

SECTION B: STRATEGIC ENVIRONMENTAL MANAGEMENT PLAN, INCLUDING:

- **Key Issues**
- **Desired State**
- **Sensitivity Analysis**
- **Environmental Management Zones**
- **Guidelines**

1. INTRODUCTION

1.1. PURPOSE

The future desired state of the environment must be based on what people across sectors and interests collectively believe can and should be achieved in the area, as well as what is possible and necessary in respect to the use of resources to move from a currently unsustainable development to sustainable development of the area in the long term. In this respect the spatial context, time perspective, needs and expectations of different groups and sectors as well as the sensitivity of the environment needs to be considered.

This part of the report includes the following sections:

- A distillation of key issues.
- A summary of the desired state of the environment as expressed by stakeholders and the public (submitted responses are included in Appendix 1).
- A sensitivity (priority) analysis of environmental factors.
- Environmental management zones including:
 - A description of each zone;
 - Proposed desired state of the environment for each zone; and
 - Identified preferred, compatible and undesirable activities for each zone.
- Environmental management guidelines for key aspects.

1.2. SPATIAL CONTEXT

The Waterberg District is a vast area with distinct areas of high and low population, rich and poor mineral wealth, relative high to very low rainfall, good to poor access to markets, vast natural areas to derelict degraded, spectacular landscape features to boring monotony etc. This context necessitates an approach that can maximise opportunities and minimise constraints for both

conservation and development in a manner that will over time (30 to 50 years) result in an environment where sustainable development can start to become a reality instead of remaining an objective.

1.3. TIME PERSPECTIVE

From the Status Quo Report it is clear that the Waterberg District has a specific set of assets which can shape the future of the district. Some of these assets will require consumptive utilisation of natural assets to generate income over time and will eventually, in the long term, become depleted. In order to ensure that the economy and environment of the district does not collapse in the long term it will therefore be necessary to increasingly invest in non-consumptive use of natural resources to gradually replace activities that consume and deplete natural resources.

1.4. SECTORS

The key sectors in the Waterberg District include:

- Mining which currently accounts for more than 50% of the income of the district.
- Agriculture which is by far the largest employment sector in the district, despite its relatively low income.
- Game and cattle farming which occupies more land than any other sector in the district.
- Tourism, especially nature based tourism which is the fastest growing sector in the district with significant additional potential.
- Conservation of habitat, threatened species, unique landscapes and a rich cultural heritage.

1.5. SUSTAINABLE DEVELOPMENT CONTEXT

There are many definitions of sustainable development which may apply to a greater or lesser extent to the district. What is however important in this particular instance is that it should be focussed on

all of the following, failing which the concept itself will in all likelihood not be sustainable in the district:

- It must ensure the adequate and appropriate protection of biodiversity in the district.
- It must ensure that the surface water resource in the area is managed in a manner that will ensure that it continues to provide in the needs of the area and that the water that is returned to the system is of an acceptable quality.
- It must ensure that the quantity and quality of the groundwater in the area is protected and kept at a level and quality where it can continue to sustain the activities that depend on it, especially rural communities
- It must ensure a continued and even increased income for the district and especially its poor communities.
- It must provide for increased levels of employment and better types of employment.
- It must provide incentives for the establishment of a more balanced population structure especially in respect to the age, health and general prosperity of the population.

2. KEY ISSUES

The key issues for this project were identified in three stages. In the first stage, key issues were identified by the project team, before the public participation process began. In the second stage, issues that arose during the first round of public participation were identified and included in the Public Participation Report (appendix to the Draft Status Quo Report). During the third stage, additional and persistent issues that arose during the second round of public participation were identified.

A summary of the key issues that were identified up to this point in the project is presented below.

2.1. WATER AVAILABILITY AND UTILISATION

The following key issues were raised:

- The relative scarcity of water in the Waterberg District is recognised by all sectors and groups in the district (throughout all phases).
- The protection of important water catchment areas from activities (dams, weirs, road/track/path crossings, removal indigenous vegetation, etc) that may have a negative impact on water production and runoff, and in particular the upper parts of river systems, is a major concern (throughout all phases, but particularly in the second round of the public participation process).
- The need to determine and maintain ecological reserves for all the rivers in the area should be addressed as a matter of urgency (raised during the first and second rounds of the public participation process).
- The extensive occurrence of alien vegetation along certain waterways impacts negatively on water production and runoff (raised during the first round of the public participation process).

- Illegal dams and water extraction impacts negatively on water production and runoff (raised during the first round of the public participation process).

2.2. WATER QUALITY AND POLLUTION

The following key issues were raised:

- Water pollution was identified as one of the major issues in the district (during all phases). Causes of water pollution include:
 - Failing of municipal sewage works (biggest concern);
 - Lack of proper sewage systems and management at lodges and tourism facilities on farms and game reserves in the area;
 - Other sources mentioned include agricultural pesticides and fertilisers as well as polluted water runoff from industries and mines.
- The quality of water for human consumption is an issue in especially the rural settlements as well as some of the small towns (during all phases).

2.3. AIR QUALITY

The following key issues were raised:

- Potential significant negative changes in the air quality of the district and the Lephalale area in particular, is likely to occur in future due to the development of the Lephalale Coal Field (LCF) (remained an issues through all phases).
- Current air pollution sources of concern are:
 - Dust from mines, quarries, brickworks, spoil/overburden heaps and heavy vehicles using gravel roads.
 - The burning of solid waste at waste disposal sites, informal waste dumps and especially on farms and at tourism facilities in natural areas.

- Smoke from vehicles especially heavy vehicles that drive through towns.
- The adoption of ambient air quality standards for specific areas of the Waterberg District is regarded as a priority (second round of the public participation process).

2.4. NOISE

The high noise level caused by heavy vehicles through towns where the roads (surface and movement patterns) are not designed for such traffic is a major issue, especially at night.

