

SECTION A: INTRODUCTION

SECTION SYNOPSIS

This section comprises of the following:

- a) Background information pertaining to the planning process.
- b) A reader's guide to terms used in the document.
- c) Key aspects of a Spatial Development Framework, including its definition, legal status, purposes and key elements.
- d) Summary of planning principles and core values that form the basis of the document.

1 INTRODUCTION

1.1 BACKGROUND

The Overberg District Municipality (further referred to as the ODM) during September 2002 appointed Dennis Moss Partnership Inc. to assist with the preparation of the **Overberg Spatial Development Framework (Overberg SDF)** as an integral part of the Overberg District Integrated Development Plan (IDP).

A key requirement was that the project had to be undertaken in close collaboration with the 4 Category B municipalities that collectively form the ODM and that the planning process had to foster a spirit of co-operation between these municipalities. Full use was made of existing IDP forums as a basis for Interested and Affected Party (I&AP) consultation and participation.

The planning process was undertaken in terms of *inter alia* the Municipal Systems Act, 2000 (Act 32 of 2000), and the Western Cape Planning and Development Act, 1999 (Act 7 of 1999).

1.2 PROJECT BRIEF

In terms of the project brief, this SDF has to achieve the following:

- (a) Indicate the spatial implications of the IDP of the ODM.
- (b) Put forward development and management strategies, proposals and guidelines that will promote sustainable development in the ODM, including, without being limited to, development objectives, proposals for land reform, urban renewal, reconstruction, integration, environmental planning, transport planning, infrastructure planning, and urban design, so as to promote the general well-being of the people of the area in the most effective manner.
- (c) Integrate the strategies put forward by the Overberg IDP with the recommendations of the draft *Coastal Zone Policy for the Western Cape* (Provincial Government of the Western Cape, 2001).
- (d) Explore options for the implementation of UNESCO's MAB (Man and the Biosphere) Programme as a mechanism for the promotion of sustainable development throughout the ODM.

1.3 STRUCTURE OF THE DOCUMENT

In addition to this introductory section (Section A), this document comprises 7 further sections, the contents and functions of which are summarised in Diagram 1 below.

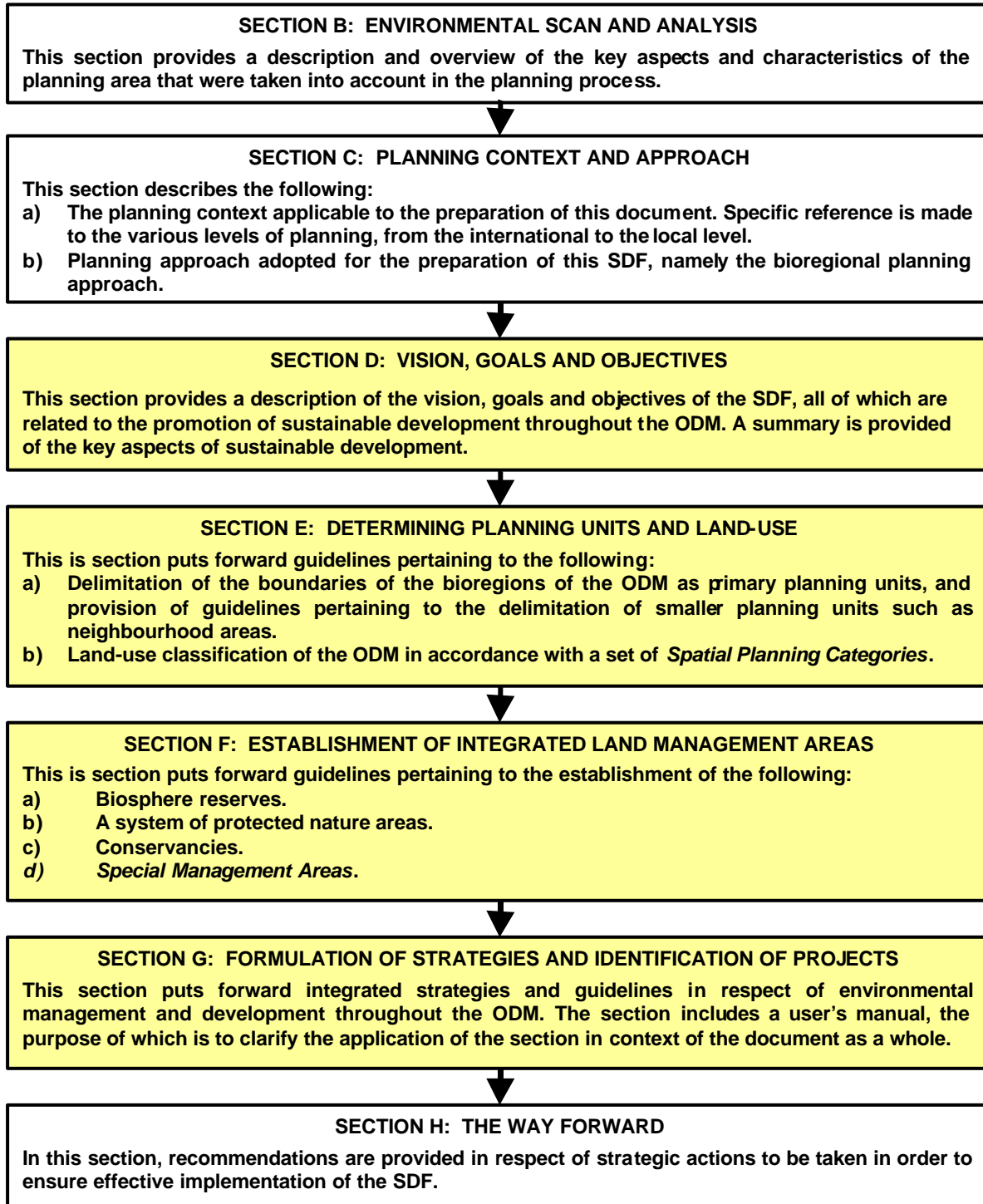


Diagram 1: Document Structure

2 READER'S GUIDE TO TERMS USED IN THE DOCUMENT

The following terms, abbreviations and acronyms have been used, or are referred to in this document.

ABI	Agulhas Biodiversity Initiative.
Alien organisms	Plants, animals, and micro-organisms, which do not naturally occur in an area, and which have been deliberately or accidentally introduced by humans to ecosystems outside of their natural range.
Biogeographic	Concerning both geographical (e.g. climate, ocean currents), and biological (e.g. animals, plants) components of the environment and the inter-relationship of these components with humans.
Biological diversity or biodiversity	Biodiversity is an abbreviation of biological diversity. The Convention on Biological Diversity defines it as <i>'the variability among living organisms from all sources including terrestrial, marine, and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within, and between, species and of ecosystems.'</i>
Biological resources	Includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual, or potential, value for humanity.
Biome	A group of ecosystems, which may differ considerably in the species they contain, but function in ecologically similar ways. In practice, although biomes contain both plants and animals, for purposes of identifying biomes and mapping them, the vegetation type is used to define the biome boundaries.
Bioregion	A land and water territory, the limits of which are not defined by political but by the geographical boundaries of human communities and ecological systems. Also a geographical space that contains one whole, or several nested, ecosystems characterised by landforms, vegetative cover, human culture and history as identified by local communities, governments and scientists.
Bioregional planning	Defined by PGWC as an internationally recognised planning concept aimed at achieving sustainable development.
Biosphere reserve	An area of terrestrial and coastal/marine ecosystems, or a combination thereof, which is internationally recognised within the framework of UNESCO's MAB Programme.
C.A.P.E	Cape Action for People and the Environment.
CASIDRA	Cape Agency for Sustainable Integrated Development in Rural Areas.
Catchment or catchment area	The entire land area from which water flows into a river. Generally consisting of various smaller 'quarternary' catchments, or 'sub-catchments'.
Category A Municipality	In terms of the Local Government Municipal Structures Act, 1998 (Act 117 of 1998) this is a <i>Metropolitan Municipality</i> that has exclusive municipal executive and legislative authority in its area.
Category B Municipality	In terms of the Local Government Municipal Structures Act, 1998 (Act 117 of 1998) this is a <i>Local Municipality</i> that shares municipal executive and legislative authority in its area with a district municipality within whose area it falls.

Category C Municipality	In terms of the Local Government Municipal Structures Act, 1998 (Act 117 of 1998) this is a <i>District Municipality</i> that has municipal executive and legislative authority in its area and that includes more than one local municipality.
CBO	Community-Based Organisation.
Conservancy	A group of farms, or natural areas, on which the landowners have pooled some, or all, of their resources for the purpose of conserving natural and cultural resources on the combined properties.
Conservation	The management of human use of the biosphere to yield the greatest benefit to present generations while maintaining the potential to meet the needs and aspirations of future generations. Conservation thus includes sustainable use, protection, maintenance, rehabilitation, restoration, and enhancement of the natural and cultural environment.
Consumptive use	Refers to harvesting or extraction of products for consumption, e.g. foods, medicines, woods and fibres, animal products, etc.
CZP	Coastal Zone Policy.
DEA&DP	Department of Environmental Affairs and Development Planning.
De facto wilderness	Refers to natural areas that are wilderness in the general sense of the term, but have not been legally designated.
DMA	A part of a district municipality which in terms of section 6 of the Local Government Municipal Structures Act, 1998 (Act 117 of 1998) has no local municipality and is governed by that district municipality alone.
Ecosystem	A dynamic system of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.
EMP	Environmental Management Plan.
EMS	Environmental Management System.
Endemic species	Any plant or animal species confined to, or exclusive to, a particular, specified area.
Environment	The surroundings within which humans exist and that are made up of: <ul style="list-style-type: none"> a) the land, water and atmosphere of the earth; b) micro-organisms, plant and animal life; c) any part or combination of (a) and (b) and the interrelationships among and between them; and d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.
Existential dimension	Refers to the philosophical explanation of the part of the world that gives meaning and identity to a person's way of existing and place of existence.
GIS	Geographical Information System or ' <i>a system of people, resources, and procedures that collects, transforms, and distributes (spatial) information to relevant organisation members</i> '.
Habitat	The place or type of site where an organism or population naturally occurs.
HOA	Home Owners' Association.
I&AP	Interested and Affected Party.

