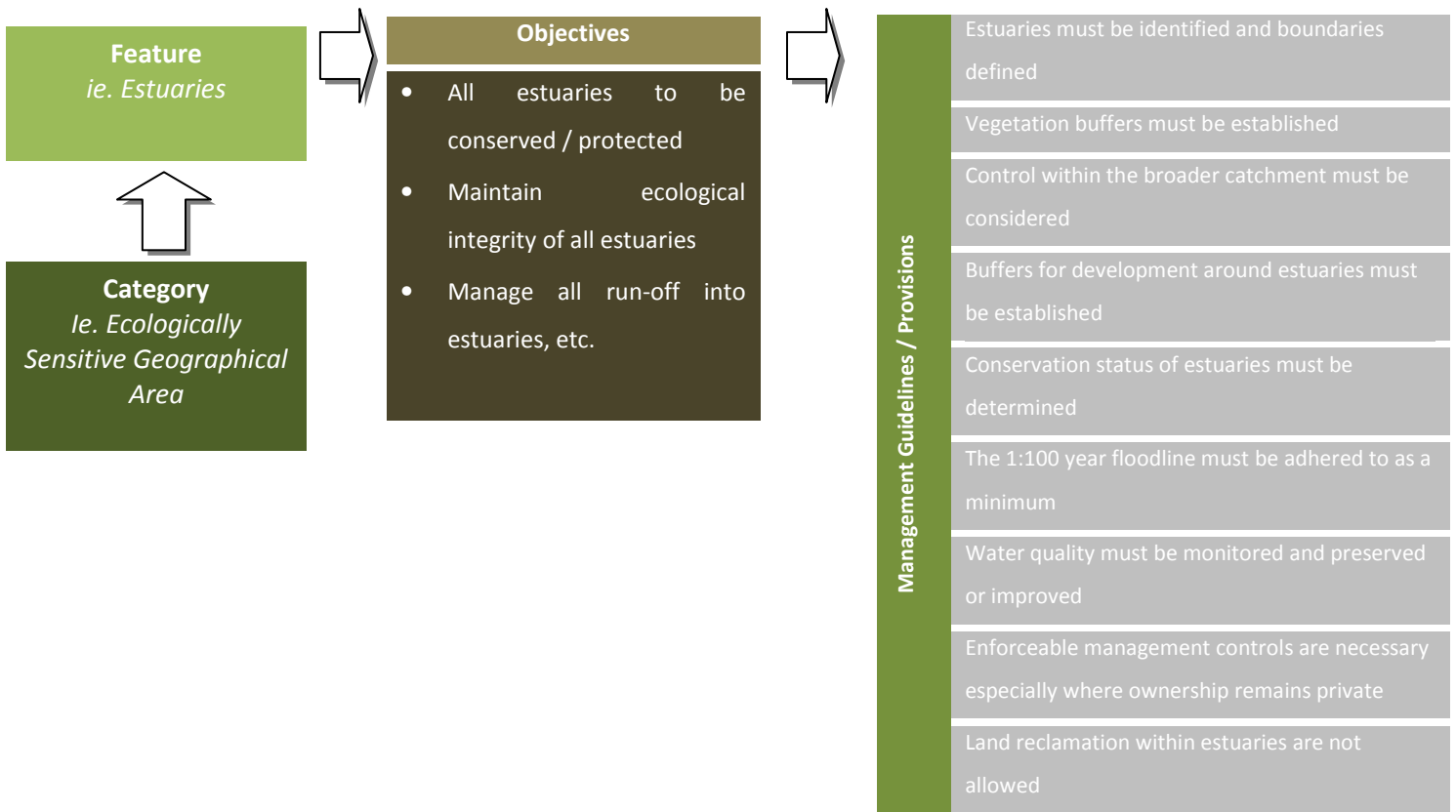
The provisions of this document will be applied when the DEA and the other relevant statutory authorities evaluate and assess proposals which fall within the sphere of this EMF, and within the provisions of these management guidelines.

These guidelines are based upon the Sensitive Geographical Areas as depicted in the previous chapter of the EMF. The areas are listed below:

- Topographical
- Ecological
- Visual
- Protected Areas

The structure of these management provisions are based upon the following approach:-

Category (geographical area) → Feature → Objective (Desired State) → Management Advice / Parameter / Guideline → Key Policy Reference (ie regulations, acts, norms and standards, policies, guidelines, etc).



4.2. General Principles

Section 2 of the National Environmental Management Act is referred to as the "NEMA principles". It is important to note that the NEMA principles are binding on ALL organs of State, including local authorities and their officials. The NEMA principles clearly emphasise the need to protect threatened ecosystems, and require officials to do the following:

1. Disturbance of ecosystems and loss of biological diversity must be avoided or if that is not possible, minimised and remedied.
2. Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures.

3. The development, use and exploitation of renewable resources and the ecosystem of which they are part, must not exceed the level beyond which their integrity is jeopardised. This means that an ecosystem must not be disturbed to the point that its health and functioning breaks down.

The Principles of NEMA

- 1) The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and
 - a) shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination; b) serve as the general framework within which environmental management and implementation plans must be formulated;
 - b) serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;
 - c) serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and
 - d) guide the interpretation, administration and implementation of this Act, and any other law concerned with the protection or management of the environment.
- 2) Environmental management must place people and their needs at the forefront of its concern and serve their physical, psychological, developmental, cultural and social interests equitably.
- 3) Development must be socially, environmentally and economically sustainable.
- 4) a) Sustainable development requires the consideration of all relevant factors including the following:
 - (i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
 - (ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

- (iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
 - (iv) that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
 - (v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;
 - (vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;
 - (vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
 - (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.
-
- a) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.
 - b) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.
 - c) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.
 - d) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.

- e) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.
- f) Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge.
- g) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.
- h) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
- i) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
- j) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.
- k) There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.
- l) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.
- m) Global and international responsibilities relating to the environment must be discharged in the national interest.
- n) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.
- o) The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
- p) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.

- q) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

4.3. Environmental Provisions for the Western Cape SDF

In the evaluation of development applications and land use changes the first point of departure should be the Western Cape Provincial Spatial Development Framework (2005). The WCSDF has been through an extensive participation process and has through its development incorporated the sentiments and requirements of all environmental stakeholders, parastatals and various government bodies to the extent that there is widespread acceptance of the framework. Similarly, it contains sufficiently enough detail to ensure primary protection and policy safe guarding of the environment.

Overarching Management Provisions provided by the WC Provincial SDF

Feature: Environmental and Sustainability provisions of the WC Provincial SDF

Objective	Management Guideline / Provision / Advice	Key Policy Reference
Resource protection	<p>ALIGN THE FUTURE SETTLEMENT PATTERN OF THE PROVINCE WITH ECONOMIC POTENTIAL AND THE LOCATION OF ENVIRONMENTAL RESOURCES:</p> <p>National Environmental Management Act 107 of 1998 : Chapter 1 (2) (4) (a)(vi) That the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised.</p>	Western Cape Provincial Spatial Development Framework
Resource protection / sustainable development	<p>DELIVER HUMAN DEVELOPMENT AND BASIC NEEDS PROGRAMS WHEREVER THEY MAY BE REQUIRED</p> <p>Development Facilitation Act No 67 of 1995 : Chapter 1 (3)</p> <ul style="list-style-type: none"> • (c) Policy, administrative and laws should promote efficient and integrated land development in that they- • (i) Promote the integration of the social, economic, institutional and physical aspects of land development; and, • (ii) Promote integrated land development in rural and urban areas in support of each other. <p>National Environmental Management Act 107 of 1998 : Chapter 1 (2) (4)</p> <ul style="list-style-type: none"> • (d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination. 	Western Cape Provincial Spatial Development Framework
Biodiversity protection	<ul style="list-style-type: none"> • STRATEGICALLY INVEST SCARCE PUBLIC SECTOR RESOURCES WHERE THEY WILL GENERATE THE HIGHEST SOCIO-ECONOMIC RETURNS <p>Development Facilitation Act No 67 of 1995 : Chapter 1 (3) (c)</p> <ul style="list-style-type: none"> • (iv) Optimise the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities. 	Western Cape Provincial Spatial Development Framework
Sustainable development	<p>SUPPORT LAND REFORM</p> <p>Development Facilitation Act No 67 of 1995 : Chapter 1 (3) (c)</p> <ul style="list-style-type: none"> • (vii) Encourage environmentally sustainable land development practices and processes. 	Western Cape Provincial Spatial Development

	<p>National Environmental Management Act 107 of 1998 : Chapter 1 (2) (4)</p> <ul style="list-style-type: none"> (d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination. 	Framework
Sense of place protection	<p>CONSERVE AND STRENGTHEN THE SENSE OF PLACE OF IMPORTANT NATURAL, CULTURAL AND PRODUCTIVE LANDSCAPES, ARTEFACTS AND BUILDINGS</p> <p>National Environmental Management Act 107 of 1998 : Chapter 1 (2)(2 Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.</p> <p>Chapter 1 (2) (4) (a) (iii) The disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied.</p>	Western Cape Provincial Spatial Development Framework
Human resource development / sustainably protection	<p>CONVENIENTLY LOCATE URBAN ACTIVITIES AND PROMOTE PUBLIC AND NON-MOTORISED TRANSPORT</p> <p>Development Facilitation Act No 67 of 1995 : Chapter 1 (3) (c) (i), (ii), (iii) and (v) (i) Promote the integration of the social, economic, institutional and physical aspects of land development;</p> <p>(ii) Promote integrated land development in rural and urban areas in support of each other;</p> <p>(iii) Promote the availability of residential and employment opportunities in close proximity to or integrated with each other; and</p> <p>(v) Promote a diverse combination of land uses, also at the level of individual erven or subdivision of land.</p>	Western Cape Provincial Spatial Development Framework
Biodiversity protection	<p>PROTECT BIODIVERSITY AND AGRICULTURAL RESOURCES</p> <p>Development Facilitation Act No 67 of 1995 :</p> <p>Chapter 1 (3) (c) (i) Promote the integration of the social, economic, institutional and physical aspects of land development;</p> <ul style="list-style-type: none"> (ii) Promote integrated land development in rural and urban areas in support of each other; (iv) Optimise the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities; (viii) Encourage environmentally sustainable land development practices and processes; and, vi) Discourage the phenomenon of "urban sprawl" in urban areas and contribute to the 	Western Cape Provincial Spatial Development Framework

	<p>development of more compact towns and cities.</p> <p>National Environmental Management Act 107 of 1998 :</p> <p>Chapter 1 (2) (4) (a)(i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; and,</p> <ul style="list-style-type: none"> (r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure. 	
<p>Biodiversity / land use protection</p>	<ul style="list-style-type: none"> All land in the Province shall be defined by the following "Broad" Spatial Planning Categories: Core 1 (Proclaimed National Parks, Provincial Nature Reserves, Mountain Catchment Areas, Unprotected but critically endangered areas of biodiversity); Core 2 (River corridors, ecological corridors); Buffer 1 (Endangered areas of biodiversity overlapping with extensive agriculture); Buffer 2 (Vulnerable and least threatened areas of biodiversity overlapping with extensive agriculture); Intensive Agriculture; Urban Development; and, the Urban Edge; in order to manage land use change in the four main physiographic components of the Province; the coastal zone, the coastal plain, the mountain spine and valleys, and the inland plains. 	<p>Western Cape Provincial Spatial Development Framework</p>
<p>Biodiversity /land use / corridor protection</p>	<ul style="list-style-type: none"> There shall be two types of Buffer Area. Buffer 1 areas contain endangered areas of biodiversity in which land may be converted to other uses if satisfactory offsets are provided. Buffer 2 areas contain vulnerable and least threatened areas of biodiversity and no offsets are necessary in these areas. All land not suitable for Intensive Agriculture outside Urban Edges shall be designated for Buffer Areas 1 and 2. Extensive Agriculture shall occur as an overlay zone over these three categories because of the close relationship between dry land grazing and veld quality (biodiversity). Buffer Areas should serve as an interface between Intensive Agriculture and Urban Development areas but in some instances these land-use categories may directly abut 	<p>Western Cape Provincial Spatial Development Framework</p>