2.5. CHARACTER OF THE WATERBERG DISTRICT

The following key issues were raised:

- The visual impact of the power stations and other large scale developments such as mines in the area is significant and imprints an industrial element onto the bushveld character of the area.
- The sudden, rapid, poorly planned (at least the perception) expansion of the Lephalale urban area resembles a typical “boom town” with all its uncertainties and inability to maintain the old values and expectations of residents (remained an issue throughout the process).
- The Waterberg (not the district as a whole) is gradually losing its wilderness character as a destination, as more and more enterprises and individuals focus on individual marketing and branding instead of promoting the Waterberg as one nature/wilderness destination (an issue in both rounds of the public participation process).
- Certain types of development in the Waterberg such as lifestyle and golf estates are damaging the wilderness character of the greater area in return for localised individual benefits (an issue in both rounds of the public participation process).
- Random and seemingly unplanned advertisement and ad hoc retail activities in towns, especially along the main

roads, is damaging to the character of the area (second round of the public participation process).

2.6. WATERBERG BIOSPHERE RESERVE

- The Biosphere Reserve concept is generally supported.
- The public at large is uncertain in respect to the meaning and implementation of the biosphere reserve concept. The roles of government and the private sectors are unclear (issue raised during the first round of the public participation process).
- The reasons for the current boundaries of the Waterberg Biosphere Reserve are not clear. Core areas seem to be determined by currently conserved (private and public) areas while many important sensitive areas are not included (issue raised during the second round of the public participation process).
- There is an opinion that the Waterberg Biosphere Reserve, especially the core area, has a fragmented layout and that it should be consolidated into one continuous area (issue raised during the second round of the public participation process).
- The possible expansion of the Waterberg Biosphere Reserve boundaries to incorporate more sensitive areas as well as areas with high nature orientated tourism potential was also suggested (raised during the second round of the public participation process).
- It was suggested that the Waterberg Biosphere Reserve should be managed according to an Environmental Management Plan, with clear boundaries, zonation and guidelines on acceptable activities (raised during the second round of the public participation process).

2.7. FIREWOOD

- The collection of firewood from natural vegetation is causing significant damage in certain areas (raised during the second round of the public participation process).

2.8. CHANGE TO THE POPULATION STRUCTURE AND SOCIO-ECONOMIC CONDITIONS

- The change to the population structure and socio-economic conditions, across the area and working both ways, is significant and results in major adjustments that people have to get used to in their daily lives (an issue through all phases).
- Towns and Lephalale in particular has difficulty in dealing with the sudden influx of people into the area. The infrastructure is under pressure, especially in respect to waste disposal, sewage, housing, electricity and water supply (an issue in both rounds of the public participation process).
- The number of people flocking into the Lephalale area exceeds the number of available jobs. This leads to severe poverty and increased crime rates (raised during both rounds of the public participation process).
- The use of imported labour, “because the local population is unskilled” is a significant cause of tension in the area (raised during both rounds of public participation process).

2.9. SERVICE INFRASTRUCTURE NEEDS

Service infrastructure needs came out as the most pertinent issue during both phases of the public participation process. The issues include:

2.9.1. Roads

- The general condition of roads in the district is very poor. In many places the deterioration of the roads has progressed to such an extent that the roads are hazardous to use. Coupled to high volumes of heavy vehicles on the main roads it has now become a matter of “life and death” on certain roads.
- The poor conditions of the roads have major negative effects for especially the tourism (difficult to transport visitors safely and efficiently) and agriculture (difficult to get

goods to markets in and acceptable state) sectors but also for other economic sectors.

- The poor maintenance of road shoulders, means that roads no longer serve as fire breaks which places crops and grazing across the district at risk.

2.9.2. Telecommunications

- Telecommunication is generally very poor in the Waterberg District. The existing infrastructure is overloaded and unreliable.
- Unreliable telecommunication impacts negatively on services such as banking, and internet communication.
- Bookings cannot be made from local tourism facilities, which means that booking agents in Gauteng are used by most operators in the tourism and hunting industries.

2.9.3. Electricity

- The electricity supply to certain areas of the Waterberg District is unreliable and power outages often occur.

2.9.4. Water and sewage

- The almost complete failure of sewage works in much of the area and the subsequent pollution of rivers and wetlands is a major concern for many.
- The provision of potable water to communities, especially rural communities is of concern especially in the light that ground water levels seem to be declining in many places.

2.9.5. Education and skills training

- The low level of education in the Waterberg District is a far reaching issue which hampers the development of the entire population of the area.
- The quality of education offered is considered to be well below standard. This impact on the ability of school leavers to integrate more readily into urban areas, or attend tertiary education facilities.

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- The need for skills training in the Waterberg District has been emphasised by several participants. Many of the local people are not considered for employment opportunities in the area, as they are considered unskilled.

2.9.6. Waste disposal

- Very few proper solid waste disposal sites exist in the Waterberg District. This makes disposing of waste legally very expensive, as it is necessary to transport it over a distance. There is no provision for hazardous waste which is transported to a facility in Gauteng.
- Most farms, lodges and tourism facilities have their own waste sites. These are often mismanaged and the burning of waste is a common occurrence.
- A strong desire for recycling to become the preferred destination for waste in the Waterberg District was expressed by various participants.

2.10. GOVERNMENT

- Better co-operation between the various government departments is needed (raised during both rounds of the public participation process).
- A long-term perspective and vision from government for the district is needed (raised during both rounds of the public participation process).
- Government procedures and regulations are too time consuming and difficult to follow (raised during both rounds of the public participation process).
- Government officials often display indifference to the public (raised during both rounds of the public participation process).
- There is a desperate need for more, better and faster implementation, monitoring and enforcement from government. No more regulation (raised during both rounds of the public participation process).

- Decisions should be made, based on what is best for the people and the area concerned. There is too much political interference in decision-making (raised during both rounds of the public participation process).
- The government must take responsibility for and act on the results of the EMF (raised during both rounds of the public participation process).