IDP	Integrated Development Plan as contemplated by the Municipal Systems Act, 2000 (Act 32 of 2000).
IISD	International Institute for Sustainable Development.
Indigenous	Native to a particular area.
Irreplaceability	The potential contribution of a site to a preservation or representation goal. It is a fundamental way of measuring the conservation value of any site. An irreplaceable site will appear in every analysis of alternative combinations of sites. In other words, it is one which must be included in a conservation area because significant options for preservation are lost if the site is excluded.
ISO	International Standards Organisation.
IUCN	International Union for the Conservation of Nature.
Local Town	Town that previously had municipal status, has a municipal office and now forms part of a larger municipality.
LUPO	Land Use Planning Ordinance, 1985 (No. 15 of 1985).
MAB	Man and the Biosphere.
MAB Programme	A global programme of international scientific co-operation, dealing with people-environment interactions over the entire realm of bioclimatic and geographic situations of the biosphere.
Macro biogeographical region	A region defined by its unique biological characteristics (flora and fauna) and biophysical characteristics (climate, geology, soils), giving rise to a variety of major landscapes, and variations in human settlement patterns and economic activity.
Main Local Town	Seat of a Category B municipality.
NCMPP	National Coastal Management Policy Programme.
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998).
NEPAD	New Partnership for Africa's Development.
NGO	Non-Governmental Organisation.
Non-consumptive land-use	A land-use that does not imply harvesting or extraction of products for consumption, e.g. recreation, tourism, religious ceremonies, research, education, etc.
ODAC	Overberg District Assessment Committee.
ODM	Overberg District Municipality.
ORV	Off-Road Vehicle.
PDA	Western Cape Planning and Development Act, 1999 (Act 7 of 1999).
Permaculture	A design system for creating sustainable human environments that are ecologically sound and economically viable, provide for their own needs, do not exploit or pollute natural resources and are therefore sustainable in the long-term.
PGWC	Provincial Government of the Western Cape.
PNE	Protected Natural Environment.

Protected area	A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, or to the maintenance of life support systems.
Quarternary catchment	Usually the area that feeds a tributary of a river or a part of the main river.
<i>Quid pro quo</i>	Something for something.
Rehabilitation	To return a degraded ecosystem or population to a safe, stable, predetermined condition.
Restoration	To return a degraded ecosystem or place to its original condition.
ROS	Recreational Opportunity Spectrum.
SAFCOL	South African Forestry Company Limited.
SAHRA	South African Heritage Resources Agency.
SA Red Data Book	A document presenting information on endangered, rare or threatened species in such a manner as to assist conservationists to assess their actions in respect of these species.
SDF	Spatial Development Framework.
SDP	Spatial Development Plan.
SKEP	Succulent Karoo Ecosystem Plan.
SPC	Spatial Planning Category.
Species	Plants, animals, or other organisms that do not normally interbreed with individuals of another kind, including any sub-species, cultivar, variety, strain, hybrid, or geographically separate population provided they are not part of another species.
SMA	Special Management Area.
Statutory wilderness	Refers to wilderness areas, which are directly and deliberately protected by legislation.
STEP	Sub-Tropical Thicket Ecosystem Plan.
Sustainable development	<p>Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.</p> <p>Also development consequent to the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.</p>
Sustainable use of biological resources	The use of components of biological diversity in a way and at a rate that does not lead to its long term decline, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

Traditional knowledge	Traditional knowledge refers to a body of knowledge built up by a group of people through generations of living in close contact with nature. Traditional knowledge is both cumulative and dynamic; building upon the experience of earlier generations and adapting to the new technological and socio-economic changes of the present.
UNEP	United Nations Environmental Programme.
UNESCO	United Nations Educational, Scientific and Cultural Organisation.
Water (hydrological) cycle	The natural process of moving water out of the oceans, into the atmosphere, and back to the land and oceans.
WCNCB	Western Cape Nature Conservation Board.
Wildlife	Any non-domestic animals and plants, which occur in the wild.
WRI	World Resource Institute.
WWF	World Wide Fund for Nature.

2.1 SUPPLEMENTARY DOCUMENTS

This document should be read together with its annexures and it is supplemented by the following:

- a) Executive summary.
- b) *Bestuursopsomming*

The list of important contact details is provided under **Annexure 1**.

3 THE SPATIAL DEVELOPMENT FRAMEWORK

3.1 DEFINITION AND STATUS

The Municipal Systems Act, 2000 (Act 32 of 2000) makes statutory provision for the drafting of an Integrated Development Plan (IDP) for holistic forward planning of development in defined areas of jurisdiction. The Act also requires municipalities to prepare a Spatial Development Framework (SDF) to supplement, or to form the basis of the IDP. (In the past, various plans such as guide plans, structure plans, spatial plans, etc. were prepared. Presently one definition and a mutually accepted format are proposed namely a Spatial Development Framework).

An SDF does not grant any rights pertaining to land use, nor take any rights away. However, being an integral part of the IDP, the SDF will be formally approved by the municipality. Such approval in accordance with the applicable legislation grants significant status to the document.

3.2 PURPOSE OF THE SDF

The basic purpose of the SDF is to indicate the spatial implications of an IDP, and to lay down strategies, proposals and guidelines for the future spatial development of the area to which it relates. This includes, without being limited to, development objectives, proposals for land reform, urban renewal, reconstruction, integration, environmental planning, transport planning, infrastructure planning, and urban design so that the general well being of the particular community and order in the area are promoted in the most effective manner.

According to Section 16(1) of the Land Use Management Bill (National) the *'spatial development framework must be included in a municipality's IDP and must be consistent with and give effect to the following:*

- a) *The Directive Principles.*
- b) *Any national land use framework applicable in the area of the municipality.*
- c) *Any national and provincial plans and planning legislation'.*

Section 26(e) of the Municipal Systems Act, 2000 (Act 32 of 2000) requires that an SDF must include basic guidelines for a land use management system.

The SDF furthermore has the following broad functions and characteristics (PGWC, 2003):

- (a) It spatially reflects the vision of how the municipal area should develop in the broad sense.
- (b) It reflects the needs identified in the first stages of the IDP process.
- (c) Spatially integrates the strategies of the various sectors (such as the Water Plan, Transport Plan, Department of Agriculture's Area - Wide Conservation Planning, etc.).
- (d) Provides a legally binding spatial framework, which promotes sustainable environmental, economic and social development in a municipality.
- (e) Sets out the objectives that reflect the desired spatial form of the area.
- (f) Serve as an information source and guide to inform and direct land use management.
- (g) It expresses government policy and the views and aspirations of all I&APs.

- (h) Government departments, and other authorities and institutions involved in future development and land use planning in the municipal area, will be bound by the SDF proposals.
- (i) It provides certainty to the affected communities regarding future socio-economic and spatial development in the area.
- (j) It provides a basis for co-ordinated decision-making and policy formulation related to future land use.
- (k) It creates opportunities for preparing development and action plans to which financial budgets can be linked.

According to the Spatial Development Framework Manual for the Western Cape Province (PGWC, 2003) it is neither realistic nor desirable that a SDF deals with every part of the municipal area at the same level of detail. Areas that have been identified as being of strategic importance will require a higher level of attention in the SDF as do other areas. Should more detailed planning be required, it could be done through the drafting of Spatial Development Plans (SDPs). The SDF is therefore mainly a strategic plan, which addresses short-term capital investments, and contain basic principles pertaining to desired long term spatial development, as well as strategies and policies on how to achieve this desired spatial form.

3.3 SPECIFIC FUNCTIONS OF THE OVERBERG SDF

The Overberg SDF provides goals and objectives, strategies, programmes and projects for the spatial and administrative planning and management of the key issues that have been identified by the IDP and applicable lower sphere planning frameworks. In this regard, the SDF includes comprehensive plans and strategies, which collectively indicate **which** type of development should be allowed in the ODM, **where** it should take place, and **how** such development should be undertaken.

The SDF reflects the aspirations and needs of the people of the ODM as identified during the IDP process. This implies that the SDF was essentially drafted '*by the people for the people*', and expresses their wishes in respect of **what kind of places** they want to live in and **what kind of future** they are aspiring for.

The Western Cape Planning and Development Act, 1999 (Act 7 of 1999) stipulates that, '*when preparing, amending, withdrawing, or reviewing a development framework, regard shall be had to the natural and developed environment and ecologically sustainable development in general, and all prescribed steps taken in this connection shall be specified and all prescribed studies shall be carried out*'.

In order to comply with the latter requirement, the SDF was based on a holistic planning approach that addresses the full spectrum of environmental and related key issues. The WRI¹ states in its Global Biodiversity Strategy that UNESCO's MAB (Man and the Biosphere) Programme is a useful tool for translating the bioregional planning approach to 'grass roots level'. The MaB Programme deals with people-environment interactions over the entire realm of bioclimatic and geographic situations of the biosphere (these concepts and programmes are described in Par. 12.1.1 and Chapter 19 below).

¹ World Resource Institute.

3.4 FUNDAMENTAL PRINCIPLES OF THE OVERBERG SDF

The SDF is based on fundamental principles derived from applicable government policy statements such as the White Paper on Environmental Management Policy for South Africa, 1096 of 1997. These principles will also guide the implementation of the SDF and future decision-making related to development and land-use.