	<p>Core Areas, (as happens in the City of Cape Town between Urban Development and the Table Mountain National Park (Core 1))</p> <ul style="list-style-type: none"> • (G) <u>There is a transitional aspect to Buffer Areas 1 and 2 in that in certain instances land with this designation may be converted to Intensive Agriculture or urban development if included within the urban edge of urban settlement, with offset conditions if Endangered Areas of Biodiversity are involved.</u> • (G) Generally, it is intended that accommodation, either freehold or rental, to support Core areas and biodiversity conservation should be located in Buffer areas. 	
<p>Land use protection</p>	<ul style="list-style-type: none"> • All land put under the plough including for orchards, vineyards, forestry plantations, annual crops, pastures, and including irrigation lands shall be reserved for Intensive Agriculture and should not be converted to other purposes. • RC5 - The approving of applications seeking to convert Intensive Agricultural land to other uses shall be a provincial responsibility. <p>RC6- Land that previously had Intensive Agricultural potential that has been destroyed through sand mining or other activities that failed to preserve the topsoil shall be rehabilitated.</p>	<p>Western Cape Provincial Spatial Development Framework</p>
<p>Land use / corridor protection</p>	<ul style="list-style-type: none"> • RC7 - Between Urban Development and Core, Buffer and Intensive Agriculture areas an Urban Edge shall be drawn around all villages, towns and cities in the Province to mediate the relationship between these provincial broad spatial planning categories. The Urban Edge has two functions: • i. The primary function is to contain the outward growth of urban settlements so as to promote their restructuring to address apartheid spatial patterns and urban functional inefficiencies. These inefficiencies relate to insufficient thresholds to support viable businesses and informal (2nd economy) activity, public transport and community facilities, and sub-optimal use of well located land, especially for subsidy and social housing. Thus, the role of the Urban Edge is seen as restricting the outward growth of urban settlements until such time as average gross densities of 25 dwelling units or 100 people per hectare are achieved. This may take 5 to 10 years in settlements that are growing rapidly, see Policy UR2. • ii. To protect land designated Core, Buffer and Intensive Agriculture from urban development where required. • In determining the Medium Term Urban Edge see "Strategy" opposite the different 	<p>Western Cape Provincial Spatial Development Framework</p>

	<p>components of classical apartheid towns (the 'white' and 'coloured' town and often also a 'black' town) must not result in two (or three, as the case may be) Urban Edges but only one - which must include both or all three towns.</p> <ul style="list-style-type: none"> • Between the towns the Urban Edge must follow transport routes and as far as possible include some developable land adjacent to the transport routes so as to encourage development between, and hence physical integration of, the two or more currently racial separated town components. 	
Land use / corridor protection	<ul style="list-style-type: none"> • As a general rule development beyond current rights pertaining to agricultural or conservation activities outside the Interim or • Medium Term Urban Edge shall not be permitted except for applications that can demonstrate, as their primary motivation by successfully complying with the four stage test discussed under the Action Plan, biodiversity conservation. • RC9 - Rural development, i.e. development outside the Urban Edge, shall not exceed densities of 1 du/10ha and may be considerably lower in landscapes with low visual carrying capacity. 	Western Cape Provincial Spatial Development Framework
Land use / corridor protection	<ul style="list-style-type: none"> • All land within an Interim or Medium Term Urban Edge shall be used for Urban Development purposes. RC13- Urban Development shall be defined as buildings and infrastructure with average gross residential densities greater than 1 du/ha as well as industry, offices, shops, community facilities and other associated buildings and infrastructure and public open space to protect biodiversity hot spots and proper functioning of urban areas and provide for amenity and recreation. • RC14- Settlements shall be restructured so as to break down the apartheid spatial patterns and increase urban functional efficiencies particularly spatial opportunities for the informal and SMME sectors and to achieve an average gross density of 25 dwelling units (100 people) per hectare inside the Urban Edge. • This does not imply "wall to wall" Urban Development as space must be allowed for a wide range of open space functions, transport, employment, social and recreational facilities. It is likely that most settlements will only achieve Urban Development of around 50% of their land area with the balance being used for open space, school fields and transport and other similar requirements. 	Western Cape Provincial Spatial Development Framework
Land use / corridor	<ul style="list-style-type: none"> • While existing rights cannot be taken away, further growth of existing golf and other similar 	Western Cape Provincial

protection	estates outside of existing urban settlements, shall be discouraged. Any new settlements such as agri-villages shall be integrated, providing opportunities for a full range of income groups, viable with respect to being able to support at least a tertiary range of facilities for example, clinic, primary school, multi-purpose hall and sustainable with regards to impact on natural resources.	Spatial Development Framework
Land use / corridor protection	<ul style="list-style-type: none"> • Further ribbon development along the coast and riverbanks shall be prohibited and coastal development outside Urban Edges where permitted shall be in a nodal or clustered form. RC17- Coastal and river bank development shall be set back behind the ecological setback lines including flood and storm surge lines (1:50 year floodline : property boundaries) (1:100 years floodline : building platform) . RC18- Whilst mariculture and aquaculture projects should be encouraged these should be carefully located with regards to environmental and visual impact criteria. 	Western Cape Provincial Spatial Development Framework
Coastline protection	<ul style="list-style-type: none"> • No further urban development shall be permitted on open coast lines that are vulnerable to erosion, inlets that are susceptible to increased storm activity, river banks that are liable to flooding, coastal buffer zones and ecological setback lines in estuaries and below the 1:50 year floodlines (erven) and the 1:100 year floodline (building platforms). 	Western Cape Provincial Spatial Development Framework
Resource protection / Sustainability	<ul style="list-style-type: none"> • MINIMISE THE CONSUMPTION OF SCARCE ENVIRONMENTAL RESOURCES, PARTICULARLY WATER, FUEL, BUILDING MATERIALS, MINERAL RESOURCES, ELECTRICITY AND LAND Development Facilitation Act No 67 of 1995 : Chapter 1 (3) (c) (iv) Optimise the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities; and, • (viii) Encourage environmentally sustainable land development practices and processes. National Environmental Management Act 107 of 1998 : Chapter 1 (2) (4) (a) • (ii) That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied; • (iv) That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner; • (v) That the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource; • (vi) That the development, use and exploitation of renewable resources and the 	Western Cape Provincial Spatial Development Framework

	<p>ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised; and,</p> <ul style="list-style-type: none"> • (vii) That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and action. 	
Water conservation	<ul style="list-style-type: none"> • Water conservation and demand management shall be encouraged through regulation where appropriate. • Rainwater harvesting, grey water recycling and similar technical enhancements such as low flow shower heads and dual flush toilets and water-wise gardens shall be mandatory on all new residential, commercial and community projects. • RC29- Retrofitting water demand management technologies into existing buildings should be encouraged via an incentives program, see Section 9. • RC30- There should be implementation of water demand management techniques such as minimising leaks by reducing water pressure and a stepped tariff system that effectively addresses excessive water consumption. (G) • RC31- An invasive alien species control plan should be developed for the Province, with particular focus on stressed catchments and previously cleared catchments for water production. 	Western Cape Provincial Spatial Development Framework

4.4. Management Guidelines for Ecologically Sensitive Geographical Areas

The management guidelines below refer specifically to the figure Ecologically Sensitive Geographical Areas. The intention of the guideline is to provide specific guidance to development within the defined geographical area. In order for the guidelines to have any significance it is important to include an appropriate level of detail to ensure that specific sensitive features are protected and managed accordingly. The category comprising the Ecologically Sensitive Geographical Area include the following broad features:

- Vegetation,
- Lakes,
- Estuaries and inlets,
- Rivers, streams and watercourses (riparian habitats),
- Wetlands, and
- Coastlines and nearshore marine areas,

4.4.1. Vegetation

Risks:

Impacts from development on or near conservation areas are:

- Vegetation loss through clearing, weed and alien invasion and burning,
- Disturbance to ecological processes,
- Increased competition from introduced species causing loss of numbers and diversity.

Objectives:

- An adequate system of representative fauna and flora must be set aside for the conservation of flora, fauna and landscapes,

- Connectivity through ecological corridors,
- Achievement and setting / adhering to national biodiversity targets into the NEM:BA,
- Land uses adjacent to conservation areas should have minimal impact on the areas' conservation values,
- Protection of remnant vegetation types and protection of remnant pockets of vegetation which have been identified by the National Biodiversity Targets (10%) as being endangered – not adequately conserved ie. below 10% should be a priority,
- Establish agreements and conservation servitudes with private land owners in land worthy of inclusion into the conservation / protected areas requiring proper management to retain and conserve critically endangered vegetation types / communities / flora species and faunal species.
- Natural forest must not be destroyed save in exceptional circumstances.
- Forests must be developed and managed to conserve biodiversity and habitats, sustain potential yield of their benefits (economic and social) and to conserve natural resources.
- Endangered and critically endangered forest types will require that applicants and decision makers be held liable for their decisions that may impact forests.
- Potential impacts must be considered pro-actively before decisions are made.
- Maintaining natural forests and a good state and rehabilitation of degraded forests must be promoted.
- Appropriate levels of access and use of forests must be kept in carry capacity of forest and ensure their sustainability.
- Forests must not be regarded in isolation, forest must be protected along with surrounding veld types

VEGETATION TYPE MANAGEMENT PROVISIONS

Feature: Vegetation and Floristic Biodiversity

Objective	Management Guideline / Provision / Advice	Key Policy Reference
Vegetation conservation	<ul style="list-style-type: none"> indigenous timber is Protected, Felling and harvesting are only allowed if the trees are expected to die within the next 10 years, Water and soil quality is degraded by timber harvesting, therefore remaining trees are protected, all indigenous vegetation is protected, however the following species have the highest priority: Outeniqua Yellow wood (<i>Podocarpus falcattus</i>) Real Yellowwood (<i>Podocarpus latifolius</i>) Milkwood (<i>Sideroxylon inerme</i>) Stinkwood (<i>Celtis africana</i>) 	SANP Knysna Forest brochure
Vegetation Conservation	<p>No new landuses that impact on forests will be considered in or around forest types, (including residential development, capital infrastructure projects, agriculture), except eco-tourism activities, with a sufficient buffer radius and restricted development footprint.</p> <p>Developments inside forest areas, below the status of endangered, development must be located in the least sensitive parts of the forest (disturbed area preferably).</p> <p>Land use or development must ensure that:</p> <ol style="list-style-type: none"> Dynamic forest processes remain intact, Preventing disturbance to forest ecosystems, fauna and flora, Keep forest margins and surrounding mosaic of habitats in place as far as possible, Does not allow disturbance caused by poor land motivate to be sued as a motivating factor for land use change 	Policy Principles and Guidelines for Control of Development Affecting Natural Forest, 2009
Alien vegetation control	The widespread infestation by IAPs and all its related problems are increasingly acknowledged throughout South Africa. If not controlled, this infestation can result in the loss of much of the available water runoff in certain catchments.	DWAF -Outeniqua Coast Water
Vegetation type protection	Protection of remnant vegetation types and protection of remnant pockets of vegetation which have been identified by the National Biodiversity Targets (10%) as being endangered – not	

	<p>adequately conserved ie. below 10% should be a priority. These vegetation types include the following as priorities:</p> <ul style="list-style-type: none"> • Garden Route Granitic Fynbos • Garden Route Shale Fynbos • North Outeniqua Sandstone Fynbos • Southern Cape Dune Fynbos • Knysna Sand Fynbos <p>Rare species, including declared rare flora and fauna should be protected. There should be no further loss of indigenous vegetation from the above areas.</p> <p>Where development is proposed on land with remnant indigenous vegetation, the responsible authority should require a survey of the site for the presence of rare and priority conservation target species and vegetation types. This must take place very early in the planning phase. [inside and outside of the urban edge]</p>	
North Outeniqua Sandstone Fynbos	Pines are the main invaders of the fynbos mountain ridges and upland catchments. The periodic fires enhance spreading rates and the effect of a dense invasion is the same as if the area was covered by commercial plantation (DWAF. 2007a)	DWAF -Outeniqua Coast Water
South Outeniqua Sandstone Fynbos	Alien plants and animals must be removed and prevented from spreading. Appropriate fire regimes must be maintained. Surface and underground hydrological systems and wetland habitats must be maintained. Small remnants of Alluvial Fynbos (<100 ha) are likely to suffer losses of pollinators, changes in fire frequency and edge effects that encourage invasion by alien plants. Red Data List species must be monitored, and significant, viable populations of such species should not be lost to any form of development. Biocontrol "reserves" (for controlling hakea and Acacia spp) must be maintained and monitored. Development of habitat of Critically Endangered or Endangered plant species must be avoided and discouraged.	EcoSystem Guidelines For EIA, WC
Southern Afrotemperate Forest	Typically, black wattle invades riparian zones and adjacent surrounds, while pines invade mostly the uplands and mountain slopes (N. Wessels, Cape Nature Conservation, pers. com.). On the other hand, there are plans for the decommissioning of major commercial afforestation, possibilities for cleaning up of areas infested with invasive alien plants (IAP) and potential for water conservation	DWAF Afforestation Report

	and demand management (WC/DM) interventions. Least threatened. Target 34%. More than half these forests enjoy protection in the Garden Route National Park, and several nature reserves. Unknown portion has been transformed.	
Southern Cape Dune Fynbos	As a general rule, connectivity must be maintained and fragmentation of habitat actively avoided. This is particularly relevant in Dune Thicket and Dune Fynbos. Remnants can be very small and remain fairly viable, but unless they have good connectivity (within a few hundred metres) they will have far fewer mammals and birds. Birds are more affected by patch size than by patch isolation. Since many of the plants are resprouters they can persist for centuries without pollinators. Least threatened, target 36%. More than 16% statutorily conserved in the Goukamma (housing the most prominent examples) and the Garden Route National Park.	Ecosystem Guidelines For EIA, WC
Southern Coastal Forest	Least threatened. Target 40%. More than half of these dune forests are under statutory conservation and protection, especially along the dunes of the Eastern Cape. The Western Cape Milkwood forests are well preserved in Goukamma Nature Reserve and Wilderness National Park. About 6% transformed for cultivation and urbanisation. Most serious threat to these forests are coastal development and fires.	Strelitzia 19
Southern Coastal Forest: Milkwood Forest	Milkwood category is listed as endangered, thus development would indirectly cause: <ul style="list-style-type: none"> • Irreversible habitat loss, • Ecosystem degradation & loss of integrity, • Associated threatened species loss. 	Policy Principles and Guidelines for Control of Development Affecting Natural Forest, 2009
Knysna Sand Fynbos	The Fynbos Forum, together with the Conservation Unit of the Botanical Society of South Africa, is preparing Ecosystem-Specific Guidelines. These Guidelines give information on the main drivers, issues, threats to, and vulnerabilities of threatened ecosystems in the Western Cape. Guidance is also given on the 'bottom lines' or non-negotiables regarding the acceptability of impacts on these systems, and their likely reversibility. The spatial components of ecosystem processes, and recommended approaches to planning development within these ecosystems and habitats are also given. Critical issues for managing these ecosystems to ensure persistence are provided, and mitigation, compensation and/or offsets for impacts are discussed. The use of indicators is also covered.	DEADP WC Biodiversity Guideline