2.11. PLANNING AND DEVELOPMENT

- The development of suitable transport infrastructure, especially for the bulk transport of coal and ore, whether by road or rail, is a burning issue that should be addressed as a very high priority (raised during both rounds of the public participation process).
- Certain key roads should be upgraded in order to unlock the tourism potential of the area (raised in the first round of the public participation process).
- The possibility of further large dams in the area should be investigated as an alternative to importing water from other catchments (raised during the second round of the public participation process).
- The suggestion of infrastructure corridors was met with a positive reaction from all participants. However, technical issues should also be taken into account to ensure that needs could be met and that the corridors themselves do not sterilise minerals or productive land (raised during the second round of the public participation process).
- The uncertainty of the future of the area, especially in respect to mooted large scale development projects, is resulting in major socio-economic impacts (e.g. abnormally inflated land prices) and a general paralysis of decision-makers in government and in the private sector - everybody seems to be waiting for everybody else to make decisions first. There is a need for a clear and transparent plan for the area that spells out what will happen and when (a key issue

raised during both rounds of the public participation process).

Doorndraai Dam



Photos: Google Earth 2010

Thabazimbi



Photos: Google Earth 2010

3. THE DESIRED STATE

3.1. INTRODUCTION

This section illustrates what is important to the different sectors as conveyed by participants in the stakeholder and the public participation process. It is not always in line with what is generally expected and the focus of the desires expressed also often reflects needs and expectations of participants, rather than what people collectively would suggest the desired state should be. It is nonetheless important as it clearly shows that any future desired state must take the needs and expectations of people into account in order to be realistic and feasible.

3.2. ACROSS ALL SECTORS

All the sectors expressed a need for improvement in service infrastructure. It is also generally expected that these improvements should be government's contribution to the economic development of the area over the short term.

Infrastructure improvements required are:

- The upgrade of roads to levels that is appropriate to the traffic that uses them.
- The upgrade of the rail network to fulfil the bulk transportation needs of the mining and industrial sector and to take as much bulk transportation off the roads as possible.
- The securing and provision of water for the development of the area including mining, electricity generation municipal needs and farming allocations.
- The upgrade and proper management of sewage treatment works of municipalities to enable them to comply with the relevant standards.
- The improvement of the capacity and quality of the telecommunication network in the area, especially in respect to businesses such as banks.

- The establishment of a more reliable electricity network that is less prone to regular outages (caused by lightning etc.).

3.3. GAME FARMING

The game farming community is being represented by various sub-groups whose activities are dictated by the specific "markets" they operate in. These sub-groups include:

- "Weekend farmers" who represent individuals, groups or organisations that own farms with game, primarily for their own recreation and enjoyment. Hunting is often a secondary activity and is mostly focussed on meat for own use.
- Residential farmers who represent persons who stay on farms on which they keep game, often in conjunction with cattle. Hunting is mostly for stock control and own use.
- Private "conservation areas" where the focus is on commercial tourism in natural environments. In these areas the focus of hunting is mostly on the management of game stock.
- Trophy hunting areas where the focus is on providing high quality hunting stock with upmarket facilities to cater for the discerning needs of high end customers.
- Game breeders where the focus of the activities is on the breeding and raising of game stock for re-sell.
- Any combination of the above.

Due to the strict regulations that are applied many (not all) game farmers are of the opinion that they are unfairly discriminated on by government, which makes their industry unnecessarily difficult and expensive to the extent where it is becoming difficult to operate. They operate and want to be seen to operate as farmers who provide a certain product to the market and not as conservation agencies that generate a by-product. Conservation of land is a secondary benefit that is derived because game farmers have to manage their farms properly to ensure sustainable businesses.

There is therefore a need for a change in the regulations that are used to manage the industry in order to also meet the "commercial farming" needs of game farmers, while maintaining only the necessary controls.

There is a need to establish a unique brand for South African Game meat and the expansion and promotion of game meat as a high quality product that can become a profitable and sustainable industry in the Waterberg District.

3.4. TOURISM

The tourism industry in the Waterberg District has a rich offering of landscape, biological and cultural features with a potential to develop a high quality tourism product for a variety of markets. It is also very favourably located in relation to Gauteng which makes it an ideal area for weekend and short holiday breakaways. Tourism destinations and activities in the Waterberg District include:

- Lodges in nature reserves.
- Hot springs with spas.
- Recreation lodges/hotels with recreational facilities.
- Sectional title ownership on conservation farms.
- Scenic routes.
- Cultural villages and traditional hospitality venues.
- An abundance and variety of landscape, biological, cultural features and areas.

There is a need for a strong "Waterberg brand", supported by government that promotes the area as a whole, as a destination. This should include a strategy, guidelines and implementation plans to improve the image of the towns in area to the extent that they can also fit in and benefit from the "Waterberg brand".

Although tourism is already an important sector in the Waterberg District, there is a need for a long term strategy to build the full potential of the tourism product over time to become a key driver in

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the economy of the area, in respect to both income and employment generation.

The maintenance and preservation, including labelling and descriptions of historic building, artefacts and cultural historic features should be better funded and supported by government.

An education programme should be developed and implemented for the people in the district to make them aware of the importance of tourism in the area and how they can contribute to make it a success. This should also include the training of guides.

3.5. CONSERVATION

3.5.1. General

Conservation areas in the Waterberg District includes:

- A national park;
- Provincial reserves;
- Private conservation areas (some of them quite large);
- A world heritage site; and
- A Ramsar site.

Much of the current attention in respect to conservation expansion seems to be focussed on the Waterberg Biosphere Reserve and the expansion thereof onto private property.

There is very little public investment into the expansion of conservation areas, and the focus of the conservation authorities is therefore on the strict management of development and change on private land which could impact negatively on the natural environment, whether such properties fall within or outside conservation areas. Education of landowners and reliance on conservation of private land is, however not enough. This approach is at least partly to blame for the currently strained relationship between conservation authorities and certain game farmers.

There is a clear need for much higher levels of public investment into conservation in the area over the medium term (up to 30 years

from now). Sources for such capital injection may range from allocations from the Global Environmental Facility to compensative investments from large development projects in the area.

Certain conservation NGO's also proposed a much more hard-line "sustainable development" approach to conservation that should restrict and even stop further development of the area in total in order to achieve a truly sustainable state (for biodiversity) in the area. The political and practical implications of this suggestion are however, obvious.