- a) **Alienation of resources:** Renewable and non-renewable resources are public assets and belong to all the people of South Africa. The SDF must help to ensure that any alienation of these resources will be done with circumspection, in the best interests of the people's rights and to ensure the wise use of such resources.
- b) **Capacity building and education:** All people of the municipality must have the opportunity to develop the understanding, skills and capacity for effective participation in achieving sustainable development.
- c) **Conflict of interests:** Actual or potential conflicts of interest between responsibilities for resource exploitation, and any responsibilities, or powers affecting environmental quality, or impact management, must be resolved. Solutions to such conflicts of interest must ensure effective implementation of environmental policy and provide for the lead agent in monitoring and ensuring the maintenance of norms and standards set in the SDF.
- d) **Consider all alternatives:** Considering all possibilities results in the best decisions. Development and environmental planning, problem solving and decision-making are often complex. Possible consequences of conflicting interest, as well as the consequences of not acting need careful consideration.
- e) **Co-ordination:** Various concerns and issues cut across the key sectors and functions in the municipality. Therefore, sustainability, integrated planning and management depend on co-ordination and integration of all sectors of society.
- f) **Demand management:** In managing resources and environmental impacts, demand management must be considered, along with other integrated control measures.
- g) **Due process:** Due process must be applied in all integrated management activities. This includes adherence to the provisions in the statutes dealing with just administration and public participation in regional and local governance.
- h) **Duty of care:** Every person, or organisation has a duty to act with due care to avoid damage to others, or to the environment. Also called the Environmental Responsibility Principle.
- i) **Equity:** There should be equitable access to natural resources, benefits and services to meet basic needs and ensure human well-being. Each generation has a duty to avoid impairing the ability of future generations to ensure their well-being.
- j) **Environmental justice:** To comply with the requirements of environmental justice, the SDF must integrate environmental considerations with social, political, and economic justice in addressing the needs and rights of all communities, sectors and individuals.
- k) **Full cost accounting:** Decisions must be based on an assessment of the full social and environmental costs.
- l) **Good governance:** Good governance depends on mutual trust and reciprocal relations between the various groups and sectors of the municipality. This must be based on the fulfilment of constitutional, legislative and executive obligations, and the maintenance of transparency and accountability.
- m) **Inclusivity:** Integrated management processes must consider the interests, needs and values of all I&APs in decision-making to ensure sustainable development.

- n) **Using traditional knowledge:** This includes recognising all forms of knowledge, including traditional and ordinary knowledge.
- o) **Precaution:** The SDF will apply a risk averse and cautious approach that recognise the limits of current knowledge regarding the consequences of decisions or actions.
- p) **Prevention:** The SDF must anticipate problems and prevent negative impacts on the environment and on people's rights.
- q) **Polluter Pays:** Those responsible for environmental damage must pay the repair costs both to the environment and human health, and the costs of preventative measures to reduce or prevent further pollution or degradation.
- r) **Subsidiary:** Regulatory responsibilities belong at the most local level at which the tasks can be carried out effectively. Environmental management structures must match the ecological scale of the managed resource.
- s) **Waste management:** Waste management must minimise and avoid the creation of waste at the source. The SDF must encourage waste recycling, separation at source and safe disposal of unavoidable waste.

3.5 ELEMENTS OF A SDF

According to the Spatial Development Framework Manual for the Western Cape Province (October, 2003) an SDF should consist of:

- a) A well structured and strategic report or series of reports, which includes problems and issues, goals and objectives, etc. and which indicates the location and nature of the proposed development within the municipal area for a projected period of time, and
- b) A map or series of maps at a prescribed scale, which provides a visual representation of this information.

On a spatial level (i.e. in the form of maps or plans), the SDF should reflect the following information (where applicable) (PGWC, 2002):

- a) Status quo information
 - (i) Current land use, current transport routes, location of resources such as high potential soil and water sources, indicate rainfall distribution, natural vegetation, geology, physical and social infrastructure, etc.
 - (ii) SPC's in terms of Bioregional planning principles.
 - (iii) A depiction of problems, issues, identified goals and objectives, and policies and strategies with spatial implications.
- b) Development constraints / opportunities
 - (i) Priority areas for conservation, spatial components of ecological processes whose functioning needs to be maintained (e.g. river corridors), high potential agricultural land, geology, physical and social infrastructure, etc.
- c) Desired spatial growth patterns
 - (i) Maps of desired directions of land-use change, SPC's, nodes, corridors, transport routes, areas where infrastructural investment is required, etc. Also maps indicating (where applicable), proposed areas of noxious activities, social services, cemeteries, waste disposal sites, etc.
 - (ii) A spatial depiction of the findings of a Strategic Environmental Assessment (SEA).
- d) Location of IDP strategies/projects
 - (i) A map indicating where specific IDP projects, which require land, should be located.

Although there is some flexibility according to the particular needs of a municipality, certain basic non-spatial / written components must be included in an SDF document, namely (PGWC):

- a) A status quo report.
- b) A report describing the spatial reflection of problems, issues, goals, objectives, policies and strategies.
- c) A vision statement – could be the same as the vision of the municipal IDP.
- d) A description of the projects that have been prioritised and how the projects will address identified issues.
- e) A report on the findings of a Strategic Environmental Assessment (SEA), which should include an assessment of priority and irreplaceable conservation areas, i.e. the “no go areas” as well as an environmental sensitivity and assets analysis.
- f) The written findings of a SEA undertaken to determine the impacts arising from the implementation of the proposed projects and suggestions of what measures should be taken to lessen these impacts.
- g) A reference to the budget, by way of listing the projects and indicating where in the budget they can be found.
- h) Basic guidelines, incorporating environmental considerations, for the purpose of a land use management system / zoning scheme and should reflect the 32 detailed bioregional spatial planning categories.
- i) Measures to promote desired land use.
- j) An executive summary.

Over and above these components, there are certain pre-requisites that have to be met, including (PGWC, 2003):

- a) An SDF must be aligned with the strategies and objectives reflected in the SDF's and IDP's of national, provincial, district and local neighbouring municipalities.
- b) It must be consistent with any applicable national or provincial legislation on environmental management, agriculture and water.
- c) It must give effect to any national and provincial plans and planning legislation.
- d) It should include up-to date planning concepts such as nodes and corridors, and be in line with national and provincial strategies on:
 - (i) Socio-economic development,
 - (ii) Bioregional planning, and
 - (iii) Sustainable development.

According to Section 16(2) of the Land Use Management Bill (National) an SDF should serve as a land use policy to guide:

- a) Desired patterns of land use in the municipal area.
- b) The spatial reconstruction of the municipal area, including:
 - (i) correction of past spatial imbalances and integration of formerly disadvantaged areas;
 - (ii) directions of growth;
 - (iii) major movement routes;
 - (iv) the conservation of natural and built environment;
 - (v) identification of areas in which particular types of land use should be encouraged or discouraged;
 - (vi) the identification of areas in which the intensity of land development should be increased or reduced.
- c) Decision-making relating to the location and nature of development in the municipal area.

SECTION B: ENVIRONMENTAL SCAN AND ANALYSIS

SECTION SYNOPSIS

This section provides a description and overview of the key aspects and characteristics of the Overberg District Municipality that were addressed in the SDF:

- The existing local government structures of the ODM as determined by the Local Government Municipal Demarcation Act, 1998 (Act 27 of 1998).
- The historical, ecological, biophysical and socio-economic characteristics, which collectively shape the cultural and natural landscapes of the ODM and represents its *intrinsic, systemic and instrumental* values.
- The unique environmental manifestations that are of global conservation significance and programmes and initiatives that have been instituted to ensure their long-term protection.

4 CONTEXT

The ODM is located in the Western Cape Province and forms the southern-most area of Africa (refer to Figure 1). The ODM extends over a total of 12 180 km². The ODM is an amalgamation of the magisterial districts of Caledon, Hermanus, Bredasdorp and Swellendam. It is bordered by the municipal areas of the City of Cape Town, and the Boland and Eden District Municipalities. To the west the ODM is bordered by the Hottentots Holland Mountains, to the east by the Breede River, and to the north and south by the Riviersonderend and Langeberg mountains and the ocean.

The coastline is washed by the Atlantic and Indian oceans, which meet at Cape Agulhas, the southern-most tip of the African continent. A number of smaller fishing villages and holiday settlements are situated along the rugged coastline, namely Kleinmond, Hermanus, Gansbaai, L'Agulhas, Struisbaai and Arniston / Waenhuiskrans.

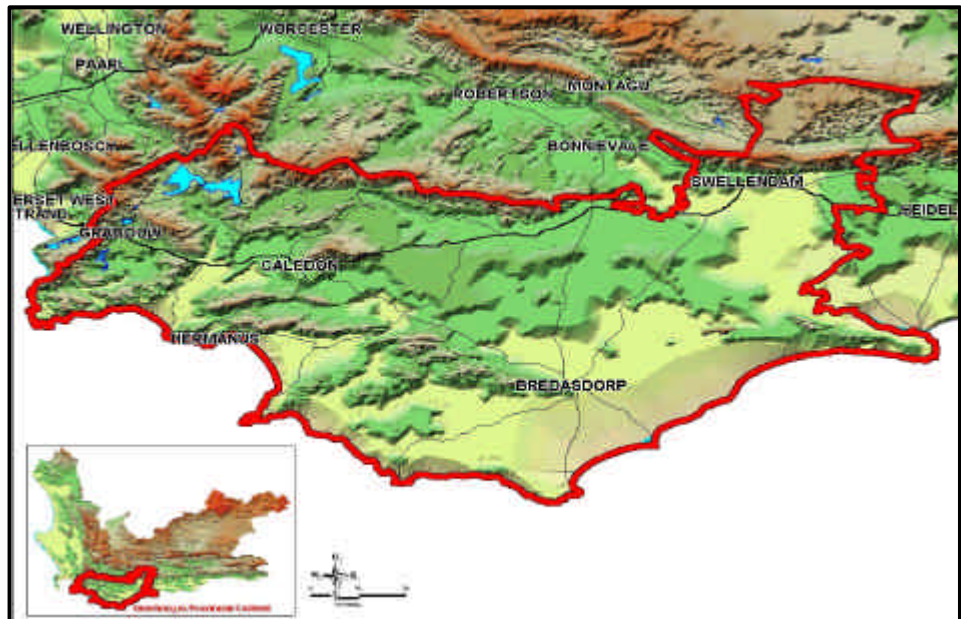


Figure 1: Context of the Overberg District Municipality.

The main access route to the district municipal area is the national road (N2) via Sir Lowry's Pass and Houw Hoek Pass in the west, and Swellendam in the east. Cape Hangklip guards the dramatic coastal route (R44) in the west. Various mountain passes provide access from the north (R43, R45, R317 and R324).