	Endangered vegetation type – target 23% : patches statutorily conserved in the Garden Route National Park 3%, and approximately 2% in private reserves. Almost 70% transformed due to alien infestation and Knysna urban sprawl.	
Knysna Sand Fynbos	<p>Because Sand Fynbos and Limestone Fynbos are very prone to alien invasion, habitat fragmentation and disturbance of edges of patches must be avoided. In general, housing infrastructure is not compatible with conserving fynbos or any other fire-prone vegetation type. In order to allow burning, nodal or clustered development is preferable to a spreading, linear layout. To minimise the impacts of developments in fynbos, houses should be clustered within a fire-free zone and protected with an appropriate fire belt. Firebreaks must be cleared within the development footprint, not in adjacent veld. Building materials should be fire-resistant. Thatched roofs may therefore be inappropriate in developments adjacent to, or in, natural fynbos areas such as part of the Cape Peninsula or Overberg coast. By contrast, a thatched house in forest or thicket may be more compatible with conservation.</p> <p>All further development of wetlands (pans, vleis, marshes, riverine areas, drainage lines), seeps or peaty soils should be avoided and preferably stopped. Wetlands must be buffered and links maintained with conservation areas. Most community pat terns within Sand Fynbos and Limestone Fynbos are orientated parallel to the coast, with the exception of riparian communities. Spatial planning should ensure representation of sub-units perpendicular to riparian communities and, in non-riparian communities, perpendicular to the coast. The loss of Sand Fynbos must be mitigated with corridors perpendicular to the long axis of sand-filled depressions. Corridors in strip-ploughed Sand Fynbos should be at least 300 m wide. Most Fynbos types are slow growing and vulnerable to trampling. Remnant Fynbos within residential areas therefore should be safeguarded against physical disturbance.</p>	Ecosystem Guidelines For EIA, WC
Garden Route Shale Fynbos	Endangered vegetation type. Target 23%. Statutorily conserved in the Garden Route National Park 4%. More than half the area has been transformed for cultivation and pine plantations.	Strelitzia 19
Garden Route Granite Fynbos	Endangered vegetation type. Target 23%. Only 1% conserved in the Garden Route National Park. About 70% transformed for cultivation, pine plantations and urban development. Remnants are confined to isolated pockets on steep slopes.	Strelitzia 19
Corridor Conservation	No more transformation is desirable in areas with intact, high quality vegetation. Habitat conversion must be avoided and strongly discouraged in threatened vegetation types. Proposed transformation	Eco System Guidelines For EIA,

	should always be preceded by a botanical evaluation. Small remnants (~1 ha) can be very important for the conservation of individual species and achieving some pat tern targets. However, in order to be functionally viable, larger patches should be within 500 m of each other and connected by pollinator-friendly terrain. It is critical to maintain pollinator-plant associations and pollution by herbicides, fertilisers and insecticide spray must be minimised. Avoid perturbations (including grazing and all forms of physical transformation) to silcrete, ferricrete and quartz patches. Appropriate fire regimes must be maintained. Alien species should be eradicated.	WC (Adapted)
Alien vegetation control	Invasive Alien Plants (IAP) are wide spread throughout the study area, but the most severe infestation is evident in the catchments of the Klein Brak, Great Brak, Maalgate, Gwaing, Kaaimans and Wolwe rivers, which cover most of the Mossel Bay, George and Knysna municipal areas. The present impact on assured yield associated with IAPs in the study area is estimated at 5.0 million m3 /a.	DWAF -Outeniqua Coast Water
Biodiversity Conservation	Development in areas where sensitive fauna or flora occurs such as Red Data plant or animal species will be strongly discouraged.	DEADP WC Mnt & Ridgeline Guideline

4.4.2. General Biodiversity Provisions

Feature: General Biodiversity Protection

Objective	Management Guideline / Provision / Advice	Key Policy Reference
Sensitive habitat protection	<p>CapeNature does not support activities that may negatively impact on the following habitats and their ecological functioning: Rivers, wetlands, groundwater-dependent communities and estuaries.</p> <ul style="list-style-type: none"> • ii. Viable and/or connected Critically Endangered and Endangered ecosystems. • iii. Any area in low irreplaceable habitat that is important for biodiversity conservation, as identified by a systematic conservation plan. • iv. Any other special habitats that may contain a unique signature of species e.g. dolomite outcrops, quartz or ferricrete 	Cape Nature EIA Procedures

	<p>patches.</p> <ul style="list-style-type: none"> v. Any habitat that contains rare or threatened flora or fauna species. vi. Natural habitat in an ecological corridor or along a vegetation boundary, including frontal dune systems). vii. Formally declared Mountain Catchment Areas. The Cape Floristic Region is largely a fire-dependent system, relying on natural fire regimes that must be maintained and managed in the landscape. The exclusion of fire from certain habitats will be considered unacceptable. 	
Biodiversity protection	<ul style="list-style-type: none"> South Africa has ratified the Convention on Biological Diversity (CBD), which means that it has an international obligation to work towards conservation of its biodiversity. In terms of this Convention, conservation entails: <ul style="list-style-type: none"> The protection of species and ecosystems that warrant national protection; Sustainable use of indigenous biological resources; and The fair and equitable sharing of its benefits. 	DEADP Biodiversity Guidelines
	<ul style="list-style-type: none"> The particular context of the EIA, nature of the proposed project and of the receiving environment will determine which – if any – of the following are relevant at an international level: <ul style="list-style-type: none"> Convention on Biological Diversity; The Ramsar Convention (on wetlands of international importance especially as waterfowl habitat); The Bonn Convention (on conservation of migratory species of wild animals); The World Heritage Convention; The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). 	DEADP WC Biodiversity Guidelines
Biodiversity provisions in spatial planning	A number of SDFs have been completed in the province that specifically accommodates biodiversity, taking into account their ecosystem status and the need to conserve ecological and evolutionary processes ('ecological corridors'). The provisions of the WC SDF are included above and must be adhered to.	Western Cape Provincial Spatial Development Framework
CAPE Strategy	Provincial government is party to a national Memorandum of Understanding for the implementation of the Cape Action for People and the Environment (CAPE) strategy for the conservation of biodiversity within the Cape Floristic Region. The provisions of CAPE must be implemented and consulted in development application and development reviews.	
Local conservation initiatives	There are a number of local initiatives that include biodiversity conservation as an objective (e.g. Garden Route Initiative). The provisions of these initiatives must be implemented and consulted in development applications.	GRI

Legislative Triggers for biodiversity protection	<p>Triggers for involving biodiversity input:</p> <p>Legal triggers, including legal requirements of existing and future legislation;</p> <ol style="list-style-type: none"> 2) Lack of information about the receiving environment; 3) The presence of important biodiversity pattern; 4) The presence of important ecological processes; 5) The presence of important ecosystem goods and services; 6) The potential of the specific project to pose a threat to biodiversity; 7) The potential of biodiversity and/or ecosystems to pose a threat to the proposed project; and 8) The potential for making a significant contribution to biodiversity conservation objectives, given the particular context of the proposed project of ecosystems and the interaction of living and nonliving components within those systems. 	
SANBI activity commenting procedures	<p>SANBI shall no longer comment on applications for prospecting or mining rights under the Minerals and Petroleum Resources Development Act 28 of 2002. Please note that in line with the requirements of Section B of DEA&DP's basic assessment questionnaire, we expect that planning and environmental assessment processes as a minimum pay close attention to avoiding irreversible impacts on biodiversity in:</p> <ul style="list-style-type: none"> - Threatened ecosystems - Ecological corridors and vegetation boundaries; and - Special habitats such as quartz patches or seasonal wetlands 	SANBI EAP Letter
Biodiversity protection for development assessments	<p>SANBI strongly recommend that environmental assessment practitioners and biodiversity specialists routinely refer to the following resources:</p> <p>The SANBI Biodiversity GIS Unit website for conservation plans and the National Spatial Biodiversity Assessment http://bgis.sanbi.org/ or BGISHelp@sanbi.org</p> <ul style="list-style-type: none"> - The Basic Terms of Reference for the Consideration of Biodiversity in Environmental Assessment (Appendix II of the Fynbos Forum Ecosystem guidelines for Environmental Assessment in the Western Cape) http://www.capenature.co.za/docs/409/Guidelines%20for%20Biodiversity%20Assessments%20(81kb).pdf;- <p>The Fynbos Forum Ecosystem Guidelines for Environmental Assessment in the Western Cape http://bgis.sanbi.org/wces/FF_Ecosystem_Guidelines.pdf</p> <ul style="list-style-type: none"> - CapeNature's Commenting Role in EIAs and Development Applications (CapeNature, 17 August 2006) http://www.capenature.co.za/docs/408/Cape%20Nature%20Requirements%20(77kb).pdf; 	SANBI EAP Letter

	<p>– Guideline for Involving Biodiversity Specialists in EIA Processes (DEA&DP) http://www.capecgateway.gov.za/eng/yourgovernment/gsc/406/services/11537/10199#guidelines; and 3 i.e. as defined by appropriate surrogates for 'biodiversity', such as mapped vegetation types, ecosystems or special habitats.</p> <p>– The Western Cape Provincial Spatial Development Framework (Department of Environmental Affairs and Development Planning) http://www.capecgateway.gov.za/eng/pubs/guides/W/120505 All</p>															
Biodiversity protection	<p>Conserve Biodiversity by:</p> <ul style="list-style-type: none"> • working with production sectors, • strengthen bioregional sectors, • minimize loss of habitat in threatened eco-systems, • prevent and manage the spread of alien invasive species, and • expand formal protected areas to achieve biodiversity targets 	NSBA														
Red Data Faunal Species Protection	<p>The following Red Data Faunal species of special concern in the area must be protected. The integrity of their habitats and foraging ranges must be protected.</p> <table border="1"> <thead> <tr> <th>Species name</th> <th>Red data book status, habitat description and location in the Garden Route</th> </tr> </thead> <tbody> <tr> <td colspan="2">Plants: Of the many red data species, the following are Critically Endangered</td> </tr> <tr> <td><i>Disa newdigateae</i></td> <td>A Critically Endangered orchid which is thought to be endemic to Knysna Enon Fynbos in the Knysna municipal area only (even though this vegetation type also extends into the Bitou Municipality).</td> </tr> <tr> <td><i>Disa procera</i></td> <td>A Critically Endangered orchid which is locally endemic to Hoogekraal Sandplain Fynbos in the Knysna municipal area only (even though this vegetation type extends into all three municipalities).</td> </tr> <tr> <td><i>Gladiolus fourcadei</i></td> <td>A Critically Endangered plant located in Renosterveld (transitional Fynbos), extending from George to Humansdorp.</td> </tr> <tr> <td><i>Pentaschistis barbata orientalis</i></td> <td>A Critically Endangered grass species which is locally endemic to Hoogekraal Sandplain Fynbos in the Knysna municipal area only (even though this vegetation type extends into all three municipalities).</td> </tr> <tr> <td><i>Protea cynaroides subsp or</i></td> <td>A Critically Endangered protea variant that is extremely rare and which occurs in</td> </tr> </tbody> </table>	Species name	Red data book status, habitat description and location in the Garden Route	Plants: Of the many red data species, the following are Critically Endangered		<i>Disa newdigateae</i>	A Critically Endangered orchid which is thought to be endemic to Knysna Enon Fynbos in the Knysna municipal area only (even though this vegetation type also extends into the Bitou Municipality).	<i>Disa procera</i>	A Critically Endangered orchid which is locally endemic to Hoogekraal Sandplain Fynbos in the Knysna municipal area only (even though this vegetation type extends into all three municipalities).	<i>Gladiolus fourcadei</i>	A Critically Endangered plant located in Renosterveld (transitional Fynbos), extending from George to Humansdorp.	<i>Pentaschistis barbata orientalis</i>	A Critically Endangered grass species which is locally endemic to Hoogekraal Sandplain Fynbos in the Knysna municipal area only (even though this vegetation type extends into all three municipalities).	<i>Protea cynaroides subsp or</i>	A Critically Endangered protea variant that is extremely rare and which occurs in	iCAN Strategic Management Plan
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variety	both Hoogekraal Sandplain Fynbos (located in all three municipalities) and Roodefontein Grassy Fynbos (located in the Bitou Municipality), although the plant's range extends from George to Port Elizabeth.
Animals: The following animals have been sighted in various Special Habitats across the different municipalities	
Blue duiker (<i>Philantombo monticola</i>)	Occurs in dense coastal bush, thicket and forest habitats. Its status is Vulnerable.
Grysbok (<i>Raphicerus melanotis</i>)	This buck lives in thick scrub and bush, including fynbos, and is often found in close proximity to coastal towns. It is endemic to the Western Cape.
Honey badger or Ratel (<i>Mellivora capensis</i>)	This animal is Near Threatened and protected in terms of the NEMBA. It is uncommon throughout its range, which includes a variety of habitats but excludes forest, moist mountain areas and desert.
Leopard (<i>Panthera pardus</i>)	A large, wild cat that is tolerant of a wide range of habitats, usually with forest or broken rocky country. Its status is Vulnerable.
Birds	
African Marsh Harrier (<i>Circus ranivorus</i>)	An indigenous species of high conservation value, it is protected by the NEMBA in terms of the Protected Species List. It inhabits marshland, flooded grassland and adjacent areas.
Blue Crane (<i>Anthropooedes paradisea</i>)	South Africa's national bird favours grasslands and other upland habitats. They will nest where shallow wetlands are available. Its status is Endangered.
Lesser Kestrel (<i>Falco naumanni</i>)	Usually a colonial breeder, this kestrel is found in the vicinity of human settlements. It forages in grasslands, steppe-like habitats and non-intensive cultivated areas. Its status is Vulnerable.
Martial Eagle (<i>Polematius bellicosus</i>)	The largest eagle in Africa prefers uninhabited stretches of thicket and open plains. Its status is Vulnerable.
Peregrine Falcon (<i>Falco peregrinus</i>)	It lives mostly along mountain ranges, coastlines and river valleys. Its status is Vulnerable.
Amphibians	