3.5.2. Waterberg Biosphere Reserve

The Waterberg Biosphere Reserve concept has been developed over many years and is in several respects the model for this form of conservation in South Africa. It is generally accepted and also supported by the sectors in the Waterberg District.

There is a need to support and develop the Biosphere Reserve further. The current mismatch between important ecological and landscape areas in relation to the different zones of the Biosphere Reserve needs to be addressed.

An Environmental Management Plan to manage the Waterberg Biosphere Reserve has been proposed and it was suggested that it be linked to much stricter compliance monitoring and enforcement. Landowners should also be educated in respect to the implementation and advantages of the Environmental Management Plan.

The Biosphere Reserve should be promoted as a core eco-tourism element in the wider Waterberg area.

3.6. AGRICULTURE

Agriculture in the area is important for the production of food for the expanding markets in parts of the district and also for markets in nearby Gauteng. In addition, agriculture remains the most important employment sector in the district and as such has an important function in the stability of the social structure of the area. For these reasons it is important that current agricultural practices,

especially intensive agriculture be maintained and be expanded onto additional high potential agricultural land in future.

3.7. MINING AND INDUSTRY

Mining is the cornerstone of the economy of the district and currently accounts for more than 50% of the GDP of the area. It is highly unlikely that this contribution will decrease over the next 60 to 100 years. The mining industry is therefore important for the development of the district over the medium to long term. The mining and industry sectors desire to see skills development and training programmes implemented.

There is a need for better coordinated government, especially in respect to permitting (including licensing authorisations etc.). The processes should also be more efficient and integrated to avoid long waiting periods.

There is a desperate need for clarity on what government's long term plans are in respect to the further development of the Waterberg Coal Field, especially in relation to electricity generation and potential liquid from coal processes. Commitments from government to supply adequate water, transport infrastructure and other necessary infrastructure is also required to reduce the risks of private enterprise and to make proper planning possible.

Nylsvley



Photo: S. Taljaardt

4. SENSITIVITY ANALYSIS

4.1. INTRODUCTION

The sensitivity analysis together with the structural spatial elements (towns, villages, mineral resources, economic activities, etc.) identified in the status quo stages and the desired state as expressed in the previous section of this report, provides the basis for the development of Environmental Management Zones (next section of the report).

Based on the findings contained in the draft Desired State Report it was decided to do further analysis on the following aspects in order to refine a spatial base that would be relevant and accurate for the identification of Environmental Management Zones:

- General environmental sensitivity (ecological and landscape);
- Conservation planning (current protected areas and potential expansion areas);
- Water production priority areas; and
- Agricultural intensity (footprint).

4.2. GENERAL ENVIRONMENTAL SENSITIVITY (ECOLOGICAL AND LANDSCAPE)

The purpose of determining the environmental sensitivity is to delineate the boundaries of areas that are important from a biodiversity and landscape conservation perspective. Based on the draft Status Quo Report the following elements were considered “sensitive” in this assessment:

- The occurrence of vegetation types of conservation importance (i.e. vegetation types that are well represented in conservation areas have a low conservation status, while those that have been reduced by transformation and have a low representation in conservation areas will have a high conservation value);
- Occurrence of threatened species;

- Centres of endemism;
- Existing protected areas (including the Waterberg Biosphere Reserve);
- Occurrence of perennial and non-perennial rivers and streams including a 32m buffer on each side of the rivers or streams;
- Sensitive or high value (aesthetic) landscapes including escarpments, high mountains and hills, mountains and hills, parallel hills, enclosed plains, undulating plains, incised river valleys and hills as well as terraces;

This sensitivity is indicated on Map 28: Environmental Sensitivity Index, and reflects the relative sensitivity of the different areas in the district.

4.3. CONSERVATION PLANNING PRIORITIES

The purpose of including a data layer depicting current conservation planning, Map 29: Protected Areas and Conservation Planning Priorities, is to make a comparison between what is being conserved or being planned to be conserved in terms of current plans and the environmental sensitivity discussed under the previous point. Areas that were considered include:

- National and provincial parks and reserves;
- Municipal conservation areas;
- Private nature reserves;
- The Biosphere Reserve (current boundaries) including the core, buffer and transition areas; and
- Areas included in the National Park Expansion Strategy including priority areas and buffer areas.

Map 30: Protected Areas and Environmental Sensitivity Index indicates the current relationship between environmental sensitivity and protected areas.

4.4. WATER PRODUCTION PRIORITY AREAS

Given the relatively low rainfall in the area but the unique localised catchments formed by the Waterberg Mountain, it was also necessary to consider the water production priority areas as depicted in Map 32: Water Production Priority Areas, as a key element for determining Environmental Management Zones. This is especially important as much of the current development and proposed development in Lephalale depends on water generated in the Mokolo River Catchment, at least in the short term.