5 MUNICIPAL STRUCTURES

As illustrated by Figure 2 below, the Overberg District Municipality comprises of the following Category B Municipalities with which it shares municipal executive and legislative authority (declared on 22 September 2000 in terms of Provincial Gazette 5991):

Category C: Overberg District Municipality (DC3)
District Management Area – De Hoop Nature Reserve (DMA03)

Category B: Theewaterskloof Municipality (WC031)
Overstrand Municipality (WC032)
Cape Agulhas Municipality (WC033)
Swellendam Municipality (WC034)



Figure 2: Municipal Authority Boundaries (A larger scale map is appended to this document).

The Category B Municipalities within the Overberg District Municipality constitute the following former municipalities or local councils:

Theewaterskloof Municipality (WC031): Grabouw
Caledon, including Myddleton
Villiersdorp
Riviersonderend
Greyton
Genadendal
Botrivier
Tesselaarsdal

Theewaterskloof Municipality has been divided into 10 wards.

Overstrand Municipality (WC032): Hangklip/Kleinmond
Greater Hermanus
Stanford
Greater Gansbaai
Buffeljagtstrand
Spanjaardskloof
Baardskeerdersbos
Pearly Beach

Ovestrand Municipality has been divided into 9 wards.

Cape Agulhas Municipality (WC033): Bredasdorp
Struisbaai
Napier
Elim
Waenhuiskrans
L'Agulhas
Portem
Klipdale

Cape Agulhas Municipality has been divided into 5 wards.

Swellendam Municipality (WC034): Swellendam
Barrydale
Suurbraak
Buffeljagtsrivier
Malgas
Infanta
Stormvlei

Swellendam Municipality has been divided into 5 wards.

This new local government structure resulted in the sharing of jurisdiction over most of the Overberg District between Category C (District Municipality) and Category B (former TLCs) Municipalities. The division of powers and functions are determined in Section 84 of the Municipal Structures Act, 1998 (Act 117 of 1998), which provides for the establishment of various categories and types of municipalities, and determines powers and functions of the various categories of municipalities.

6 HISTORY AND CULTURE

The ODM has a rich history and culture dating back thousands of years. The indigenous San (Bushman or Quena) and Khoi (Hottentot or Kung) peoples populated the region for many centuries before the first European pioneers arrived. The San were hunter-gatherers and the Khoi were pastoralists. They are collectively referred to as the Khoisan. They led a nomadic existence, living off the resources of the environment. The last female *strandloper* (a popular name for the Khoisan), Bientang, is reputed to have lived in a cave of the same name at Hermanus (COTA, 1995).

Both the Khoi and the San lived along the shore. Their fish traps may still be seen in the Pearly Beach and Struisbaai areas, and countless middens (piles of shells) occur along the coast from De Kelders to the De Hoop Nature Reserve.

Swellendam is also the third oldest magistrate district in the country, receiving a deputy magistrate in 1743, with full magisterial status bestowed in 1745 (Overberg District Municipality, 2002).

6.1 EARLY PIONEERS

The earliest European visitors to the area were probably Portuguese navigators in search of a sea route to the East. They named prominent landmarks after saints and religious figures, hence Cape Infanta and San Sebastian Bay. The later Dutch settlers viewed the area from their defensive position in Table Bay and called it the Overberg, as it is still known today (COTA, 1995).

The oceans and mountains on the boundaries of the Overberg form an integral part of the history of this region. The coastline was inhospitable and more than 130 ships came to grief, with a loss of some 5 000 lives. Several places have been named after wrecks, such as Schoonbergbaai, Arniston, Skipskop and the Miles Barton Reef (COTA, 1995).

Salvage operations necessitated speedy access over the mountain ranges by means of ox wagons. The Gantouw (eland) Pass near the present-day Sir Lowry's Pass was the first access route from Cape Town in the west.

6.2 EARLY TRAVELERS

The Khoi were primarily grazers and stock farmers. It was their numerous sheep and cattle herds that attracted attention to the Overberg as an excellent area for grazing and stock farming. Expeditions into the interior were therefore undertaken by early travellers from Cape Town, primarily to barter cattle from the indigenous people. An employee of the Dutch East India Company, Jan Hartogh's diaries shows vivid descriptions of these exploratory trips in the early 1700s (COTA, 1995).

The arrival of white settlers negatively affected the Khoi's kraal- and cultural life. Barter between them and the settlers caused them to lose their sheep and cattle and they became impoverished labourers (Overberg District Municipality, 2002).

The allocation of grazing rights and loan farms to white settlers started early in the eighteenth century. They started with intensive stock farming. At the beginning of the nineteenth century Spanish merinos were imported and formed the basis of the local wool

industry. The cultivation of grain contributed to a more permanent settlement pattern amongst the white settlers (Overberg District Municipality, 2002).

The old wagon roads are still visible in certain places and are one of our greatest historical heritages. The main route from Gantouw Pass to the eastern districts ran from the present-day Sir Lowry's Pass to the farm Boontjieskraal near Caledon, then inland past Greyton to Riviersonderend and Stormsvlei. It then moved past Hessekwaskloof and crossed the Breede River to Swellendam (COTA, 1995).

Early travellers commented on the lack of trees in the Hottentots Holland Kloof, today known as the Grabouw/Elgin and Houw Hoek Valley. Oak and poplar trees were therefore planted at overnight stops on the wagon roads, the oaks for their shade and the poplars to provide wood for making brake shoes for the wagons (COTA, 1995).

6.3 ARCHITECTURE

The remoteness of the ODM and the fact that the earliest builders made use of local materials resulted in a very unique architectural vernacular. The thatch-roofed fishermen's and farm cottages have a unique charm. Building materials included clay, mixed with grass and well trampled by animals. Bricks were also made of this mixture (COTA, 1995).

The link between wood and shipwrecks is apparent in the architecture of the region. As the wood supply of forests depleted, settlers had to become dependent on using timber from shipwrecks as other sources of timber. Practically all buildings were constructed using timber. The Zoetendals Valley homestead is also regarded as a fine example of Overberg Cape-Dutch architecture.



Photo 1: Handpacked stone wall at De Hoop (CIRCA, 1860).

Later additional materials were brought over the mountains from Cape Town for Victorian style buildings. The stately mansion of Melkkamer on De Hoop was built of local limestone in the early 1900s, with Victorian fittings. A notable architectural feature of the Overberg is the old handpacked stone walls which you may see on approaching De Hoop and also in the region of Soetanyberg (COTA, 1995).

6.4 MISSION STATIONS

The mission stations such as Genadendal (valley of grace), Myddleton (near Caledon), Zuurbraak and Elim concerned themselves with the spiritual well-being of the indigenous people and their timeless way of life and unique architecture are still evident today. They were also centres for training of skilled craftsmen, such as builders, smiths and especially thatchers. The interdependence of the pioneer farmers and the craftsmen is still discernible today (COTA, 1995).

The Moravian Church originated in 1457 in Moravia (today part of Slovakia) and had a particular zeal for mission work. Georg Schmidt was thus sent to the Cape in 1737. Many

thought that mission work among the Khoi was attempting the impossible, but in spite of this Schmidt settled in Baviaanskloof in the Riversonderend Valley in 1738.

The oldest mission station in South Africa, Genadendal was established in 1738 by Georg Schmidt. The station was originally known as Baviaanskloof. By the late 18th century Genadendal had grown to become the second largest settlement (next to Cape Town) in the country. Genadendal comprises of no less than 25 national monuments and the museum collection of which virtually everything is a Genadendal artefact, was declared a National Cultural Treasure in 1991. Other features of interest include the printing works, water mill and wagon house. The Beinbrecht Bridge was the first bridge constructed in South Africa and is now a national monument (COTA, 1995).

Genadendal expanded to such an extent that a new mission station became necessary. The farm Vogelstruyskraal was therefore purchased by the Moravian Mission Society in 1824. Elim is named after an oasis with 70 palm trees. The biblical atmosphere is perpetuated today by palm trees, fig trees, donkeys and a timeless serenity. The community lives as a brotherhood, governed by a set of self-imposed regulations, on plots 3 x 6 metres in size. Each inhabitant also received a garden plot. The Moravian Church at Elim was built in 1824 and has the oldest working clock in South Africa. It is now a national monument. In the past the church obtained its income from the gardens, a water mill and workshops. Salami and freshly baked products may be purchased and a flower shed has recently been established for the flower trade (COTA, 1995).



Photo 2: Elim – Moravian Mission Station.

7 BIOPHYSICAL ENVIRONMENT

7.1 TOPOGRAPHY

The ODM is predominantly characterised by undulating plains and hills stretching from the Langeberg and Rivieronderend mountains in the north to the Atlantic and Indian Ocean coasts in the south (refer to Figure 3). The fairly flat coastal zone rises from sealevel to an average altitude of 100 m. The inland coastal plateau, which includes the Ruggensveld, lies at an altitude of 150 to 300 m. The Klein-Karoo area surrounding Barrydale occur at an altitude of 600 m.