Knysna Spiny Reed Frog (<i>Afrivalus knysnae</i>)	An Endangered and endemic frog species that occurs in shallow wetlands densely vegetated, with foliage above the water level.
Reptiles	
Blue-spotted Girdled Lizard (<i>Cordylus coeruleopunctatus</i>)	This lizard is endemic to the Garden Route, and is located in the George and Bitou municipalities.
Knysna Dwarf Chameleon (<i>Bradypodion damaranum</i>)	The endemic Knysna Dwarf Chameleon is a forest reptile that occurs in the wet, coastal temperate forests of the Knysna area.
Insects - Butterflies	
Brenton Blue (<i>Orachrysops niobe</i>)	A Critically Endangered butterfly found only at Brenton-on-Sea, Knysna, within the Brenton Blue Butterfly Reserve.
Brenton Copper (<i>Aloeides thyra orientis</i>)	The Brenton Copper is a red listed butterfly which is found only on the Brenton peninsula. Its status is Vulnerable.
Brenton Opal (<i>Chrysoritis thysbe mithras</i>)	The Brenton Opal Butterfly is found only on the Brenton peninsular and is red listed as Endangered.
Knysna Skolly (<i>Thestor brachycerus</i>)	A Critically Endangered butterfly confined to the Eastern Knysna Heads.
Fish	
Cape Gallaxius (<i>Galaxias zebratus</i>)	This fish is Near Threatened and endemic to South Africa, and occurs in a few George and Knysna municipal rivers.
Cape Kurper (<i>Sandelia capensis</i>)	Near Threatened and endemic to South Africa, this fish occurs in several rivers from George to the Bitou Municipality.
Eastern Cape Redfin (<i>Pseudobarbus afer</i>)	This forest fish species is found in a number of rivers in the Garden Route. Its status is Near Threatened and it is endemic to South Africa.
Knysna Seahorse (<i>Hippocampus capensi</i>)	This seahorse has been recorded from the Knysna, Swartvlei, and Keurbooms Estuaries. Its status is Endangered.
Slender Redfin	An Endangered fish, endemic to South Africa, and located in few rivers, largely

	(<i>Pseudobarbus tenui</i>)	within the Bitou Municipality.	
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4.4.3. Lakes, Estuaries and Wetlands

Risks:

- Jetties
- Recreational use – boats etc
- Water abstraction
- Filling in ,
- Damming and draining,
- Impoundments and changes to natural flow,
- Dredging,
- Excavation and sand mining,
- Discharging and disposal of effluent,
- Alterations to water levels or drainage of water into and out of lake systems,
- Loss of important wetland and fringe vegetation,
- Changes to aquatic habitats due to inflow of stormwater and loss of deep rooted vegetation,
- Loss of water quality from pollutants exported from the development through ground or surface water,
- Loss of fringing vegetation,
- Significant change to the water balance,
- Export of nutrients to the lakes.

Objectives:

- All aquatic systems and estuaries are important and have value,

- Estuaries should be kept ecologically sound, visibly healthy, and their environmental values maintained,
- Estuary catchment management objectives should be based upon best practice – minimising nutrient export into estuaries,
- An aquatic systems attributes is used to establish the value of the ecosystem and its ecological and hydrological functioning for natural and human purposes,
- Land reclamation should not be allowed,
- RAMSAR sites and bird breeding sites must be protected,
- Estuaries should be protected by an adequate dry land buffer from development,
- Dependent on above management parameters will differ according to the inherent value of each individual system,
- An aquatic systems attributes form the basis for its management, as well as the catchment,
- Wetland, including the lakes should be protected by an adequate dry land buffer from development,
- Adverse impacts on aquatic systems, particularly on water quality and water levels through land uses in the catchment should be minimised and where possible avoided altogether,
 - Development that retain wetland function within the development, or
 - Wetland with similar type is constructed or rehabilitated to fulfil equivalent functions.
- Management of the growing development pressure within the catchments of the various lakes from the following sources:
 - Water intensive land uses such as rural/residential and irrigated agriculture,
 - Land uses utilising large quantities of fertilisers and phosphates,
 - Increased tourism development pressure – development and use pressure.

MANAGEMENT PROVISIONS FOR LAKES, ESTUARIES AND WETLANDS

Feature: Lakes, Estuaries and Wetlands of the Garden Route

Objective	Management Guideline / Provision / Advice	Key Policy Reference
Species Protection	<ul style="list-style-type: none"> The Knysna Seahorse is endemic to South African estuaries, and is listed as the most threatened seahorse in the World. It functions as an indicator species in estuary environments. Pansy shell <i>Echinodiscus bisperforatus</i> is a nationally protected marine species. 	SANParks Knysna Seahorse Brochure / GRI SANParks Biodiversity Handbook
Sensitive habitat protection	<p>CapeNature does not support activities that may negatively impact on the following habitats and their ecological functioning: Rivers, wetlands, groundwater-dependent communities and estuaries.</p> <ul style="list-style-type: none"> ii. Viable and/or connected Critically Endangered and Endangered ecosystems. iii. Any area in low irreplaceable habitat that is important for biodiversity conservation, as identified by a systematic conservation plan. iv. Any other special habitats that may contain a unique signature of species e.g. dolomite outcrops, quartz or ferricrete patches. v. Any habitat that contains rare or threatened flora or fauna species. vi. Natural habitat in an ecological corridor or along a vegetation boundary, including frontal dune systems). vii. Formally declared Mountain Catchment Areas. <p>The Cape Floristic Region is largely a fire-dependent system, relying on natural fire regimes that must be maintained and managed in the landscape. The exclusion of fire from certain habitats will be considered unacceptable.</p>	Cape Nature EIA Procedures
Water resource threats and water use requirements	<p>Threats to Water resources (Outeniqua Coast water study)</p> <ul style="list-style-type: none"> Planned major residential developments Data on planned major residential developments is not readily available. Since the Outeniqua Coast study, the area has experienced rapid growth during the last decade, it can be assumed that the past growth in water requirements related to major 	DWF Water Report

	<p>residential developments are included in the population growth rates assumed for the long-term high growth as described above.</p> <ul style="list-style-type: none"> Using these growth rates for future projections (UWP/BKS Outeniqua Coast Water Situation Study: Urban & Rural Water Requirements and Return Flows) will allow for potential developments of which no or little information is available at this stage. Although there is still a high demand for developments in the Outeniqua Coast study area it can be debated that future growth may decline. This possibility is proposed to be represented by the long-term low-growth scenario. 	
Estuary importance ranking	<p>Rank estuary in terms of their conservation importance :</p> <p>Biodiversity importance in South Africa</p> <ul style="list-style-type: none"> Knysna Estuary Rank 1 Swartvlei Rank 6 Wilderness Rank 24 Goukamma Rank 68 	State of Rivers Report
Wetland & aquatic conservation	<ul style="list-style-type: none"> All wetlands have conservation significance, in terms of habitat type, and/or cumulative or singular functional value. Flow regimes must be able to maintain the wetland at its present extent and habitat quality, as well as downstream ecosystems. Water quality must be controlled to allow management of wetlands in relation to specific objectives, e.g. some wetlands may be deemed suitable for improving water quality; others would need protection from pollutants to maintain particular habitat quality. Hydrological connections between systems should be preserved. Existing ecosystem linkages/connectivity must be maintained at an appropriate scale. Buffers (i.e. building setbacks, preferably natural vegetation) should:- protect wetland systems from specific identified threats, as relevant to each system- provide sufficient space to allow for future rehabilitation and buffering of that ecosystem Protect the ecosystem health and integrity of receiving ecosystems. 	Ecosystem Guidelines For EIA, WC
Development guidelines for	<ul style="list-style-type: none"> Wetlands should be delineated prior to planning for development. Wetland delineation and assessment should take place during the wet season; the level of 	

<p>wetlands</p>	<p>confidence attached to wetland identification and delineation in the dry season is very low for all wetlands other than permanent systems.</p> <ul style="list-style-type: none"> • Allow adequate buffering of rivers and drainage lines. Ideally, buffer areas should first make allowance for future rehabilitation of the channel - e.g. regarding and reshaping of hardened river banks - and then impose development setbacks from the theoretical edge of the rehabilitated river bank. The City of Cape Town's Floodplain Management Guidelines 1 should be used as broad guidelines for minimum setback areas. • Additional evaluation of specific functional requirements of the buffer areas, on a site-specific basis, is needed (e.g. providing an appropriate buffer width for a system receiving treated effluent runoff, versus providing an adequate buffer against noise pollution or alien invasion). • Spatial depiction of existing or past linkages between wetlands, drainage channels and rivers/streams (these should be maintained or restored wherever possible) is required. • Small wetland fragments should be linked by areas of open space; existing drainage lines and corridors should be conserved; previously disturbed areas should be used, where ecologically appropriate, for performing "services" such as stormwater treatment, leaving less disturbed areas in a relatively unimpacted, more isolated condition. • Wetland services usually require a minimum size before they are effective. Note however that multiple small systems may never the less have an important cumulative effect. • Appropriate unhardened terrestrial open space areas should be used as buffers/interfaces between developments and wetlands, performing services such as initial filtration and sedimentation of runoff. • The land-use permitted in these areas should be in accordance with this function. The width of these buffer areas should be determined with regard to their required functions. Land-uses that potentially would add nutrients instead of performing a filtering function would be less appropriate, e.g. grazing of livestock, development of feedlots or equestrian areas. • A flow regime that is adequate to maintain the river at a desired and attainable Management Class. • Water quality that is adequate to maintain the river at a desired and attainable Management Class. 	
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	<ul style="list-style-type: none"> • Buffers that: <ul style="list-style-type: none"> - are adequate to protect from the threats identified below, as relevant to each system, - allow for future rehabilitation, and - protect the habitat integrity of the receiving watercourse. • Maintenance of existing ecosystem linkages/connectivity at an appropriate scale. • No new concrete canalization or piping of river channels. <p>Maintain:</p> <ul style="list-style-type: none"> • Flow regime, including seasonality, water quantity and links to the water table and groundwater system. • Water quality. • Bank slope and stability. • Maintenance of natural erosion and sedimentation processes. • Plant community structure and zonation. • Habitat availability and accessibility. • Instream biotope quality and availability. • Control over invasion by opportunistic weeds and other invasive plant species. • Control over invasion by introduced exotic fish and other alien fauna. 	
Wetland & water conservation	<p>Promote river health by:</p> <ul style="list-style-type: none"> • Good Land use management within catchments, • Integrate land and water management policies for impacted rivers, determine, implement and monitor ecological reserves, • Integrate river into bioregional plans and programmes, • Maintenance of genetic integrity. • A buffer that protects river habitat and functions from encroachment and degradation. • As a minimum, the Ecological Reserve should be maintained in terms of water quantity and quality. • Abstraction should be viewed as an issue covering both water quantity and water quality. Reserve Determinations should be dealt with cautiously due to the risk of methodological inaccuracy. • Maintenance of biological and hydrological linkages/connectivity in the catchment and in the broader system. 	NSBA