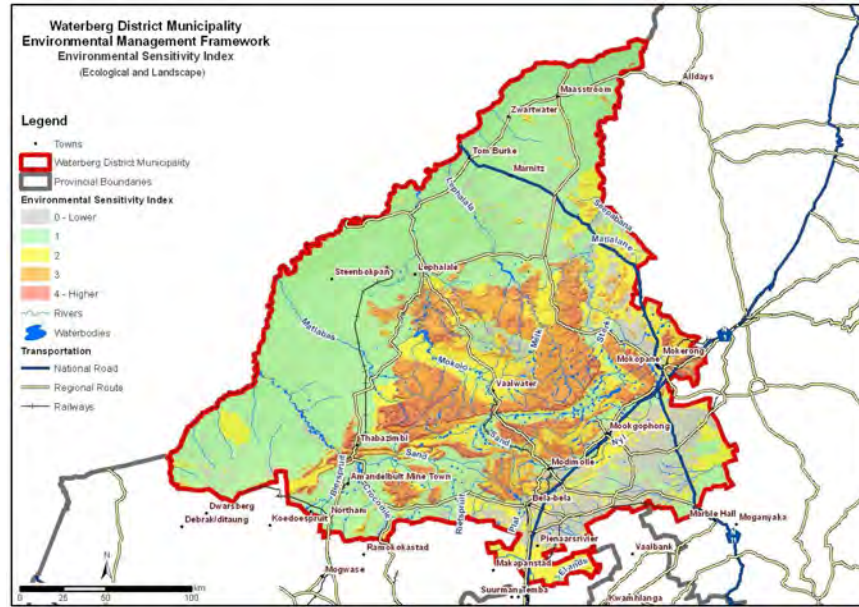
4.5. LAND CAPABILITY FOR AGRICULTURE

Agriculture is an important sector in the district that is dependent on natural resources (soils and water). It also makes a significant contribution to the rural character of the district and in places it forms a visual and physical link between sensitive natural areas. It is therefore a strong form-giving element that contributes significantly to the sense of place in certain areas and therefore had to be considered in the delineation of the Environmental Management Zones. The intensity of agriculture, as depicted on Map 31: Agricultural Intensity Index, was used to identify core agricultural areas (hubs).

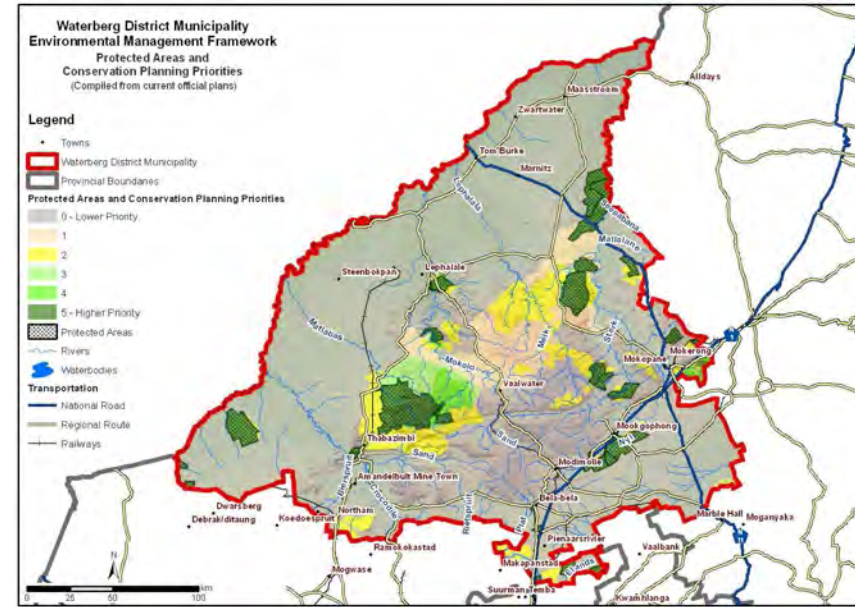
Grazing areas have not been considered as it represents the default activity (what is left) in the district.

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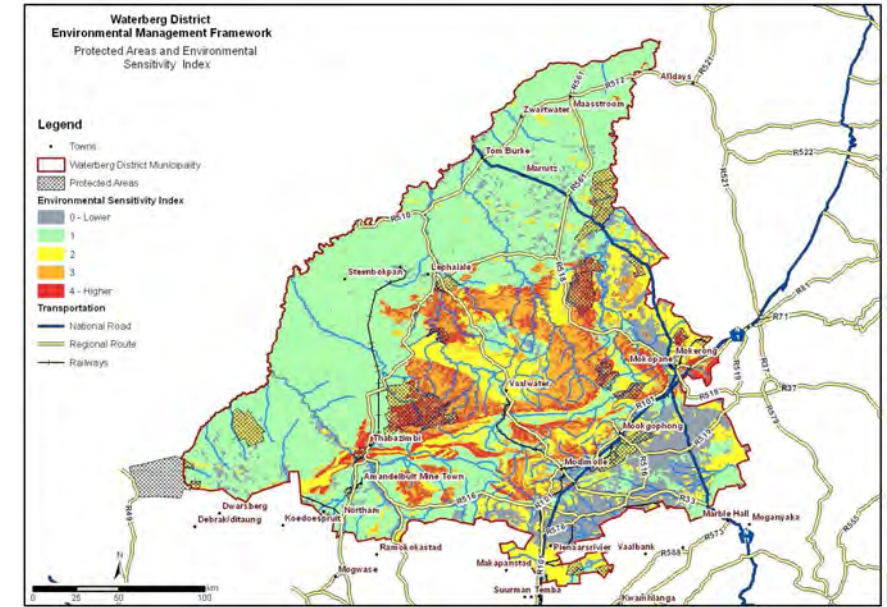
Map 28: Environmental Sensitivity Index