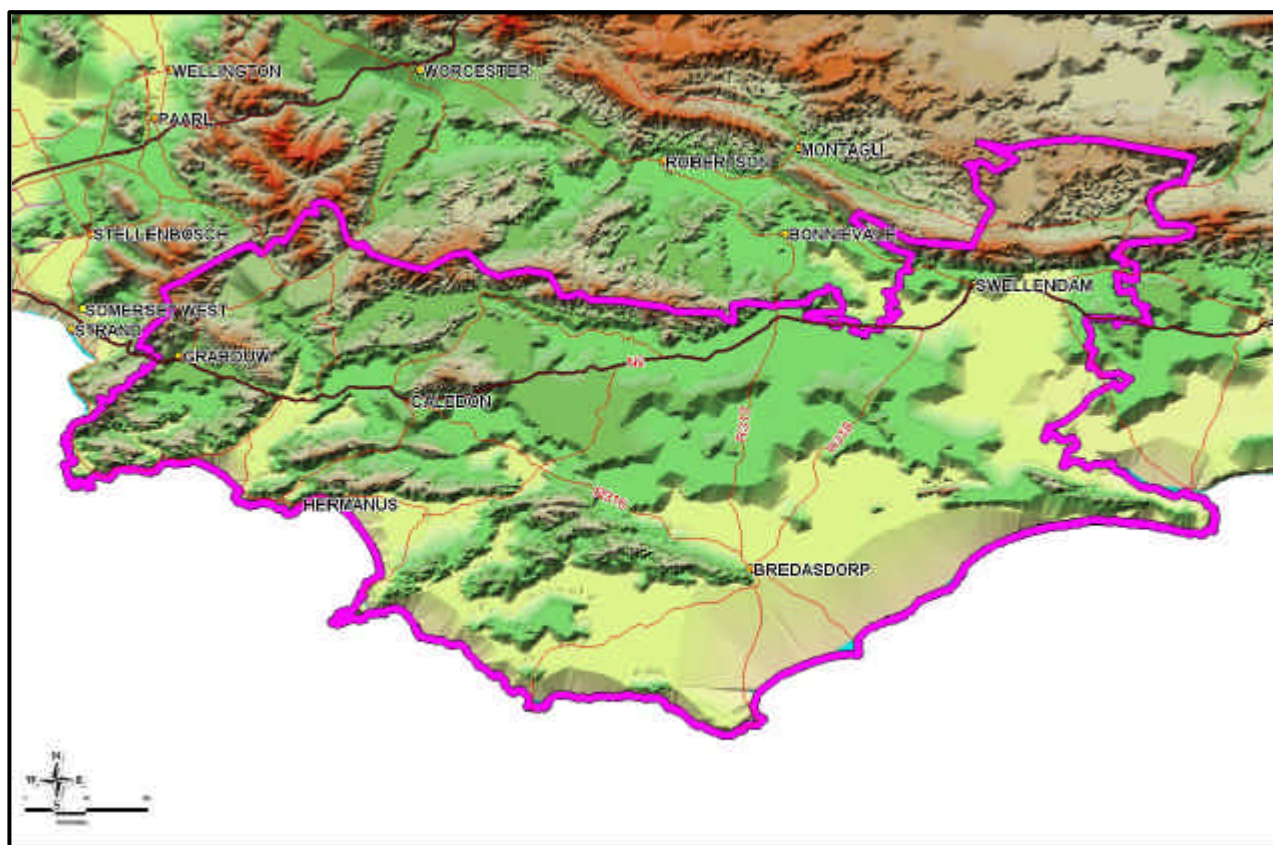


Figure 3: Topography of the Overberg District Municipality.

7.2 CLIMATE

The Overberg experiences a typical Mediterranean climate, with mild, wet winters and warm to hot, dry summers. Prevailing winds blow from the north- and south-west in the winter and from south-east in summer.

Although rainfall in the ODM occurs mainly in the winter with an average of 670 mm per annum, the rainfall varies substantially. There are two clearly distinct rainfall zones, namely the western part of the municipal area with typical winter rainfall patterns (highest levels from June to August) and the eastern part, which receives rain throughout the year (highest levels in March and August to October). Rainfall patterns play a decisive role in the choice of agricultural activities.

Temperatures vary from an average January figure of 20.8°C to a July average of 12°C. The largest part of the District Municipal Area is almost frost free as a result to close

proximity to the sea. In smaller areas frost can be expected for 30 to 90 days per annum, while the higher mountain peaks may be powered with snow in the winter.

7.3 HYDROLOGY AND WATER MANAGEMENT

The Western Cape group of regions is unique in that all the rivers rise in and flow through territory that is wholly South African and, being remote from the border with neighbouring areas the Western Cape is unlikely ever to benefit from inter-state transfer of water.

There are a few large rivers in the Overberg, apart from the Breede River in the eastern part. The coast is punctuated by smaller rivers and their estuaries, as well as by wetlands that are often seasonal, and several coastal lakes in the Bredasdorp area.

The mountains in the northern and western areas play an important role as water catchments for the rivers. The root systems of fynbos and its many wetlands act as a filter, which ensures clear, high-quality water. Much of this water is channeled to the Cape metropolitan areas via the large Steenbras and Theewaterskloof dams. Smaller dams that feed local towns include the Buffeljagts Dam near Swellendam and the De Bos Dam near Hermanus. Indigenous aquatic vegetation such as palmiet (*Prionium serratum*) breaks the force of floodwaters, bending with the flow but not preventing its passage.

Within the southern coastal plain good and strong underground water sources, with three types of aqua spheres are present, i.e. quartzite (low salt content), shale (high salt content) and Cenozoic and younger formations (high salt content). Around the Rûens the underground water sources tend to be brackish and usually do not yield allot of water. In the cases where towns supply their own water from mountain catchments, the water is of outstanding standard, but it has a brown colour. Users prefer the water to 'be made white', while recent statistics indicate that the purification process can have a detrimental effect on people's health (Overberg IDP, 2002).

Water is a precious commodity on the drier coastal plains in the central and southern parts of the district municipal area. Most of the water for farming and domestic use is supplied by a private water scheme, Overberg Water. Overberg Water supplies purified A grade surface water of the highest standard in the Western Cape. However, the question can be raised why this high quality water is being utilised for stock farming and why unprified water or water of a slightly lower quality are not being used for that purpose? (Overberg IDP, 2002).

The main rivers in the study area are listed below:

- a) **Rooi Els River:** The Rooi Els River is the first river encountered along the coastal route from the west and include the small lakes at Betty's Bay, which consists of some of the last remaining black water systems in the Western Cape.
- b) **Palmiet River:** Part of the Palmiet River's catchment lies within the Kogelberg Nature Reserve. The black waters of this river flow into the sea at the Kleinmond Coastal and Mountain Nature Reserve.
- c) **Bot River:** This river flows through farmlands on the coastal plain and widens to form a large estuary east of Kleinmond. Upstream from the Onrus River lagoon lies the De Bos Dam, which is the main water supply source for Hermanus.

- d) **Mossel and Vogelgat Rivers:** The catchments of both rivers lie entirely within Fernkloof Nature Reserve.
- e) **Klein River:** This river rises north of Hermanus in the Hemelen-Aarde Valley and practically encircles the Klein River Mountains to the east. It reaches the sea at De Mond, near Hermanus.
- f) **Paardenberg & Uilenkraals Rivers:** East of Stanford the Paardenberg River rises in the Salmonsdam Nature Reserve and its waters feed the Uilenkraals River.
- g) **Heuningnes River:** The Heuningnes River flows through an extensive system of wetlands, including the Voëlvlei and Soetendalsvlei. It reaches the sea in the De Mond Nature Reserve.
- h) **Kars River:** The Kars River rises via many tributaries near Bredasdorp. The Kars River is dammed near Napier and is a major tributary of the Heuningnes River.
- i) **Nuwejaars River:** The headwaters of the Nuwejaars River are in the areas south of Elim.
- j) **Sout River:** This river rises at Jongensklip, near Caledon, and flows into the De Hoop Vlei, which is a proclaimed Ramsar Site.
- k) **Ratel River:** The Ratel River rises to the west of Elim and flows into the sea via an extensive wetland 20 km east of Quoin Point.
- l) **Brede River:** The Breede River enter the ODM near Swellendam and moves southward and enters the sea, guarded by Witsand on the eastern bank and Infanta on the western bank.
- m) **Riviersonderend River:** This river is one of the main tributaries of the Breede River and flows along the southern foothills of the Riviersonderend Mountains.

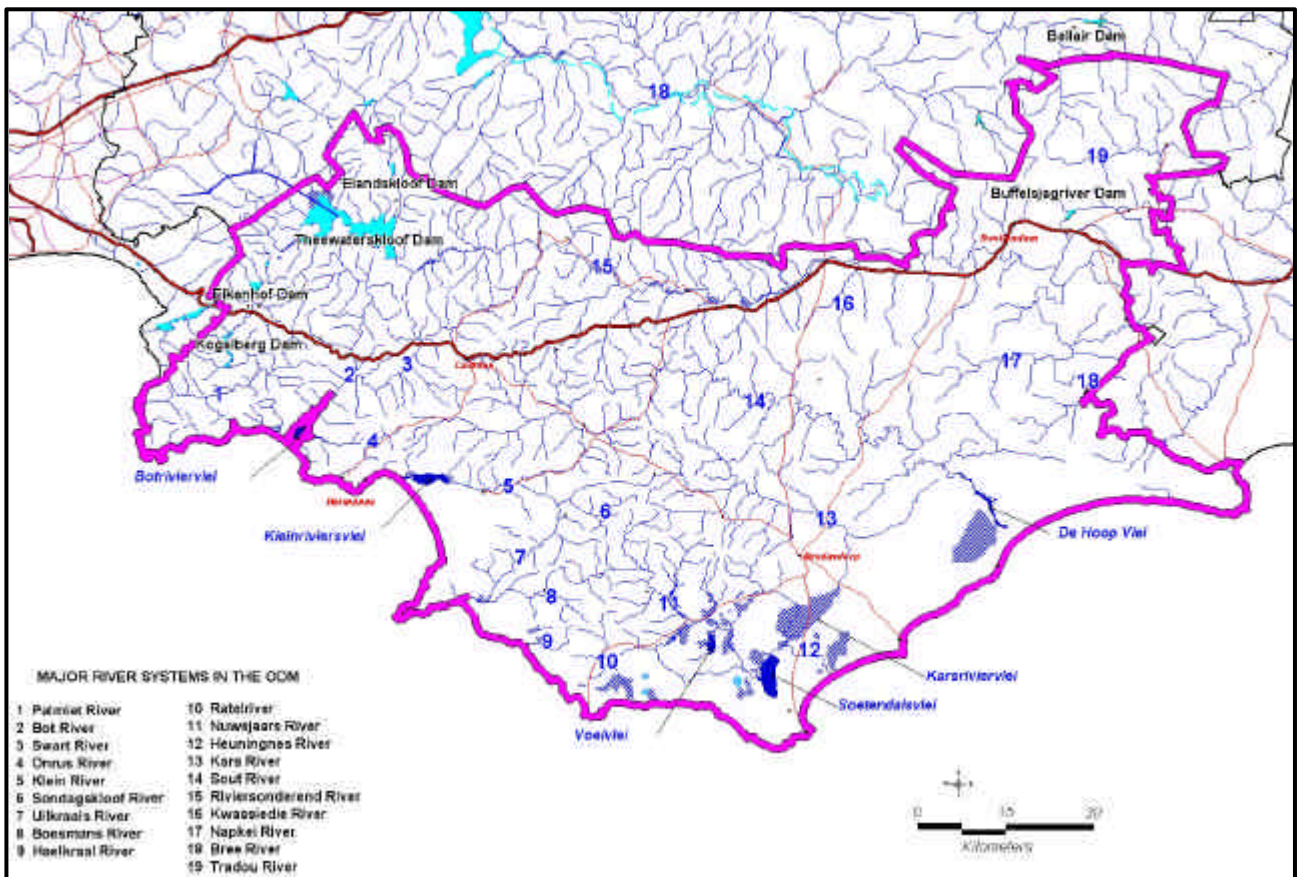


Figure 4: Major river systems in the Overberg District Municipality (A larger scale map is appended to this document).