<p>Wetland & river flow conservation</p>	<p>Crucial element to maintain are:</p> <ul style="list-style-type: none"> • Flow regimes as close to natural as possible (seasonality and flood frequency). • Water quality (particularly quality of freshwater input s). • Mouth dynamics as close to natural as possible (opening and closure). • Estuarine water quality (nutrients and contaminant s). • Good catchment management (e.g. appropriate land use practices and alien clearing). • Sediment input (terrestrial and marine). 	
<p>Water quality and pollution sources</p>	<ul style="list-style-type: none"> • Of concern, however, are the consistently high concentrations of phosphate and the increasing trend in concentrations for most of the variables, which indicate that most of the water bodies are affected by return flows. • Of concern however, are the consistently high concentrations of phosphate. This can lead to a high trophic state, and the associated problem of algal blooms or nuisance water plants, especially in standing or slow moving water bodies 	<p>DWAF -Outeniqua Coast Water</p>
<p>Estuary & water conservation</p>	<p>Prevent:</p> <ul style="list-style-type: none"> • Loss or alternation of natural estuary habitat, • Changes in the mouth dynamics, such as the manipulation of mouths to maintain constant water levels or prevent flooding of holiday homes, • Over-exploitation of estuarine resources such as fish, • Sedimentation of estuaries due to poor catchment or mouth management, • Recreational disturbance, • Pollution, eg. release of sewage into Knysna estuary, • Reductions in freshwater inputs due to upstream abstraction or afforestation, • Increase in freshwater input due to sewage or agricultural runoff, • Reduction in water quality due to poor catchment management. 	<p>NSBA</p>
<p>Estuary conservation</p>	<p>The primary threat to estuaries relates to changes in freshwater input and/or quality through an increase/decrease in mean annual runoff, change in seasonality of flows, change in flood frequency and/or magnitude and change in water quality.</p> <ul style="list-style-type: none"> • Change in the freshwater input and/or quality has typically been linked to changes in catchments: Change in land use (agriculture, forestry, urbanisation etc). 	<p>Ecosystem Guidelines For EIA, WC</p>

	<ul style="list-style-type: none"> • Poor land use practices (increased sediment input, nutrient enrichment, contaminant input). Water abstraction (altered flow regime). • Inter-basin transfers (altered flow regime). • Input of contaminants (sewage, stormwater, agricultural runoff, industrial waste water). • Infestation by alien vegetation (reduced freshwater input), climate change (altered freshwater inputs). <p>Secondary threats to estuaries include:</p> <ul style="list-style-type: none"> • Bank stabilisation. • Canalisation and other flood control measures. • Modification of mouth dynamics for maintenance of water level for recreation and other purposes. Encroachment by urban development and disturbance from human activities (e.g. power boating, • water skiing or swimming). • Exploitation of living resources (fish, invertebrates and estuarine vegetation). 	
<p>Land use change threats</p>	<p>Human disturbance of habitats and biota :</p> <p>The littoral of the Knysna River Basin has been extensively developed by urban conurbations since the early 1980s. Prior to this time, the town of Knysna was restricted very largely to the northern shore of the outer basin. Subsequently urban expansion has occurred along the eastern and western littoral of the middle basin and the eastern shoreline of the inner basin of the estuary. These have effectively reduced the high marsh by 60% (Maree 2000). Developments that impact directly upon the water surface are marinas and jetties. Three open jetty facilities and three enclosed marinas have been constructed since 1995.</p> <p>Non-consumptive use of the estuary is both recreational (sailing, canoeing and water skiing) and commercial, the later in the form of pleasure cruising ferries. The consumptive use involves subsistence and recreational fishing. Bait collection is continual, and largely but not entirely based upon the dominant mud prawn <i>Upogebia africana</i>. (Hodgson et al 2000) Sport fishing contest are frequently held and small groups of fishermen are advertising the use of boats and gear for visitors etc.</p>	<p>DWAF Estuary Report</p>

	<p>Of paramount importance to the continuing function of the Knysna estuary in each of its basins is the maintenance of clear water. The work of the Knysna Basin Project has shown that increasing exposure of the cover sands (Marker and Holmes 2002) that make up extensive areas of the Knysna River Basin results in high loadings of suspensoids into the estuary. The Salt River estuary along the northern shore of the middle basin just upstream of the rail bridge (Figure 2) is particularly important as a supplier of such sediments. On 26/10/97 after 63 mm of rain, the loading of this stream to the estuary was 814 tonne/day.</p>	
Protection of Cape Estuarine Salt Marshes	<ul style="list-style-type: none"> • Salt marches are under extreme coastal development pressure • Siltation from soil erosion in river catchments threatens these systems • Salinity variations from freshwater inputs, such as flooding or irrigation, pollutants, such as heavy metals, sewage, effluent, oil, mechanical damage etc have a negative impact on salt marches, • The key to conserving these areas is to understand and protect their vulnerabilities, to ensure their suitability. 	SANP Salt Marshes of the Knysna Lagoon
WETLANDS		
	<ul style="list-style-type: none"> • Wetlands should be identified and boundaries defined • Conservation status of aquatic systems must be determined • DWAF minimum buffers - 1:100 year floodline 	
	<p>The extent of wetland / lake and dryland buffer, as well as catchment should be defined :</p> <ul style="list-style-type: none"> • All aquatic systems / water bodies are affected by nearby land uses, whether they are immediately adjacent o the waterbody, or some distance away, but within its catchment. Measures to protect the water quality of the waterbody from the impacts of surrounding activities are directly dependent on the maintenance of a dryland vegetation buffer. <p>Vegetation buffers for all waterbodies have similar functions:</p> <ul style="list-style-type: none"> • They separate water habitats from human activities on surrounding land; 	

	<ul style="list-style-type: none"> • They provide complimentary habitats for wildlife using the waterbody, • They filter nutrients and sediments entering the waterbody. 	
	<p>Placement of control within the broader catchment must be considered. Certain land-uses can adversely effect ground and surface water, although impacts on water quality may take longer to become evident.</p> <p>While the application of generic buffer distances is not the preferred route for establishing waterbody buffers, it does provide a conservative starting point.</p>	
Vegetation buffer	<p><u>Vegetation Buffers</u></p> <p>Adjacent developments should be planned so that the waterbody and the dryland buffer are protected from the impacts of land use changes.</p> <p>Enforceable management controls are necessary where land remains in private ownership.</p>	
Catchment buffer	<p><u>Catchment Buffers</u></p> <p>Land uses with the potential to export contaminants, particularly nutrients, should be located away from waterbodies, or managed to retain nutrients on the site.</p> <p>Where intensive horticulture and agricultural practices take place, which are likely to export nutrients on soils with poor nutrient retention ability, they should not be placed or located less than 300 metres upstream from a wetland.</p>	
Minimum buffer	<p><u>Minimum buffer recommended</u></p> <p>50 meters or 1 metre higher than the furthest extent of the wetland vegetation, would be the minimum dryland buffer required.</p> <p>The entire buffer within the wetland must be protected.</p> <p>Where access is required for recreation an additional width of buffer should be provided.</p>	
Hydrological functioning	Retain and protect ecological and hydrological functioning of aquatic systems	

	<p><u>Hydrological Functioning</u></p> <ul style="list-style-type: none"> • There should be no direct drainage or stormwater entering wetlands – separate detention basins should be built to receive stormwater directly, • Removal of vegetation within the buffer should not be allowed, • Local on-site disposal of stormwater should be maximised, at individual development and street / suburb level <p>Where water levels are still unacceptable, maximum levels may be controlled through selective outlet drainage.</p>	
Water quality monitoring	<p>Monitor for the following:</p> <ul style="list-style-type: none"> • pH, • Total N, P, • E.coli, etc 	
Development within a wetland	<p><u>Development within a wetland or Aquatic System</u></p> <ul style="list-style-type: none"> • The wetland function is to be retained in the development, • The wetland is constructed or rehabilitated to fulfil equivalent hydrological and ecological functioning, • If decreased in size there should be an increase in the number of functions created. 	
LAKE SYSTEMS		
Horticultural developments	<ul style="list-style-type: none"> • No agricultural and residential development of cover sands on overly steep slopes. • Minimum setbacks from lakes of 150m • No direct surface run-off from horticultural areas into the lakes. 	
Rural and Residential Development	<ul style="list-style-type: none"> • All townplanning provisions to be applied with respect to minimum allowable subdivisions and densities. • Conventional septic tank systems should not be permitted. Alternative effluent systems 	

	<p>should be applied.</p> <ul style="list-style-type: none"> • Intensive land uses requiring high water and fertiliser usage should not be permitted. • For erven and stands / plots identified as high / critical vegetation types and communities, clearing of vegetation should be restricted to the provision of services and building envelopes. 	
MANAGEMENT ADVICE FOR EFFLUENT DISPOSAL	Conventional Septic Tank Systems	
	<p>Septic tanks must be kept to a low density in environmentally sensitive areas defined as:</p> <ul style="list-style-type: none"> • Capture zones for wetlands, watercourses and estuaries where there is a superficial aquifer discharging into the waterbody; • Recharge areas for aquifers and used for public water supply; and • Surface water catchments used for public water supply. 	
	<p>In the absence of specific locational information, capture zones are defined as :</p> <ul style="list-style-type: none"> • 1km upstream from wetland and 250m downstream, • Within 500m of a permanent watercourse, 200m of a seasonal water course and 50m from an episodic water course, • 1km from estuaries. 	
	Constraints on Sandy Soil	
	<p>The following environmental constraints should apply in environmentally sensitive areas:</p> <ul style="list-style-type: none"> • Septic tanks should not be used on soils with low infiltration rates (high clay content); 	

4.4.4. Rivers, Streams and Watercourses

Risks:

- Filling in ,
- Damming and draining,
- Impoundments and changes to natural flow,
- Excavation and sand mining,
- Discharging and disposal of effluent,
- Loss of important riparian and fringe vegetation,
- Loss of water quality from pollutants exported from developments through ground or surface water.

Impacts and risks on water quality:

Risks:

- Discharge of contaminants,
- Landfilling, excavation and mining,
- Abstraction of groundwater,
- Filling of wetlands,
- Clearing, destruction and removal of indigenous vegetation,
- Run-off from agricultural practices and eutrophication,
- Run-off from urban development,
- Poorly maintained and managed waste water treatment works,
- High septic tank discharge.

Objectives:

- Pollution, nutrient enrichment and degradation of water resources should be avoided,
- Water resources for public and ecological supply need protection,
- Ground and surface waters should be protected for public and private use,
- All aquatic systems are important and have value,
- Rivers are to be kept ecologically sound and visibly healthy,
- Avoid discharge of nutrients into watercourses,
- Avoid increased and unnecessary sedimentation and erosion into watercourses,
- Manage land-uses in the catchment to minimise negative affects in water quality.

MANAGEMENT PROVISIONS FOR RIVERS, STREAMS AND WATER COURSES

Feature: Rivers, Streams and Water Courses

Objective	Management Guideline / Provision / Advice	Key Policy Reference
Sensitive habitat protection	<p>CapeNature does not support activities that may negatively impact on the following habitats and their ecological functioning:</p> <p>Rivers, wetlands, groundwater-dependent communities and estuaries.</p> <ul style="list-style-type: none"> ii. Viable and/or connected Critically Endangered and Endangered ecosystems. iii. Any area in low irreplaceable habitat that is important for biodiversity conservation, as identified by a systematic conservation plan. iv. Any other special habitats that may contain a unique signature of species e.g. dolomite outcrops, quartz or ferricrete patches. v. Any habitat that contains rare or threatened flora or fauna species. vi. Natural habitat in an ecological corridor or along a vegetation boundary, including frontal dune systems). vii. Formally declared Mountain Catchment Areas. 	Cape Nature EIA Procedures
Water resource protection	<p>Water as a resource:</p> <ul style="list-style-type: none"> • Catchments, rivers, dams etc for providing and managing water resources. Establish catchment management agencies (CMA) in terms of the National Water Act 36 of 1998. • Water services aims to ensure basic water supply & sanitation for all South Africans: Water Services Act 108 of 1997. 	STEP Handbook
Water conservation and use	<p>Water is a limited resource in most of the Western Cape. Water requirements for development activities and the impact on broader water resources of the area (i.e. cumulative impacts) need to be rigorously assessed, especially in light of other developments taking place in an area. The impact of a proposed development on infrastructure such as wastewater treatment works etc also needs to be adequately addressed.</p>	Cape Nature EIA Procedures