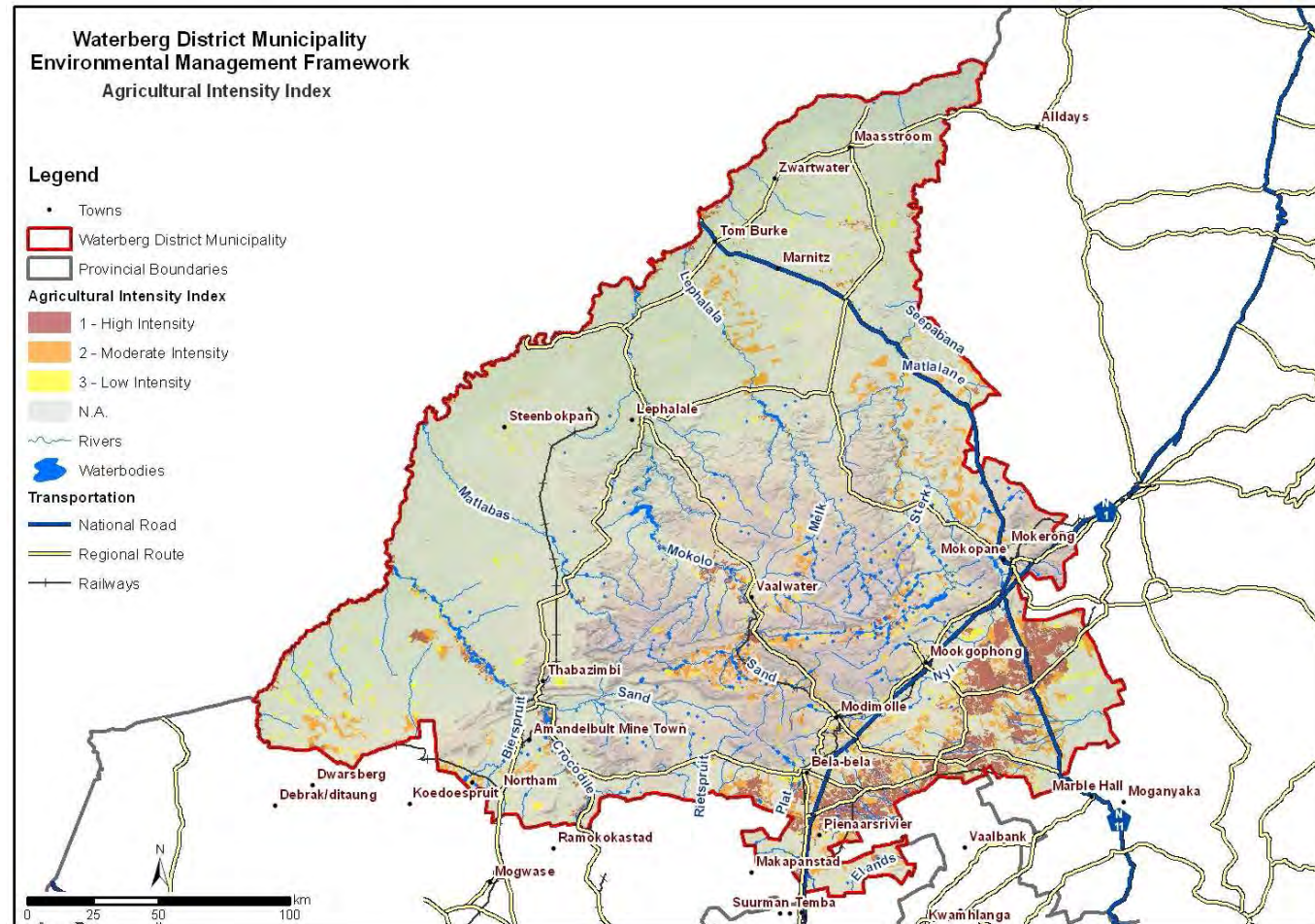
Map 29: Protected Areas and Conservation Planning



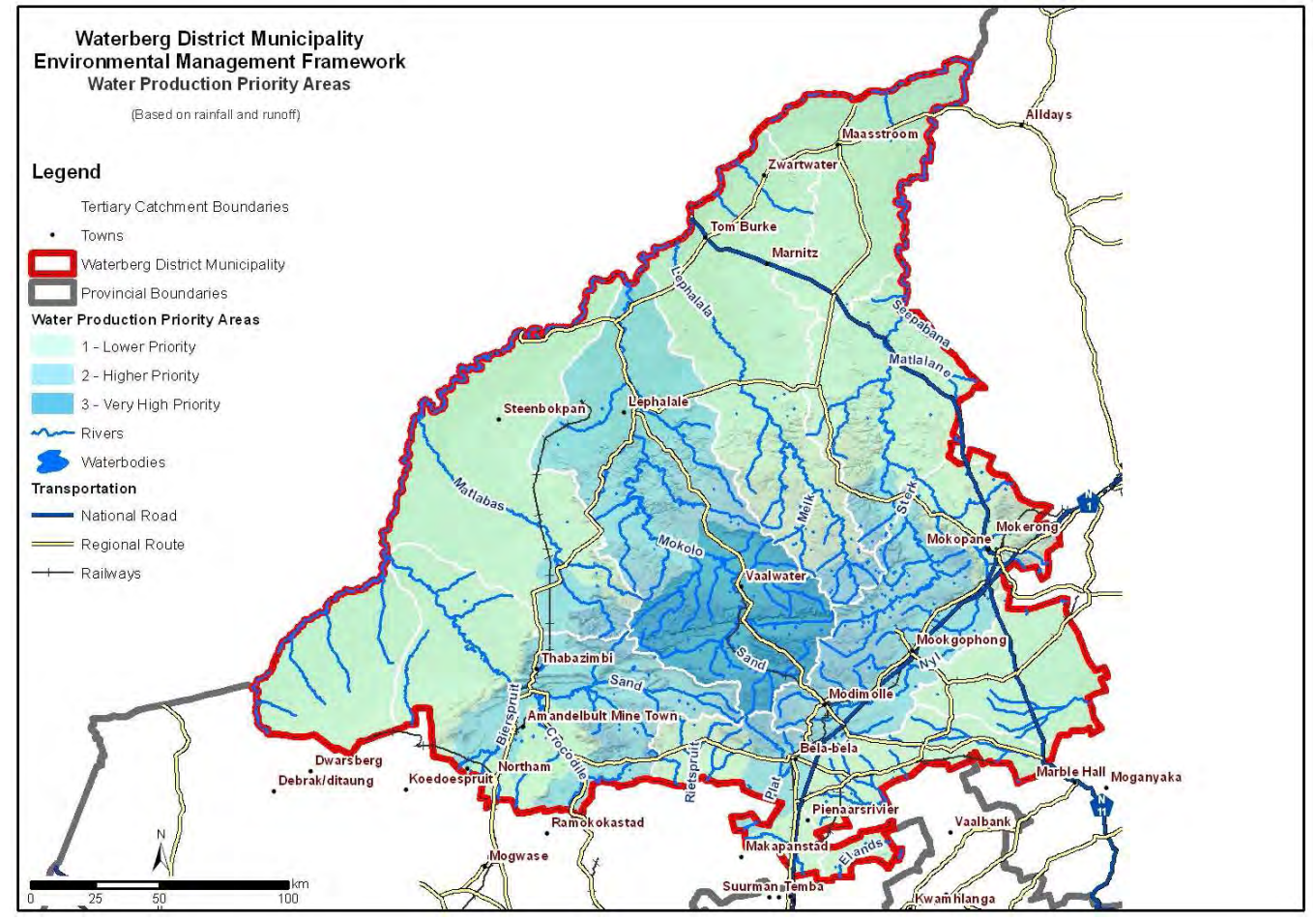
Map 30: Protected Areas and Sensitivity Index



Map 31: Agricultural Intensity Index



Map 32: Water Production Priority Areas



5. ENVIRONMENTAL MANAGEMENT ZONES

5.1. INTRODUCTION

Initially the Environmental Management Zones for the Waterberg District EMF were determined through the careful evaluation of the status quo inputs and especially the environmental sensitivity and other priority needs in the area as described in the previous section of the report.