7.3.1 BREEDE WATER MANAGEMENT AREA

The Western Cape Region has been divided into four Water Management Areas:

- a) **Gouritz Water Management Area:** Main rivers include the Gouritz, Olifants, Kamanassie, Gamka, Buffels, Touws, Goukou and Duiwenshok;
- b) **Olifants/Doorn Water Management Area:** Main rivers include the Olifants, Doring, Krom, Sand and Sout;
- c) **Breede Water Management Area:** Main rivers include the Breede, Sonderend, Sout, Bot and Palmiet;
- d) **Berg Water Management Area:** Main rivers include the Berg, Diep and Steenbras.

The ODM water resources falls within the Breede Water Management Area, which is the southern most water management area in South Africa. Most of the water management area is drained by the Breede River and its main tributary the Riviersonderend River. Several small coastal rivers are found in the southern part of the water management area, while vleis with no outflow to the sea are found in the south-east of the water management area. The lower Palmiet River as well as the vlei areas are of high conservational importance (DWAF, August 2002).

7.3.2 IMPORTANT ESTUARIES IN THE ODM

Being places where rivers meet the sea, estuaries are one of the most important features of the South African coastline; they are tranquil areas of high productivity and play a vital role in the life cycles of many plants and animals (Environmentek, 2001).

Apart from their ecological importance, estuaries are also popular sites for human activity and development. Recreational uses of estuaries include bait collection, bird watching, boating, fishing and swimming. Because of their great aesthetic value, areas around estuaries are often favoured for housing and tourist developments. The protected coastal waters of estuaries are also used for industrial and harbour development as well as domestic and industrial effluent discharges. Population growth and development in and around estuaries as well as the coastal zone in general, is placing increasing pressure on the health and function of these ecosystems (Environmentek, 2001).

In addition to development pressures in the coastal zone, activities taking place in the catchments of rivers that flow into estuaries also affect the health and functioning of these ecosystems. Runoff from the land enters streams and rivers, and eventually makes its way to estuaries, which act as sinks for materials, sediments, and nutrients derived from the catchment. Poor agricultural practices in the catchment can lead to increased nutrient and sediment loads in rivers and their estuaries while domestic and industrial waste discharge also introduce pollutants (e.g. trace metals) into these systems. Changes in river flow and natural flood events, through the construction of impoundments and water abstraction for irrigation, reduce the natural flushing of accumulated materials and sediment from estuaries (Environmentek, 2001).

The following major estuaries are found in the ODM:

a) **Breë River Estuary**

The Breë estuary lies west of the coastal town of Mossel Bay in the Western Cape, near Cape Infanta. The river is approximately 337 km long with a catchment area of

12 384 km². Agriculture comprised 34% of the catchment land-cover in the Breë catchment. Most of this was temporary commercial dryland agriculture, permanent commercial irrigated agriculture, commercial forestry, and temporary commercial irrigated agriculture. About 1% of the catchment was degraded shrubland while approximately 64% was natural, comprising mainly shrubland, bushland, grassland and waterbodies. Major impoundments in the catchment include the Tweewaterskloof Dam and the Brandvlei Dam. Urban development accounted for less than 1% of the catchment land-cover. Most of this was residential, industrial and commercial development. Major towns in the Breë catchment include Swellendam in the middle to lower catchment, Montagu and Robertson in the middle catchment and Worcester in the upper catchment (Environmentek, 2001).

b) Heuningnes River System

The Heuningnes system is the southernmost estuary in South Africa, situated near Cape Agulhas. The catchment area that feeds this system is approximately 1 400 km². About 41% of the Heuningnes catchment was under agriculture. Most of this was temporary commercial dryland agriculture, improved grassland and some commercial forestry. About 2% of the catchment was degraded, mostly degraded shrubland. Approximately 56% of the Heuningnes catchment was natural, mostly shrubland, grassland, bushland, and wetlands and waterbodies (Zoetendalsvlei). There was little (<1%) urban development in the Heuningnes catchment and most of this comprised residential and industrial development. Major towns in the catchment include Bredasdorp, Napier and Elim (Environmentek, 2001)

c) Klein

The Klein estuary is located near the coastal town of Hermanus in the Western Cape. The river is approximately 66 km long with a catchment area of 906 km². About 49% of the Klein catchment was under agriculture, mostly temporary commercial dryland agriculture with some improved grassland, permanent commercial irrigated agriculture, commercial forestry, and temporary commercial irrigated agriculture. Less than 1% of the catchment was degraded, comprising degraded shrubland and hermland. Approximately 51% of the Klein catchment was natural, comprising mainly shrubland, bushland, grassland and the waterbody of the Klein estuary. Urban development accounted for less than 1% of the land-cover and comprised mainly residential development associated with the towns of Hermanus near the coast and Stanford further inland (Environmentek, 2001).

d) Bot

The Bot system is situated just northwest of the coastal town of Hermanus in the Western Cape. The river is approximately 54 km long with a catchment area of 920 km². Agriculture accounted for approximately 51% of the land-cover in the Bot catchment. This mainly comprised temporary commercial dryland agriculture, commercial forestry, permanent commercial irrigated agriculture, and improved grassland. Less than 1% of the Bot catchment was degraded, mainly comprising degraded shrubland and erosion scars. About 48% of the catchment was natural, mainly shrubland, bushland, grassland, and the waterbody of the Bot estuary. Urban development, mainly residential development and smallholdings accounted for approximately 1% of the catchment land-cover. This was mainly associated with the towns of Hawston near the coast, Botrivier in the middle catchment and Caledon in the upper catchment (Environmentek, 2001).

e) Palmiet

The Palmiet estuary is located west of the coastal town of Hermanus in the Western Cape. The river is approximately 73 km long with a catchment area of 535 km². Approximately 41% of the Palmiet catchment was under agriculture. This mainly comprised permanent commercial irrigated lands and commercial forestry. Less than 1% of the catchment comprised degraded shrubland while about 58% was natural, mainly shrubland, bushland and waterbodies. There are a number of impoundments in the Palmiet catchment; major dams include the Kogelberg Dam, Rockview Dam, Eikenhof Dam, and the Nuweberg Dam. About 1% of the catchment was urban, comprising mainly residential and industrial development associated with the inland towns of Grabouw and Elgin (Environmentek, 2001).

7.3.3 PROBLEMS ASSOCIATED WITH WETLANDS

The ODM are unique in terms of the wide variety of wetlands that occur within relative small areas. These wetlands include freshwater springs, rivers, estuaries, lakes, vleis and pans. Several areas along the coast drain directly into the sea. The wetlands and associated fynbos, which constitute a unique environmentally sensitive area, are currently under threat as a result of poor environmental management and the proliferation of invasive plants.

Extensive use is also made of fertilizers on the agricultural land adjacent rivers and wetlands, and the aerial spraying of herbicides and pesticides is common. High concentrations of these elements in the wetlands adjacent to agricultural lands are not unexpected.

Another disturbing factor is the experimental grape farming that has commenced on the banks of the Nuwejaars River. Water is drawn from a spring and well-points located in the river alluvium. Apart from the annual rainfall, additional water is needed for irrigation, with the only source being the Nuwejaars River or the springs that feed into the wetland system and the river. Agricultural development such as this will seriously impact the flow regime of the Nuwejaars River and ultimately the Zoetendals Vlei.

It has also been pointed out in a document called *Report on the Overberg Coastal Groundwater Resource, Volume II*, that noticeable changes have taken place within the Heuningnes estuary over the past 20 years, indicating that the chemistry of the water, the bedload and the quantity of water flowing into the system have changed over the years. If this trend continues, the closing of the De Mond estuary could take place in the not too distant future. According to the above report, should closure of the estuary take place, large scale flooding could occur over an area of 4 000 ha adjacent to the Heuningnes River.

As the Zoetendalsvlei acts as a reservoir for the Heuningnes River, it is only when the vlei overflows that run-off to the sea occurs. Hence, the Heuningnes River and the De Mond estuary cannot be seen in isolation. Apart from the proliferation of alien plants, a major concern is the construction of dams in the area. Furthermore, the expansion and development of townships, farming activities and waste disposal practices are potential sources of pollution for the rivers and streams that feed into the wetlands and vleis. It is therefore of the utmost importance that appropriate mitigatory measures are put in place, or else the estuary and wetland system may be damaged irreparably.

8 BIOLOGICAL CHARACTERISTICS

8.1 FLORA

The ODM forms an important part of the Cape Floral Kingdom, which is internationally recognised as one of the six Floral Kingdoms of the world (refer to Figure 5).