<p>Water use and reserve</p>	<p>Water balance estimates produced at cursory level during the Internal Strategic Perspective (ISP) Study indicated that the study area is experiencing a shortfall in yield of 33 106 m³/a, which can be attributed to the substantial growth in water usage, as well as to the impact of the Reserve on yield estimates associated with the ecologically important coastal rivers.</p> <p>These Reserve estimates do not provide for the ecological water requirements for the estuaries, which could further increase the shortfall. Furthermore, a number of towns in the study area are experiencing serious periodic water shortages and water restrictions, mainly because of inadequate sources and insufficient capacity of their bulk supply infrastructure.</p>	<p>DWAF Agri Development Report</p>
<p>Ecological Importance and Sensitivity Class assessment</p>	<p>The ecological significance/conservation importance of the river systems falling within the study area are described by their Ecological Importance and Sensitivity Classes (EISC). The majority of river reaches within the study area exhibit a high EISC. These include some reaches of the Goukou River (quaternaries H90A to C) which exhibit a "high" EISC and those river reaches within the Coastal System (quaternaries K10A to E, K20A, K30A to D, K40A to E, K50A to B) which exhibit a "very high" EISC. Accordingly, for these latter river reaches, human manipulation of the system would require strong motivation. The other rivers or river reaches exhibit a "moderate" EISC.</p>	<p>DWAF -Outeniqua Coast Water Situation Study</p>
<p>River ecological status</p>	<ul style="list-style-type: none"> • Lower Knysna River <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired state: Good • Lower Karatara River: <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Good • Lower Hoekkraal River <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Good • Upper Hoekkraal River <ul style="list-style-type: none"> ○ Eco status: Natural ○ Desired State: Natural • Klein Wolwe <ul style="list-style-type: none"> ○ Eco status: Poor ○ Desired State: Fair • Wolwe River 	<p>DWAF : State of Rivers Report</p>

	<ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Good • Lower Diep River <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Good • Duiwe River <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Good • Lower Touw River <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Good • Upper Touw River <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Natural • Homtini River <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Natural • Gouna River <ul style="list-style-type: none"> ○ Eco status: Good ○ Desired State: Good 	
<p>Guidelines for agricultural developments</p>	<ul style="list-style-type: none"> • Investigate and ensure environmental flow releases from existing in-stream dams where possible, • Discourage groundwater abstraction from the riparian zone, • Encourage efficient water-use throughout the Water Management Area, • Reduce water loss from canals and improve irrigation methods • Encourage environmentally friendly farming practices and maintain a buffer area (10 -20m) along river banks, • Clear alien vegetation from riparian buffer areas and the surrounding catchment. Rehabilitate cleared area, • Stock dams with indigenous fish rather than alien fish, 	

	<ul style="list-style-type: none"> ● Control litter and dumping of solid waste near rivers, ● Improve monitoring and management of stormwater and waste water runoff from developed areas. 	
River conservation index	<ul style="list-style-type: none"> ● Klein Wolwe River: <ul style="list-style-type: none"> ○ Index of Habitat Integrity: Poor ○ Geomorphology Index: Poor ○ Riparian Vegetation Index: Poor ○ Fish Index: Good ○ South African Scoring system: Poor ○ Water Quality : Fair ● Wolwe River <ul style="list-style-type: none"> ○ Index of Habitat Integrity: Fair ○ Geomorphology Index: Fair ○ Riparian Vegetation Index: Poor ○ Fish Index: Fair ○ South African Scoring system: Fair ○ Water Quality : Fair ● Lower Diep River <ul style="list-style-type: none"> ○ Index of Habitat Integrity: Fair-Good ○ Geomorphology Index: Fair ○ Riparian Vegetation Index: Fair ○ Fish Index: Poor ○ South African Scoring system: Good ○ Water Quality : Good ● Upper Keurbooms River <ul style="list-style-type: none"> ○ Index of Habitat Integrity: Poor ○ Geomorphology Index: Poor ○ Riparian Vegetation Index: Poor ○ Fish Index: Good 	

	<ul style="list-style-type: none"> ○ South African Scoring system: Poor ○ Water Quality : Fair • Middle Keurboom River <ul style="list-style-type: none"> ○ Index of Habitat Integrity: Poor-Fair ○ Geomorphology Index: Poor ○ Riparian Vegetation Index: Fair ○ Fish Index: Fair ○ South African Scoring system: Fair ○ Water Quality : Fair 	
<p>River Conservation – Knysna Lagoon</p>	<ul style="list-style-type: none"> • The Knysna River is the main fresh water supply for the Knysna Estuary and Town of Knysna, which draws its supplies from the Akkerkloof Dam, • According to CSIR, 1985, the Knysna Lagoon “is biologically the richest estuary in the Cape... and one of the largest”, since it is a permanently open estuary with a low fresh water influent. • The stable salinity accounts for the remarkable species diversity, which is the highest of any South Africa estuary. <p>Rapid development must not be allowed to affect the natural ecological processes that maintain the functioning of the lagoon, while the rural character and features which are so attractive should be maintained by careful monitoring.</p> <p>Bridges and crossings from Leisure Island, Rex Island and Thesen's Island impeded the flow of water and allows siltation to occur.</p> <ul style="list-style-type: none"> • Silt is the main threat to the Knysna Lagoon. • Siltation is caused by monoculture crops on large pieces of land, when left bare are vulnerable to erosion. • Silt suffocates the flora and increases turbidity 	<p>SANP Knysna River brochure</p>
<p>Riparian Vegetation Conservation</p>	<p>Riparian vegetation performs the following important functions:</p> <ul style="list-style-type: none"> • Binds river banks with their roots and prevents erosion, 	<p>State of Rivers Report</p>

	<ul style="list-style-type: none"> • Traps sediment and pollutants and helps protect water quality, • Provides habitat and food for animal, fish and aquatic insects, • Reduces the effects of flood waters • Provides cover to rivers thus influencing water temperatures, • Slows run-off in the ground cover, increasing bank storage and absorption of water, particularly during flood conditions • Maintains elevated flows after flood flows have receded, • Contributes to species richness. 	
Surface Resource Conservation and Supply		
Water resource conservation measures	<p>Implementation of innovative and effective water conservation and demand management is crucial for reducing demand during the peak holiday season.</p> <p>A strategy needs to be put in place for municipalities to implement these measures. This could include placing restrictions on garden development, the type of lawn to be planted etc</p>	DWAF GW Report
WTW aspects	<p>The Knysna WTW is operating close to capacity. The Bigai Springs, which are utilized when the water demand exceeds the WTW capacity, have a very low yield.</p> <p>The Sedgefield WTW has inadequate capacity for the water requirements during peak demand periods. The WTW is situated on low lying land adjacent to the Karatara River, and is subject to periodical flooding, which results in the disruption of the supply of treated water. Karatara's current water supply system has no seasonal storage, and the assurance of supply is therefore entirely dependent on the availability of flows in the river.</p>	DWAF Supply Infrastructure
Water use permitting	<p>A permit is required from Water Affairs as per Section 21, National Water Act (Act No. 36 of 1998), which includes the following activities –</p> <p>(a) taking water from a water resource;</p> <p>(b) storing water;</p>	DEADP WC Hydrology Guideline

	<p>(c) impeding or diverting the flow of water in a watercourse;</p> <p>(d) engaging in a stream flow reduction activity contemplated in section 36;</p> <p>(e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);</p> <p>(f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;</p> <p>(g) disposing of waste in a manner which may detrimentally impact on a water resource;</p> <p>(h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;</p> <p>(i) altering the bed, banks, course or characteristics of a watercourse;</p> <p>(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and</p> <p>(k) using water for recreational purposes</p>	
<p>Buffers and pollutant infiltration</p>	<p>There is insufficient separation between the base of the development and the water table to prevent pollutant entry to the groundwater resource or effect adequate effluent degradation. Guidelines and recommendations are available on safe separation distances between the water table and activities such as petrol stations (SABS, 1999), cemeteries (Fisher, 2001) and wasted disposal sites (DWAF, 1994).</p> <p>The character of the soil and rock material allows the rapid infiltration of polluted water. This is a function of the nature of the rock and soil material.</p>	
<p>Land use / Water Conservation</p>	<p>Golf course and leisure estate developments:</p> <ul style="list-style-type: none"> • The Outeniqua Coast Study area has, for a number of years now, seen a notable increase in golf course and/or leisure estate developments. • An investigation into the water sources of the existing and planned golf course developments within the Knysna, Mossel Bay and George municipal areas revealed that the majority of golf courses make use of municipal water supply for the domestic component and have other resources for irrigation (i.e. small dams, treated municipal effluent or groundwater). 	<p>DWAF Water Report</p>

	Concerns associated with the environmental and socio-economic impacts of these developments have, however, been raised. One of these concerns is the water requirements of such developments. UWP/BKS Outeniqua Coast Water Situation Study: Urban & Rural Water Requirements and Return Flows 23 Following the above mentioned concerns the Provincial Government Western Cape has developed guidelines for the development of golf courses, polo fields and leisure estates in the Western Cape. These guidelines require that the water demands of these developments should be met from sources other than natural systems (i.e. rivers, streams, wetlands, groundwater) as a first option, particularly for irrigation purposes.	
	Afforestation and alien vegetation reduces the run-off from a catchment.	
GROUNDWATER RESOURCES		
Water Conservation	The Kaaimans Group aquifers, Cape Granite aquifers, Bokkeveld Group aquifers and Uitenhage Group aquifers are considered minor aquifers suitable for development at a local scale. In instances, poor quality limits the feasibility of using groundwater from these aquifers. If groundwater is to play a meaningful role in satisfying the water demand of the area, groundwater resources have to be properly developed and appropriately managed.	DWAF GW Report
	Groundwater is particularly susceptible to the cumulative effect of small impacts. Due regard must be given to this during the assessment, and should be thoroughly considered in a designated section of the specialist report:- <ul style="list-style-type: none"> • Where effluent or chemicals with the potential to change groundwater quality is handled as part of the project, or discharged into the environment due to the project. • The volume of groundwater in storage or entering groundwater storage is changed beyond what is allowed by the DWAF General Authorisations. • The groundwater flow regime is changed. • Abstraction occurs from an aquifer that sustains or contributes to river baseflow or any other surface water feature where it is likely to contribute to ecosystem functioning. Under the National Water Act (Act No. 36 of 1998) a component of all significant water resources is set aside for use by ecosystems, and may not be impacted upon by abstraction. • Wetlands and sensitive ecological settings that are probably sustained by groundwater, and which would likely be affected by and influence by proposed developments need to 	DEADP WC Hydrology Guideline

	<p>be assessed. The area of influence of the development will vary, depending on the hydrogeological setting and the nature of the development. It is suggested that a radius of 1 kilometre be used as an initial guideline of whether such ecosystems occur near proposed developments. Groundwater discharge to groundwater dependent ecosystems may be protected as part of the ecological reserve.</p> <ul style="list-style-type: none"> • Underlying aquifers in the study area can be recognised as particularly vulnerable to pollution. National scale maps that delineate the distribution of vulnerable aquifers are available (e.g. Lynch, et al., 1994; and Conrad & van der Voort, 1998) and must be consulted before any development application is approved.. The classification of groundwater resource units (required by the NWA) will provide additional information on the vulnerability status of aquifers. • An assessment must be conducted where abstraction occurs from an aquifer where a reduction in pore space may occur in the aquifer or in an associated deposit, leading to consolidation of the deposit giving rise to ground subsidence. This is typical of thick silt and clay deposits. • Groundwater in the aquifer is to be managed to a 'good' or 'pristine' state. This will be defined by the National Classification system that is being developed by the Department of Water Affairs and Forestry (DWAF) and will be set by the Minister. • The development utilises or will occur where it may impact an aquifer that is known (or suspected) of have significant exploitation potential. Significance depends on factors such as water availability, water demand, and water quality. • The development utilises or will occur where it may impact an aquifer that is the only (i.e. sole source aquifer) or a significant water supply source (or may become a significant water supply source) for an area utilised by a nearby community. See Box 11 for a description of community vulnerability. • Groundwater abstraction could result in the ingress of poor quality water. This is most likely in coastal areas, where seawater intrusion may result, but could occur in any setting where the pumped aquifer is linked to a system with poor quality water. • Development will occur over an area where the release of toxic vapours (e.g. volatile organic compounds) from polluted groundwater is likely. • This type of pollution is usually associated with the release of petroleum products such as 	
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	<p>petrol and solvents used in dry cleaning and industrial processes.</p> <p>Issues that need to be addressed by Geohydrologist:</p> <ul style="list-style-type: none"> • Shallow water table Rapid water infiltration and flow Groundwater abstraction within 1 km of development Wetland or groundwater dependent ecosystem occurs within 1 km of development Aquifer is particularly vulnerable to pollution. • Abstraction from an aquifer in Karstic terrain Aquifer occurs in material susceptible to consolidation or subsidence • Aquifer Classification requires management to a pristine level Aquifer has a high exploitation potential Development located near coast Groundwater is polluted with toxic vapour releasing substances Aquifer is the only significant water source 	
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4.4.5. Coastlines and Nearshore Marine Areas

Risks:

All development activity impacting significantly on:

- Coastal recreational amenity,
- Loss of dune stabilisation vegetation through any mechanism, including peripheral impacts such as poor stormwater management,
- Direct drainage of stormwater or wastewater directly into marine waters,
- Any loss to biodiversity in the tidal zone, seagrass beds, reefs and tidal flats,
- Sensitive and significant coastal topographical features and landscapes,
- Visual and aesthetic qualities and 'sense of place' of coastal zone.