These Environmental Management Zones for the Waterberg have been revised and refined based on the following:

- Feedback from stakeholders and interested and affected parties on the Draft Desired State Report;
- feedback and input received during a workshop with municipal authorities (workshop of 19 and 20 August 2010,
- feedback and input received during a workshop with national and provincial authorities (workshop of 26 August 2010);
- feedback and input received from stakeholders and interested and affected parties on the draft Environmental management Zones (comment period closed on 23 August 2010); and
- a more in depth assessment of the wider regional context, including likely activities within Botswana.

The section provides a short description of each EMZ, a description of the desired state of each EMZ (taken from the Desired State Report) as well as an indication of preferred activities, compatible activities and undesired activities (as required in the EMF Regulations, 2010). **It does not however mean that undesired activities for example will not be allowed under any circumstances but rather that such activities will have to meet very high standards and be considered very carefully by the relevant competent authorities before they are allowed.**

The following Environmental Management Zones have been identified and are delineated on Map 33: Environmental Management Zones:

- Zone 1: Protection of natural vegetation, scenic landscape and rock painting areas, with limited appropriate tourism;
- Zone 2: Nature and cultural tourism focus areas within a high quality natural setting;
- Zone 3: Game and cattle farming (including hunting) areas with commercial focus;
- Zone 4: Mining focus areas;
- Zone 5: Potential large industrial and related activities focus area;
- Zone 6: Restricted mining focus areas in aesthetic and/or ecological resource areas;
- Zone 7: Urbanisation focus areas and nodes;
- Zone 8: Rural settlement areas;
- Zone 9: Agriculture focus areas with a tourism component;
- Zone 10: Agriculture areas with commercial focus; and
- Zone 11: Major infrastructure corridors.

5.2. ZONE 1: PROTECTION OF NATURAL VEGETATION, SCENIC LANDSCAPE AND ROCK PAINTINGS AREAS, WITH LIMITED APPROPRIATE TOURISM

5.2.1. Description

This zone represents areas with a generally high natural, visual and cultural quality that provides the core natural and cultural resource base for the establishment of the Waterberg as a conservation (even wilderness) destination. It is large and unique in form and character where the protection of the area as a whole is important.

5.2.2. Desired state

Water utilisation

Water extraction from the natural system in this zone should be kept to an absolute minimum. Preservation of the water systems in the most natural state is desired. No additional damming of rivers or stream should be allowed in this zone.

Water quality

Water quality should be kept as clean and natural as possible to prevent ecological damage and to ensure that the quality of the water is maintained for downstream use. Implementation of legislation, compliance monitoring and enforcement should be a high priority in this zone. Where polluting sources from sewage disposal is suspected, it must be investigated and appropriate remedial measures should be taken.

Conservation

Conservation is the priority land-use in this zone and should be promoted as the core activity in every instance.

Tourism

Limited, low impact tourism facilities may be allowed in this zone provided that it does not have a negative impact on the conservation priority. Existing tourism facilities that do not comply to this zone may continue, provided that such activities are not expanded.

Agriculture

Agriculture is not desired in this zone. Existing agricultural activities may continue provided that such activities are not expanded.

Game and cattle farming

Game and cattle farming in this area must conform to the conservation requirements for this zone including the carrying capacity and the suitability of game species.

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Business and retail

Business and retail is not desired in this zone and should be limited to existing facilities.

Service infrastructure

Service infrastructure should be limited to what is necessary but should nonetheless be of a good quality. Roads should be kept to the minimum standard necessary but should be well maintained and safe to use. The maintenance of certain key existing roads as scenic routes should be encouraged.

Solid waste disposal

Solid waste disposal is not desired in this zone. A programme should be established to deliver pre-sorted solid waste generated in this area to designated depots from where reuse, recycling and composting can be implemented.

Sewage treatment and disposal

The disposal of any untreated sewage in this zone where there is a concentration of people in facilities such as lodges should not be allowed.

Employment

Employment in the area should focus on conservation and related employment opportunities.

Housing

Housing is not desired in this zone except for Vaalwater where as many as possible employees in the area should be accommodated.

5.2.3. Preferred, compatible and undesired developments

Preferred activities

- Conservation of nature in protected areas in terms of the National Environmental Management: Protected Areas Act.

Compatible activities

- Limited tourism facilities that take place in a manner that:

- Limits disturbance to natural vegetation to the minimum possible after undertaking an environmental assessment as required in terms of Government Notice No. R. 564 of 18 June 2010;
- does not consume additional natural resources;
- does not impact negatively on the sense of place of the area, being particularly sensitive to not breaking the skyline or impeding on views;
- recycles its waste products; and
- treats its sewage before release into natural streams.