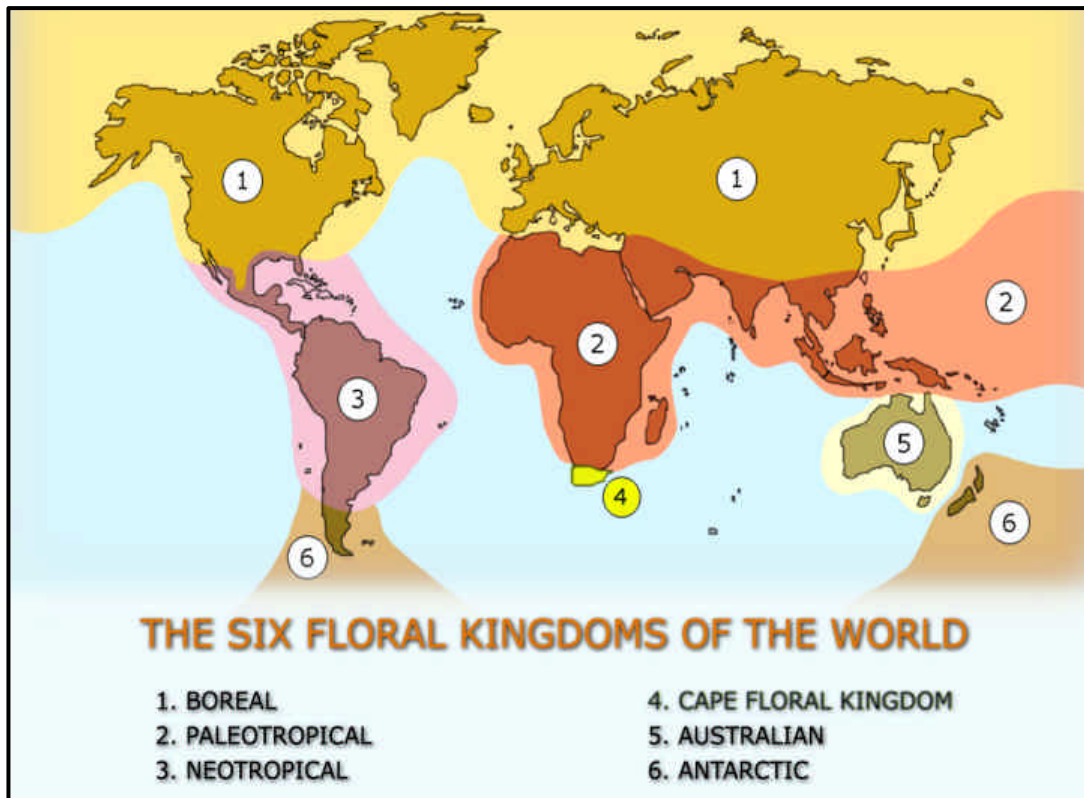


Figure 5: The Cape Floral Kingdom in global context.

As illustrated by Figure 5, the Cape Floral Kingdom is the smallest of the Floral Kingdoms of the world, covering a mere 0,06% of the earth's surface, and is the only Floral Kingdom contained in its entirety within a single country. The Cape Floral Kingdom is characterised by its exceptional richness in plant species. More than 8 700 species are known to occur, with more than 68% of these being endemic. The Cape Floral Kingdom, thus, compares with some of the richest floras world-wide.

About 75% of all plants in the South African Red Data Book are found in the Cape Floral Kingdom. Of these species, about 1 700 are threatened with extinction. Many fynbos species are extremely localised in their distribution, with sets of such localised species organised into 'centres of endemism' (Low and Robelo, 1996).

The Cape Floral Kingdom comprises a number of biomes, namely the Fynbos, Forest, Nama Karoo, Succulent Karoo, and Thicket Biomes (refer to Figure 6 on the following page). However, Low and Robelo (1996) state that the contribution of Fynbos in terms of species richness, endemism, and fame of the region, is so overwhelming, that the Cape Floral Kingdom is considered to be 'essentially Fynbos'.

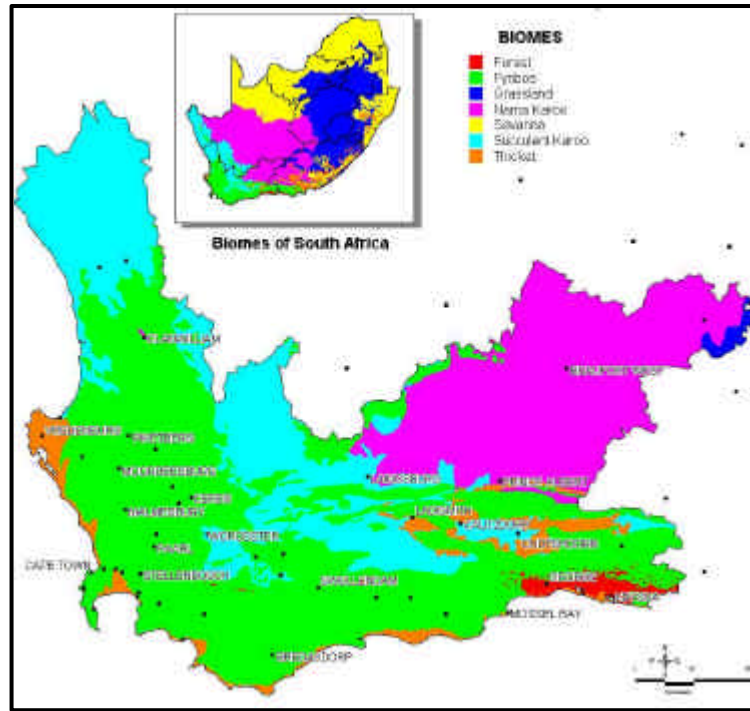


Figure 6: Biomes of the Western Cape.

The Fynbos Biome comprises two broad vegetation types, namely renosterveld and fynbos. In the ODM, both these types are threatened by urbanisation, agriculture and alien plant invasion. The vegetation of the ODM is mostly Fynbos and Renosterveld.

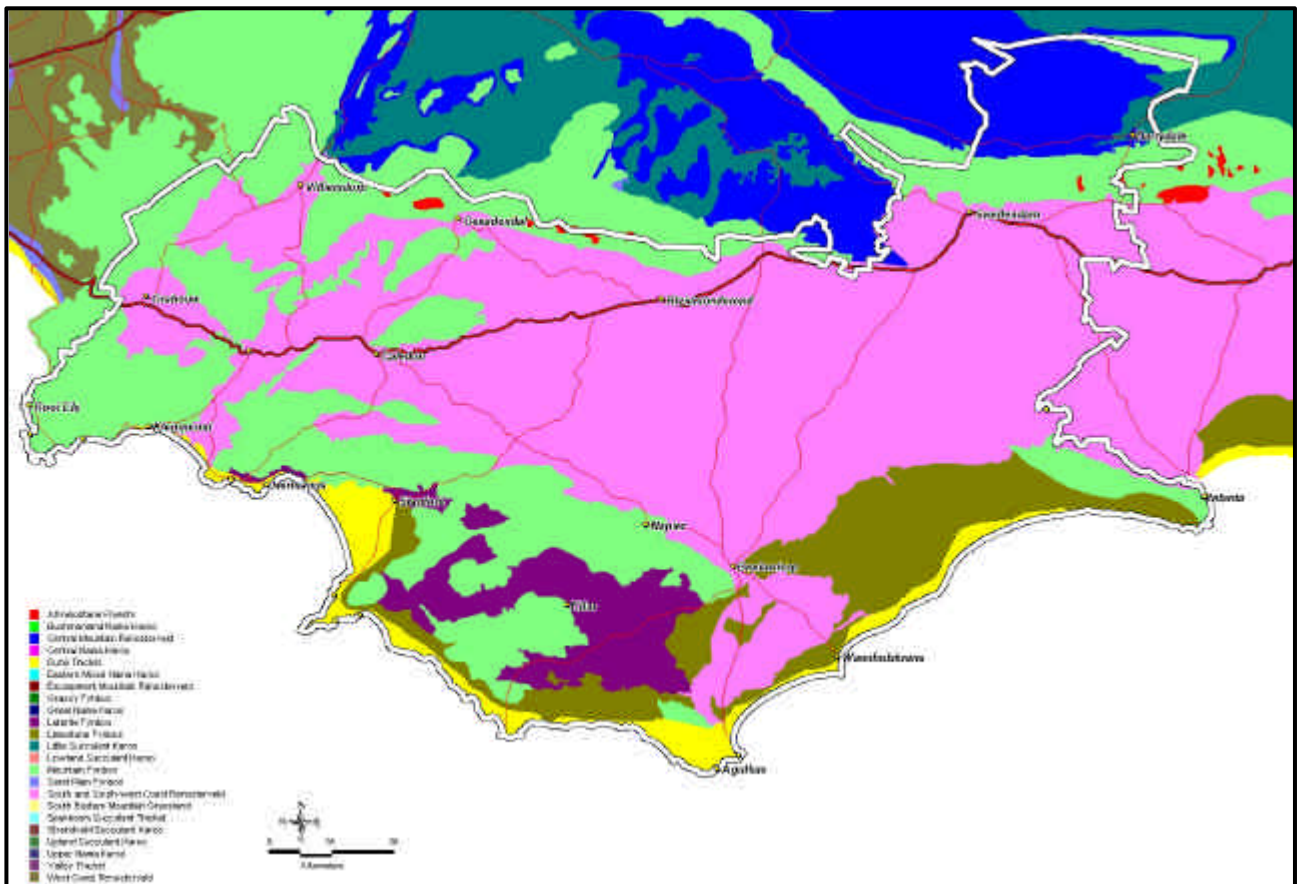


Figure 7: Vegetation of the Overberg District Municipality (A larger scale map is appended to this document).

The primary vegetation types of the ODM are the following:

8.1.1 MOUNTAIN FYNBOS

Mountain fynbos occurs in mountainous areas on shallow, sandy, acid soils, most of which are derived from sandstones of the Table Mountain Group (TMG) and are highly infertile. Mountain fynbos is found extensively in moister areas on the steep south-facing slopes of the mountains such as the Riversonderend and Langeberg ranges in the Overberg, in areas with higher rainfall. It also occurs in small patches on seaward-facing coastal slopes on the Agulhas Plain south of Bredasdorp. Mountain fynbos can best be seen on the open slopes of mountainous areas, which include both Cape Nature Conservation and local nature reserves, and the Harold Porter National Botanic Garden (COTA, 1995).