Objectives:

- Integrate conservation principles into planning processes for development,
- There should be no significant direct or indirect impact on biological sensitive and important communities and habitats,
- Due the dynamic nature of the coastline it requires specialised planning and management. All coastal developments must be compatible with the sensitivity of the area,
- Areas of topographical, biological, ecological, educational and recreational importance must be managed sensitively and conserved,
- All coastal foreshore areas must be retained as public open space or conservation area,
- The coastline is visually sensitive and indiscriminate development which does not adhere to visual sensitivity development principles must be discouraged,
- No significant alteration of the coastal topography will be allowed,

- No informal development will be allowed along the coast,
- All forms of municipal infrastructure must be compatible with the receiving environment. No discharge of stormwater will be allowed directly onto seaward coastal dunes without significant abatement measures in place,
- Control any preparatory activities that is not controlled by other legislation, and which are likely to:
 - Adversely impact or interfere with the sensitive physical, biological or other elements of the coastal environment,
 - Decrease the aesthetic appeal of the coastline and its immediate hinterland.

Feature: Coastal and Nearshore Marine Areas

Objective	Management Guideline / Provision / Advice	Key Policy Reference
Biodiversity Conservation	<ul style="list-style-type: none"> Expand marine protected areas, Approach marine industries and commercial fisheries to conduct their activities sustainably, Conduct periodic auditing of fisheries catches . 	NSBA
Planning intervention	<ul style="list-style-type: none"> Direct appropriate coastal development, and not necessarily prohibit development as such, Ensure the implementation of environmental control measures to mitigate damage during development, Ensure proper rehabilitation of disturbed areas after construction, and Prohibit any unacceptable impact in the coastal zone. 	Coastal Management Guidelines
Controlled Activities	<p>Ensure that effective management and control of detrimental activities takes place:</p> <ul style="list-style-type: none"> Disturbance of coastal and stabilisation vegetation, Earthworks , Dredging, and Dune stabilisation. 	
Sensitive Coastal Features	<p>Sensitive coastal features must be protected, such as:</p> <ul style="list-style-type: none"> Beaches and dunes, Cliffs and steep slopes (geotechnically unstable or unsuitable areas), Estuaries and their banks, Rivers, flood plains and their banks, and Important vegetation communities. 	
General Coastal Area Management Guidelines	<p>Geological Formations</p> <ul style="list-style-type: none"> Areas which are underlain by rock or hard pedocretes at shallow depth require further detailed assessment. 	Coastal Management Guidelines
	<p>Soils</p> <ul style="list-style-type: none"> Development on clay soils impacting on foundations and improper functioning of septic 	

	<p>tanks needs to be assessed in development applications,</p> <ul style="list-style-type: none"> • Development on sandy soils where soils are dispersive and on steep slopes should not be allowed. Comprehensive rehabilitation and mitigation should be undertaken to ensure that erosion is avoided during and after construction. 	
	<p>Water Table</p> <ul style="list-style-type: none"> • Areas susceptible to seepage or to the development of a high (perched) water table within 1.5 m of the surface should be avoided. 	
	<p>Vegetation</p> <ul style="list-style-type: none"> • Vegetation stabilising dunes preventing erosion should not be disturbed. Any disturbance must be kept to the minimum, especially on sea facing dune slopes. • Cleared and eroded areas, especially on steep sandy slopes must be rehabilitated with suitable plant material as a matter of urgency. Protection measures such as log terracing or similar techniques must be undertaken. 	
	<p>Invasive alien vegetation</p> <ul style="list-style-type: none"> • The removal of alien vegetation is important, but control should be exercised in the manner in which it takes place, • Sensitive vegetation and protected species must be protected in the removal process, • A vegetation survey must precede any removal process, • Careful attention must be given to the removal of any vegetation on steep sandy slopes due to the significant erosion risk. 	
	<p>Buffer Strips</p> <ul style="list-style-type: none"> • If a development / activity is to occur within a non-sensitive area that occurs adjacent to a sensitive area, a suitable buffer between the development and the sensitive area should be maintained. 	
	<p>Recreation carrying capacity</p> <ul style="list-style-type: none"> • Where an increase in recreation is likely to provide increased access to a previously inaccessible features; provide facilities such as accommodation adjacent to any sensitive features (estuaries, rivers and beaches); the secondary impacts need to be assessed and considered, • The over utilisation of resources through increased use must similarly be considered. 	

	<p>High Water Mark (HWM)</p> <ul style="list-style-type: none"> • Most areas below the high water mark of the ocean falls under the jurisdiction of the Sea Shore Act of 1935 (no. 21 of 1935). In terms of this act, permission must be obtained for any activity below the HWM. • In the few areas that are not under the jurisdiction of the Sea Shore Act, dredging of river beds and artificial breaching of estuaries must be subject to strict control and authorisation will be required either from the National or Provincial authorities. • Activities undertaken below the HWM for the construction of groynes, breakwaters, tidal pools, piers, jetties, sea walls and other structures, could interfere with natural longshore currents and the sedimentation movement within the littoral zone. • All activities will be subject to a comprehensive, detailed assessment process. 	
	<p>Dredging</p> <ul style="list-style-type: none"> • May have a physical, chemical and biological impact on the aquatic environment. Any dredging, regardless of whether it is within the existing water body or outside can result in the destruction of habitats and organisms, alter natural water circulation patterns and stir up pollutants. <p>A comprehensive assessment will be required before the activity may commence.</p> <ul style="list-style-type: none"> • Artificial breaching interferes with the natural dynamics of an estuary and may negatively effect biodiversity. An assessment must be conducted before any artificial breaching may commence. 	
Beaches, dunes and rocky shores	<p>Littoral active zone</p> <ul style="list-style-type: none"> • The littoral zone is essentially dynamic and therefore incompatible with the erection of fixed structures. • Structures within the littoral zone will be subject to a detailed impact assessment that must take the continuous erosion and accretion of the coast, as well as wave energy dissipation into consideration. 	Coastal Management Guidelines
	<p>Foredunes</p> <ul style="list-style-type: none"> • The importance and sensitivity of foredunes have been addressed in the baseline assessment. 	

	<ul style="list-style-type: none"> The foredunes area should therefore be kept clear of any permanent structures or obstructions and disturbances must be kept to a minimum. Detailed studies regarding the coastal dynamics and sand movement will have to be undertaken to determine the impact and appropriate mitigation / rehabilitation measures. 	
	<p>Stability – Interruption of sand movement</p> <ul style="list-style-type: none"> Disturbance to vegetation trapping sand (access paths, roads, trampling) resulting in sand being transported further inland onto roads and developments, or Interruption of sand movement by the erection of fixed structures resulting in either: <ul style="list-style-type: none"> Sand build-up at the point of interruption causing increased pressure on dune vegetation and possible encroachment of dunes further inland, and A reduction in the littoral drift sand supply transported along the coast resulting in the erosion of sandy beaches causing changes from sandy to rocky shores, undermining of slopes and structures, extension of the littoral activity zone and change in the mouth dynamics of estuaries. 	
	<p>Vegetation</p> <ul style="list-style-type: none"> Damage to the natural foredune vegetation destroys habitats, and destabilises the foredune, which will then no longer be able to function as a protective buffer to its hinterland. Removal and artificial stabilisation removes and impedes sand supply to beaches, becoming susceptible to erosion by wave action. 	
	<p>Dune Stabilisation</p> <ul style="list-style-type: none"> It is strongly recommended that the re-establishment of protective foredune areas or the stabilisation of open sand areas should be based on detailed environmental impact assessment to ensure that: <ul style="list-style-type: none"> Stabilisation does not interfere in the dynamic processes, The appropriate methods and plant material are used to ensure the sustainability of the undertaking. 	
	<p>Multiple fixed-dune system</p> <ul style="list-style-type: none"> All activities / developments should preferably be set back landwards from the youngest fixed dune trough. This limits activities to backdune areas where there is no danger of 	

	<p>destabilising the dunes.</p> <ul style="list-style-type: none">• All activities related to major developments such as highways, railways, industry and high buildings should be located landward of the most landward dune trough.	
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4.5. Conservation and Protected Areas

Risks:

- The potential for visual and light pollution,
- The potential for removal of significant tracts of natural vegetation'
- Control of septic tank densities etc...
- Loss of biodiversity'
- Encroachment of alien vegetation'
- Increase of edge effects on natural areas'
- Loss of important fringe vegetation and habitat'
- Loss of land use buffers adjacent to National Parks.

Objectives:

- Maintain the integrity of the National park asset for current and future generations
- Land uses adjacent to conservation areas should have minimal impact on the areas conservation values.

BUFFER AREAS AROUND NATIONAL PARKS – IF A DEVELOPMENT / ACTIVITY IS TO OCCUR WITHIN A NON-SENSITIVE AREA THAT OCCURS ADJACENT TO A SENSITIVE AREA, A SUITABLE BUFFER BETWEEN THE DEVELOPMENT AND THE SENSITIVE AREA SHOULD BE MAINTAINED.

Key Policy Advice Areas – AKA Proposals which impact on areas identified as having the highest conservation value by DEAT involve the management of the following issues: - MAYBE ACTIVITY LISTS...

Key policy documents ie Acts and Provincial policies and guidelines etc...

The Garden Route
Environmental Management Framework



4.6. Topographically Sensitive Geographical Areas

Risks:

- Destruction of visual topographical quality,
- Erosion of steep slopes,
- Erosion and slumping of dunes,
- Development impact of sensitive topographical features and landscapes,
- Inappropriate large scale development,
- Excavation and sand mining,
- Loss of covering vegetation.

Objectives:

- Maintain the integrity of the Garden Route Landscape,
- Limit all development on steep slopes,
- Prohibit development on foredunes,
- Enhance and protect the topographical landscape backdrop to the Garden Route,
- Manage development on steep slopes, discouraging development,
- Prohibit all development on steep slopes.

Feature: Topographically Sensitive Areas

Objective	Management Guideline / Provision / Advice	Key Policy Reference
Steep slopes	<p>Erosion/soil /ridgeline conservation</p> <p>Development on steep slopes (i.e. steeper than 1:4) will be strongly discouraged as such areas are subject to erosion and instability. Slope steepness will be evaluated for the area of the site where development is being proposed and not for the site as a whole. As a general principle,</p> <ul style="list-style-type: none"> a. Development should be located on lower-lying or gently sloping portions of a site. b. Development on the crest of a mountain, hill or ridge will be strongly discouraged. c. Development in an area, which has been declared a mountain catchment area in terms of the Mountain Catchment Areas Act, Act 63 of 1970 will be strongly discouraged d. Development in locations on mountains, hills or ridges that serve as a source of water (e.g. spring, seep, river or stream source) will be strongly discouraged 	DEADP WC Mnt & Ridgeline Guideline
Wave cut Rocky Platforms	In the West Coast and Namaqualand regions, avoid all rocky outcrops and coastal dunes (this has important implications for quarrying and mining). Ideally, natural corridors should be kept intact along north-south as well as coast-inland gradients.	Ecosystem Guidelines For EIA, WC
Soil / Dune conservation	<p>Dune system's risks and vulnerabilities.</p> <ul style="list-style-type: none"> • Stabilisation of naturally dynamic dune systems and sediment corridors due to infestation by rooikrans Acacia cyclops or for the purposes of property and other development has a significant impact on the integrity of coastal processes. • Resort and housing developments on primary dune systems (including hummock, primary dunes dune slack and secondary dunes) are destroying highly sensitive dune systems in certain areas. Examples of this type of development pressure can be found at Wilderness, Keurboomstrand, Hartenbos, St Francis Bay, Dana Bay and Victoria Bay. Linked to development is the disturbance of natural dune vegetation cover due to trampling, driving or earth-moving operations. This result s in erosion and degradation of primary and foredunes, and mobilisation of driftsand. Infrastructure that impedes longshoredrif t and inshore sediment dynamics. 	

	<ul style="list-style-type: none"> Altered erosion patterns can result from the hardening of adjacent shorelines (land reclamation) and the construction of breakwaters and groyne. There is an increasing risk of coastal erosion associated with rising sea levels (and particularly when there is a combination of spring high tides, storm surges and inadequate development setback lines and degraded primary / foredunes). 	
Soil / Dune conservation	<p>No-go activities for dune systems .</p> <ul style="list-style-type: none"> No development should be allowed in sand movement corridors, frontal dunes or dynamic dune systems. Developments should be placed inland of secondary dunes. Mobile dunes must not be stabilised. Strict control should be maintained over the use of Off-road Vehicles (ORVs) on beaches. There must be a strictly enforced ban (that includes management vehicles) against driving in dune systems and above the high water mark on beaches. Access to the beach must be controlled via designated access points. Provision should be made for rehabilitation of mined-out areas when mining ceases, and of historically mined areas. 	
Soil / Dune conservation	<p>Development guidelines for Dune areas: Infrastructure must be positioned to avoid damage from coastal processes and, where possible, to avoid the need for physical defences against potential damage resulting from coastal processes.</p> <ul style="list-style-type: none"> No permanent infrastructure should be installed on sandy beaches and in dynamic or mobile dune systems. Development setback lines must be rigorously applied, taking into account the need to protect development from coastal processes by: absorption of the impacts of severe storm sequences; allowing for shoreline movement; allowing for global sea level rise; allowing for the fluctuation of natural coastal processes; and any combination of the above. Development setbacks must also take into account biodiversity and ecosystem requirements (especially in Dune Thicket systems), landscape, seascape, visual amenity, indigenous and cultural heritage, public access, recreation, and safety to lives and property (consult the guideline on Dune Thicket and Dune Fynbos p.32). 	

	<ul style="list-style-type: none"> • Avoid the removal and fragmentation of indigenous vegetation in the frontal dune area. Maintain a buffer of contiguous indigenous vegetation between the inland boundary of the youngest fixed dune trough and the seaward boundary of the development (the exact setback will depend on the biophysical characteristics and requirements of the area, and the type and scale of development) . • There must be rigorous adherence to the precautionary principle when constructing fixed infrastructure below the high water mark. Driving on sandy beaches above the high water mark or in dune systems must be prohibited. • The ban on driving should also be maintained at popular bathing beaches, on beaches that support important shorebird breeding, feeding or roosting sites, and in the coastal zone of coastal protected areas except on proclaimed roads. 	
	<ul style="list-style-type: none"> • Avoid developments that may impede seasonal cycles of sediment deposition (summer) and erosion (winter). • Maintain and restore, if invaded by rookrans, unimpeded sand mobility corridors (including headland bypass and climbing-falling dunes). • Indigenous vegetation structure and successional dynamics (including that of primary and foredunes, and in dune slacks) must be maintained. • A functional corridor of indigenous vegetation must be retained along the coast to link inland trending river systems. • This is crucial for the migration and dispersal of plants and fauna. Decomposition processes at the high water mark and on the back beach should be maintained by confining the removal of drift kelp and other organic material to popular bathing beaches. • Minimise disturbance of shore birds by people and dogs at important breeding, feeding and roosting sites. 	
Soil / Dune Conservation	<p>soil conservation work means any work which is constructed on land for-</p> <p>(a) the prevention of erosion or the conservation of land which is subject to erosion;</p> <p>(b) the conservation or improvement of the vegetation or the surface of the soil;</p> <p>(c) the drainage of superfluous surface or subterranean water;</p> <p>(d) the conservation or reclamation of any water source; or</p> <p>(e) the prevention of the silting of dams and the pollution of water,</p>	CARA, Act 43 of 1983

	<p>but not a work which is constructed on land in the course of prospecting or mining activities;</p> <p>Maintenance of soil conservation works and maintenance of certain states of affairs</p> <p>(1)(a) A soil conservation work shall, except where otherwise provided in this Act or a scheme, be maintained by every land user of the land concerned and his successor in title at his own expense in a manner which, in the opinion of the executive officer, will ensure the continued efficiency thereof</p>	
High Mountains	<p>The key reasons for controlling development in these areas are:</p> <ul style="list-style-type: none"> • Mountains, hills and ridges provide catchment areas for valuable surface water resources. • Mountains, hills and ridges are often characterized by unique and sensitive ecosystems. • Mountains, hills and ridges are of aesthetic/scenic value. • Remote mountainous areas provide a "wilderness" experience which is important for the well being of people. They may also be of religious, spiritual or cultural value to people. 	DEADP WC Mountain & Ridgeline Guideline
	<ul style="list-style-type: none"> • These areas have a high scenic value and attract tourists and recreational users. This provides opportunities for passive and active recreational developments. • Rich mineral resources can occur in these areas and can be suitable for other economic activities such as forestry and agriculture. • These areas provide suitable locations for infrastructure developments such as dams, cable cars and communication towers. • Properties in these areas are generally of high value which makes them desirable for residential development. 	
	<ul style="list-style-type: none"> • The Department's approach to controlling development on mountains, hills and ridges is underpinned by determining: <ul style="list-style-type: none"> Which areas can development be considered or where should it be avoided? • Where development can be considered, what type and form of development can be considered in the respective areas of a mountain, hill or ridge? • The determination of appropriate development on mountains, hills and ridges will be guided by: <ul style="list-style-type: none"> • The demarcated urban edge (where this has been determined); or • The identification of a development line (where no urban edge has been determined); in 	

	<p>combination with</p> <ul style="list-style-type: none"> The environmental sensitivity (based on biophysical, cultural and social characteristics) of the mountain, hill or ridge. 	
	<p>The following environmental characteristics will serve as key indicators of environmental sensitivity by the Directorate</p> <p>a. Development on steep slopes (i.e. steeper than 1:4) will be strongly discouraged as such areas are subject to erosion and instability. Slope steepness will be evaluated for the area of the site where development is being proposed and not for the site as a whole. As a general principle, development should be located on lower-lying or gently sloping portions of a site.</p> <p>b. Development on the crest of a mountain, hill or ridge will be strongly discouraged.</p> <p>c. Development in an area, which has been declared a mountain catchment area in terms of the Mountain Catchment Areas Act, Act 63 of 1970 will be strongly discouraged.</p> <p>d. Development in locations on mountains, hills or ridges that serve as a source of water (e.g. spring, seep, river or stream source) will be strongly discouraged.</p> <p>e. Development in areas where sensitive fauna or flora occurs such as Red Data plant or animal species will be strongly discouraged.</p> <p>f. Development in areas that are of cultural importance will be strongly discouraged. This includes burial sites, sites used as places of worship, burial sites and archaeological sites.</p>	
Slope	<p>Steep Slopes</p> <ul style="list-style-type: none"> Steep slope is a major factor in the correct siting of structure and roads. Steep slopes are problematic in being unstable and susceptible to erosion. Additional constraints occur with limited access, foundation and disposal of septic tank effluent. These limitations are costly to implement with a higher risk of failure, and increased disturbance of the development site. Development on steep and very steep slopes are not desirable or supported. Activities on slopes steeper than 1:4 or in any areas identified as geotechnically unsuitable or unstable must be avoided. Steep slopes are important, since even gentle gradients will require preparation by means 	Coastal Management Guidelines

	<p>of terracing, and the resultant earthworks may add significantly to the impact especially where slopes exceed 15%.</p> <ul style="list-style-type: none"> • Developments on steep slopes are likely to result in excessive visual scarring due to the cut and fill slopes associated with the creation of building platforms, infrastructure and access requirements. • Where activities on steep or very steep slopes have been proved to be essential, extensive studies should be undertaken and strict conditions laid down regarding: <ul style="list-style-type: none"> ○ Engineering requirements, ○ Mitigating measures to minimise visual impact, ○ Measure to rehabilitate exposed slopes, ○ Control measures to minimise disturbance during construction, ○ Limiting disturbance due to access, ○ Stabilisation of areas after disturbance. • Control should be exercised on activities related to developments adjacent to steep slopes to ensure that: <ul style="list-style-type: none"> ○ A vegetated buffer strip is maintained at the toe and head of the slope. The width of the buffer strip will be determined by the extent of the slope, nature of the vegetation and the type of development, ○ Measures are taken to address possible access requirements across the slope. 	
	<p>Unstable natural slopes</p> <ul style="list-style-type: none"> • Areas illustrating 'slide topography', and areas of cover sands on steep slopes manifest in the form of slumps, scars, hummocky ground below scarps, leaning trees or displaced fences will indicate the possibility of slope movement. This will severe situation will require a comprehensive environmental impact assessment. • Other risk areas include highly jointed rock slopes, high rainfall areas, areas subject to seismic activity where deep residual or transported soils of intermediate texture are found on moderate slopes. 	

4.7. Visually Sensitive Landscape Geographical Areas

Risks:

- Sprawling urbanisation,
- Uncontextualised inappropriate development within the urban edge of villages and hamlets,
- Large scale change of land use developments outside of the urban edge,
- Inappropriate placement of prominent development infrastructure (telecommunications towers and masts) on prominent and exposed topographical features,
- Inappropriate land use practices along prominent tourism routes, as well as adjacent to the national parks and provincial nature reserves.

Objectives:

- Limit development densities,
- Adhere to rural development policies and guidelines,
- Protect the agricultural landscapes from large scale indiscriminate development,
- Retain the sense of place of villages and hamlets,
- Enforce building control and aesthetics in the study area, as well as in villages and hamlets,
- Protect the sense of place of the Garden Route,
- Protect and enhance the visual quality of prominent tourism routes, meanders and nodes,
- Protect the visual integrity of the South African National Park asset, as well as provincial nature reserves,
- Limit and prohibit development on prominent visually sensitive and exposed features (such as the Knysna Heads and coastal topography).

Feature: Visually Sensitive Areas

Objective	Management Guideline / Provision / Advice	Key Policy Reference
Legislative provisions	<p>Current South African environmental legislation governing the EIA process, which may include consideration of visual impacts if this is identified as a key issue of concern, is the National Environmental Management Act (NEMA) (Act No. 107 of 1998) and the EIA regulations in terms of the Environment Conservation Act (Act No. 73 of 1989).</p> <p>The regulations governing the EIA process are currently being revised and will be replaced by regulations promulgated in terms of the NEMA. The Protected Areas Act (NEMA) (Act 57 of 2003, Section 17) is also intended to protect natural landscapes.</p> <p>The National Heritage Resources Act (Act No. 25 of 1999) and the associated provincial regulations provides legislative protection for listed or proclaimed sites, such as urban conservation areas, nature reserves and proclaimed scenic routes. Visual pollution is controlled, to a limited extent, by the Advertising on Roads and Ribbons Act (Act No. 21 of 1940), which deals mainly with signage on public roads.</p> <p>Visual and aesthetic resources are also protected by local authorities, such as the City of Cape Town, where policies and by-laws relating to urban edge lines, scenic drives, special areas, signage, communication masts, etc. have been formulated.</p>	DEADP WC Visual Guideline
Impacting development activities	<p>High intensity type projects including large-scale infrastructure;</p> <ul style="list-style-type: none"> • A change in land use from the prevailing use; • A use that is in conflict with an adopted plan or vision for the area; • A significant change to the fabric and character of the area; • A significant change to the townscape or streetscape; • Possible visual intrusion in the landscape; • Obstruction of views of others in the area. 	
Development categories for visual control	<p>Category 1 development: e.g. nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities.</p> <p>Category 2 development: e.g. low-key recreation / resort / residential type development, small-scale agriculture / nurseries, narrow roads and small-scale infrastructure.</p>	

	<p>Category 3 development: e.g. low density resort / residential type development, golf or polo estates, low to medium-scale infrastructure.</p> <p>Category 4 development: e.g. medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.</p> <p>Category 5 development: e.g. high density township / residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind energy farms, power lines, freeways, toll roads, large scale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants.</p>	
<p>Protect areas with significant visual qualities</p>	<ul style="list-style-type: none"> • Areas with protection status, such as national parks or nature reserves; • Areas with proclaimed heritage sites or scenic routes; • Areas with intact wilderness qualities, or pristine ecosystems; • Areas with intact or outstanding rural or townscape qualities; • Areas with a recognized special character or sense of place; • Areas lying outside a defined urban edge line; • Areas with sites of cultural or religious significance; • Areas of important tourism or recreation value; • Areas with important vistas or scenic corridors Areas with visually prominent ridgelines or skylines. 	<p>DEADP WC Visual Guideline</p>
<p>Areas of scenic beauty, scenic routes and special features</p>	<p>Proposed activities / developments within areas of outstanding natural beauty, scenic drives and panoramic views must be sensitive to the natural beauty. The layout, buildings, density, landscape treatment and infrastructure should:</p> <ul style="list-style-type: none"> • Be visually unobtrusive, • Utilise materials and colours that originate from or blend into the surrounding landscape, • Be grouped in clusters with open spaces between clusters, • Not interfere with the skyline, landmarks, major views and vistas, • Respond to the historical, architectural and landscape style of surrounding layout and 	<p>Coastal Management Guidelines</p>

	<p>buildings,</p> <ul style="list-style-type: none"> • Incorporate existing man-made or natural landmarks and movement patterns. 	
Development within visually sensitive areas	<ul style="list-style-type: none"> • Any development within a visually sensitive area must be planned to ensure that earthworks do not have any detrimental impacts on wetlands and flood areas, • In road cuttings this will require the services of a competent professional to ensure structurally sound, aesthetically acceptable and environmentally sensitive landscaping. The landscaping should take factors such as vegetation, soil colour, recoverability, slope and elevation into account. 	Coastal Management Guidelines

4.8. DEA Mandate and Authorities Layer – figure 20

The mandate of the DEA is the management of activities which will influence the integrity of the National Parks in the Greater Garden Route National Park. Activities which border on the various Parks fall within the mandate of DEA and are defined as the following:

- All properties and activities adjacent to the current National Parks defined by a cadastral boundary,
- All properties and activities bordering and adjacent to the Critical Bio-diversity Corridors, and
- Properties and activities which may influence a National Park visually, potentially detracting from the 'sense of place'.

The above categories are represented as a spatial and cadastral buffer surrounding the National Parks within the ambit of this study.

The Authorities Management Layer is in effect a management layer which does not add to the overall sensitivity of the Sensitive Geographical Areas, but which functions as a cautionary mechanism or 'Red Flag' when development applications are received within the above specified buffer areas. Development applications received within this buffer area will similarly be referred both to WC DEADP and DEA for further consideration, irrespective of the activity being a Provincial competency or not. Listed activities falling within the ambit of a Provincial Authority and outside of the Authority Management Buffer will be the competency of the Provincial Authority.

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