8.1.2 PROTEOID FYNBOS

Members of the protea family are a major feature in this vegetation type. They are usually taller than the surrounding vegetation. Various kinds of proteoid fynbos may be distinguished, including *Protea compacta* veld, *Protea susannae* veld and limestone fynbos (COTA, 1995).

a) *Protea compacta* veld

The striking pink Bot River protea (*Protea compacta*) is the dominant species in this type of vegetation, which is found mainly on deep, leached sands. The conebrush (*Leucadendron xanthoconus*) is also present sometimes. Kraaltolbos (*L. Platyspermum*) occurs mainly on sandy gravels on sandstone. This veld type is localised and restricted to low-lying areas on the Agulhas Plain, particularly in the area inland of Pearly Beach and to the south-west of Elim as well as in the Bot River area. It may also be seen at Fernkloof Nature Reserve (COTA, 1995).

b) *Protea susannae* veld

A second, localised type of proteoid fynbos occurs on deep, more fertile sands, often at the base of major outcrops of limestones of the Bredasdorp Formation. There are some interesting endemic species. The dominant and characteristic members of the protea family are stinkleaf protea (*Protea susannae*) and dune conebrush (*Leucadendron coniferum*). This veld type is highly endangered since it is prone to invasion by both rooikrans and port jackson. Dune conebrush is often excessively harvested, adding to the overall threat to this vegetation type. *Protea susannae* veld occurs in a restricted area at De Hoop and Pealy Beach (COTA, 1995).

c) Limestone Fynbos

A third and distinctive form of proteoid fynbos occurs exclusively on limestone outcrops of the Bredasdorp Formation, from Gansbaai to the Gourits River mouth. The soils are sandy and shallow, often confined to small *potholes* in the limestone pavement. Although relatively rich in organic matter and nitrogen, the soils are nonetheless infertile. Limestone fynbos is rich in species and probably has the most endemics in the Cape Floristic Region. It therefore warrants urgent conservation measures. Most of the vegetation is relatively intact, although invasion by rooikrans is increasing (COTA, 1995).

Limestone fynbos is best viewed in the De Hoop Nature Reserve and westwards on the Heuningrug Ridge near Bredasdorp, and along the coast to Soetanyberg. The limestone *islands* in the vicinity of Hagelkraal, inland of Pearly Beach, are botanically unique (COTA, 1995).

8.1.3 RESTIOID FYNBOS

Restioid fynbos or rietveld is dominated by tall members of the reed (*restio*) family. This veld is confined to low lying areas, with soils ranging from alkaline sands over limestone to acid sands over clayey muds. This vegetation type is closely associated with vleis and may be flooded for various periods during winter. Much of this vegetation has been destroyed by the alteration of natural drainage patterns and the agricultural transformation of land to the south of Bredasdorp. Urgent conservation measures are required (COTA, 1995).

Rietveld may be best viewed along the coast in the De Hoop Nature Reserve and south and west of Bredasdorp, with extensive areas at Rietvlei and to the south and east of Soetendalsvlei. It also occurs in sandy areas near Stanford (COTA, 1995).

8.1.4 ASTERACEOUS FYNBOS

Members of the daisy family dominate in this type of fynbos, although they do not always resemble the typical daisies of Namaqualand fame. Two distinguishing types, namely Elim and dune fynbos, are found in the ODM.

a) Elim Fynbos

Elim fynbos is characterised by the absence or only a sparse cover of a tall proteoid shrub layer. It has a lower cover of restioids and low, ericoid shrubs are dominant. Elim fynbos occurs on dry, gravelly soils, usually overlying Bokkeveld shales or sometimes sandstones of the Table Mountain Group. The soils are more fertile than those of most other fynbos types. Since most Elim fynbos occurs on low lying, accessible sites, much of it has been ploughed up. The pioneer renosterbos readily moves into degraded Elim fynbos. This vegetation is concentrated around the village of Elim, south-west of Bredasdorp (COTA, 1995).

b) Dune Fynbos

Dune fynbos occurs on coastal sands that are subject to severe winds. Erosion is common, stabilised in some areas with invasive alien acacias in the past. Dune fynbos has very few local endemics and reasonably large tracts of this vegetation type remain. Infestations of alien invasive plants such as rooikrans, and coastal resort development are a serious threat. This vegetation is found in a narrow strip along the entire coast from the De Hoop Nature Reserve to Betty's Bay (COTA, 1995).

8.1.5 RENOSTERVELD

Much of this vegetation type has been converted to farmland and very little (less than 10%) now remains. Renosterveld is found mainly on the coastal plain, from sea level to an altitude of 400 m. It often occurs as remnants in little valleys or in rocky areas that are unsuitable for ploughing. Renosterveld is formally protected in the Bontebok National Park and in a small section of the De Hoop Nature Reserve (COTA, 1995).

8.1.6 FORESTS

Only a few examples of this vegetation type remain in the ODM. Although forests do not have any local or regional endemics they do have a charismatic appeal and are worthy of conservation.

The forests in the kloofs of the Riversonderend and Langeberg mountains are therefore noteworthy. Situated between Suurbraak and Heidelberg, Grootvadersbosch is generally regarded as the most significant piece of Afro-montane forest west of the Knysna-George forests. The Boosmansbos Forest has remained pristine and huge stinkwoods and red alders are a feature of this forest (COTA, 1995).

Small pockets of forest and thicket also occur in the southern parts of the ODM, mainly along the lower mountain slopes and coast. Examples are at Kleinmond and Hermanus, and on the Bredasdorp and Potberg mountain ranges. Near Gansbaai there are a number of small forests which have an unusual species composition for the Western Cape. They are of subtropical rather than Afro-montane origin. Small patches of forest in the mountains east of Gansbaai have a composition more typical of the Knysna forest. These forests were exploited for timber in the past and are now seriously infested with alien plants (COTA, 1995).

8.1.7 SUCCULENT KAROO

The area surrounding Barrydale falls within the Succulent Karoo Biome, which together with the Nama Karoo Biome, covers most of the interior of the province. 'Karoo' is an old indigenous word for 'thirst land'. The region is known for its harsh climate and regular droughts, which are the rule, rather than the exception.

The Succulent Karoo vegetation is a unique mixture of dwarf shrubs and succulent plants, with the Vygie Family (Mesembryanthemaceae) dominating, and genera such as *Ruschia*, *Drosanthemum*, *Malephora*, and *Delosperma* being widespread. Disturbed areas are often dominated by Kraalbos (*Galenia Africana*), while many ephemeral species and geophytes occur after good rains. Palatable, non-succulent shrubs, such as *Osteospermum sinautum*, and grass species such as Common Ehrharta (*Ehrharta calycina*) occur.

8.2 FAUNA

The Overberg has a wealth of indigenous terrestrial animals. The higher, mountainous areas are habitats favoured by species such as leopards, klipspringers, forest shrews and forest birds (COTA, 1995). Lowland areas are home to more conspicuous animals such as bontebok, Cape mountain zebra, bat-eared foxes, and blue cranes.

A number of insects and other invertebrate animals occur in the ODM. A total of 27 ant species has been recorded in the Fernkloof Nature Reserve alone. The Langeberg mountains also have a few rare stag beetle species. The ODM is also home to various butterflies, such as the endemic Autumn Brown, Painted Lady, and the large Table Mountain Beauty (COTA, 1995). A number of other reptiles, snakes and lizards have also been noted, such as the Cape mountain lizard, which is endemic to mountainous fynbos areas (COTA, 1995).

The Overberg is a veritable paradise for bird watchers, with more than 300 species, which account for about 40% of all South African species. A number of Red Data Book species occur, including the Stanley's bustards and the South African national bird, the large blue crane. The Overberg may be regarded as the home of the blue crane, and local farmers in collaboration with CNC has launched a highly successful conservation programme, the Overberg Crane Group, in 1991. The Potberg kloof in the De Hoop Nature Reserve is also the home of the Western Cape's last breeding colony of the Cape (griffon) vulture. The indigenous helmeted guineafowl, which has been introduced to the area, has adapted well to farmland habitats (COTA, 1995).

A large number of mammals occur in the district municipality, which include bats, primates, rodents, hares, rabbits and a variety of carnivores. African wild cats are observed occasionally, caracal (*lynx*) is relatively common and leopards have also been sighted. Hoofed animals include the Cape Mountain Zebra, the rare Bontebok and various antelopes, such as bushbuck, grey rhebuck, steenbok, fallow deer, and Cape grysbok (COTA, 1995).

Prawnbeds are found on the flats at the estuaries of the Bot, Klein, Uilenkraals, Heuningnes and Breede rivers, providing food for many fish, birds and other animals found there (COTA, 1995). Most undisturbed wetlands are also rich in endemic species. The Agulhas wetland system has the highest diversity of aquatic invertebrates assessed in the Western Cape to date, particularly in the Hagelkraal River system near Pearly Beach. These freshwater systems are therefore of international importance. Estuaries provide nursery areas for many animals, and species such as white steenbras and two mullets are dependent upon these habitats during the juvenile phase of their life cycle (COTA, 1995).

Indigenous freshwater fish are threatened on an increasing scale by factors such as habitat destruction and the introduction of alien fish species. The large, rare whitefish occurs mainly in the Riversonderend tributary of the Breede River system in the Overberg. Smaller indigenous species include the rare Burchell's redfin minnow, the Cape galaxias and the hardy Cape kurper. Amphibians (frogs and toads) are found mainly in damp areas, often close to water bodies. Two of South Africa's four endangered frog species, the micro-frog and the Cape platanna, are found in black water wetlands along the coast. Fresh or brackish water habitats in the Overberg support a wide variety of wetland birds. Notable among these are species such as the greater and lesser flamingo and the white pelican (COTA, 1995).

The ODM coast is one of the world's most important nursery areas for the southern right whale. Humpback whales may occasionally be seen off the coast of Hermanus and Gansbaai in winter, and Bryde's whales throughout the year. Common dolphins and the Cape fur seal also occur in the district municipality. At least 250 species of marine fish have been recorded in the waters of the ODM coast, including red and white steenbras, kob and hottentot. Galjoen is a sought-after species and strict measures have been introduced in order to protect it (COTA, 1995).

The spectacular reefs in the ODM are dominated by filter-feeding marine animals, including a diversity of sponges, striking sea fans, feather stars and sea squirts. Great white and ragged tooth sharks also frequent these zones. The African jackass penguin is found only off the coast of South Africa. Breeding colonies are found on Dyer Island, near Gansbaai, and Stoney Point at Betty's Bay (COTA, 1995).