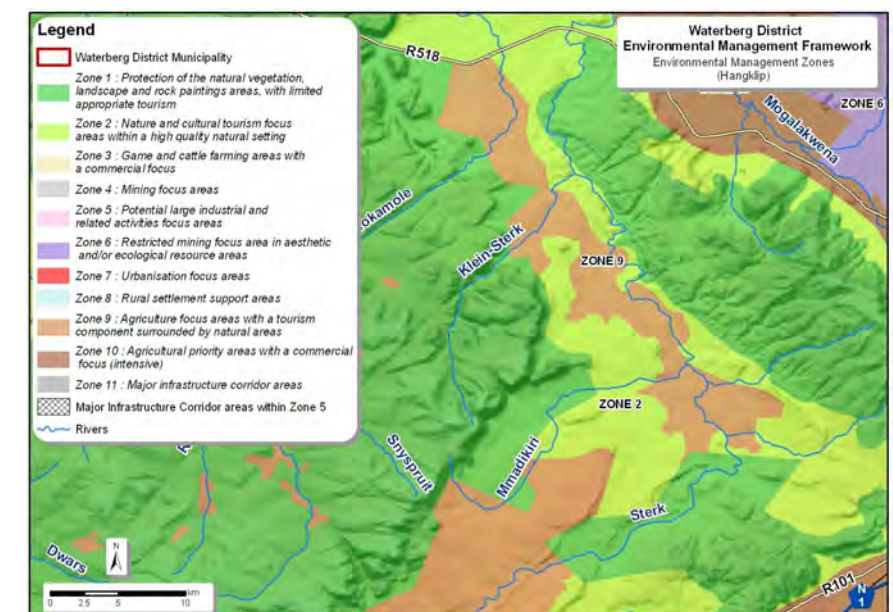
- Existing game farms that are managed with conservation as the core activity;
- Existing hunting activities but within the context of conservation of nature as the main priority;
- Existing farming activities that takes place in a manner that does not consume additional, natural resources and does not impact negatively on the sense of place of the area; and
- Existing and new unpaved roads that are maintained at a basic level to provide access to the area that do not require 4X4 vehicles in a way limits disturbance to natural vegetation to the minimum possible, after undertaking an environmental assessment as required in terms of Government Notice No.R. 564 of 18 June 2010.

Undesirable activities

- Mining of any sort;
- Industries of any sort;
- Energy generation plants of any sort;
- Urbanisation and residential settlement, including lifestyle estates;
- Golf courses and golf estates;

- Additional surfaced roads;
- Airfields and landing strips which should only be allowed if their need and desirability is such that their impact on the environment can be justified in an environmental assessment as required in terms of Government Notice No. R. 564 of 18 June 2010;
- Commercial buildings for use by the public of any sort;
- Industrial facilities; and
- Filling stations.

Map 34: Environmental Management Zones: Hangklip



5.3. ZONE 2: NATURE AND CULTURAL TOURISM FOCUS AREAS WITHIN A HIGH QUALITY NATURAL SETTING

5.3.1. Description

This zone represents areas with a generally high, natural, visual and cultural quality that has significant potential for the development of nature and/or culture based tourism. It also forms the area from which the conservation use in zone 1 can be explored.

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5.3.2. Desired state

Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced and policed.

Water utilisation

Water extraction from the natural system in this zone should be kept to an absolute minimum. Preservation of the water systems in the most natural state is desired. No additional damming of rivers or stream should be allowed in this zone.

Water quality

Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced and policed.

Conservation

Conservation is the secondary focus of this zone. As such, conservation legislation should be observed and enforced. Conservation areas should be well maintained to encourage further tourism to the zone.

Tourism

Tourism within a conservation/natural setting should be the focus of activities and development in this zone. Sufficient facilities to accommodate tourist, at various levels, from basic to luxurious should be invested in. A possible unified brand for the Waterberg District's tourism and a definitive marketing strategy should be implemented to ensure the growth of the tourism industry in this zone, and the Waterberg District overall.

Agriculture

Agriculture is not desired in this zone. Existing agricultural activities may continue provided that such activities are not expanded.

Game and cattle farming

Game and cattle farming in this zone should not detract from the tourism experience of the zone.

Business and retail

Large scale commercial business and retail is not desired in this zone. Instead, business that would promote and enhance tourism is desired. Such business could include curio shops, restaurants etc.

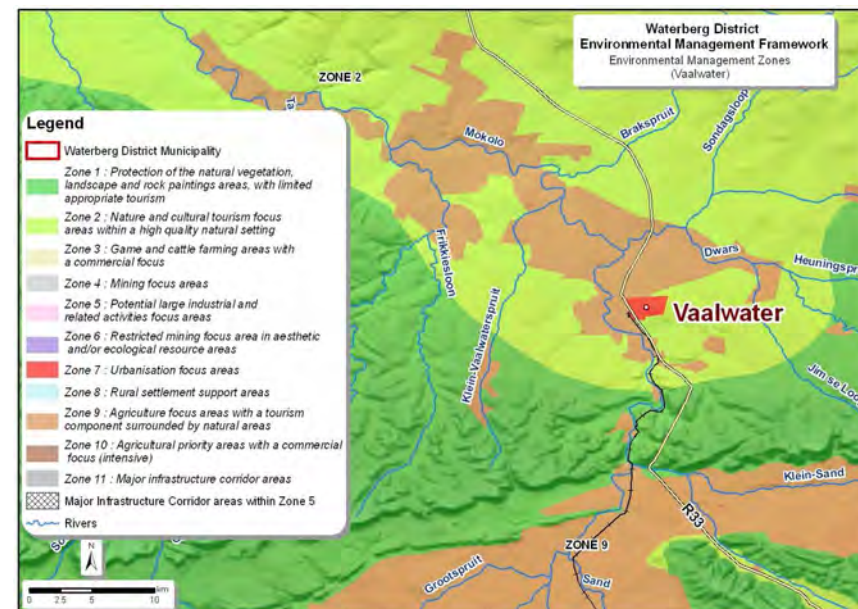
Service infrastructure

Service infrastructure should be limited to what is necessary but should nonetheless be of a good quality. Roads should be kept to the minimum standard necessary but should be well maintained and safe to use. The maintenance of certain key existing roads as scenic routes should be encouraged.

Solid waste disposal

Solid waste disposal is not desired in this zone. A programme should be established to deliver pre-sorted solid waste generated in this area to designated depots from where reuse, recycling and composting can be implemented.

Map 35: Environmental Management Zones: Vaalwater



Sewage treatment and disposal

The disposal of any untreated sewage in this zone where there is a concentration of people in facilities such as lodges should not be allowed.

Employment

Employment in the zone should be focused mainly in the tourism, hospitality and conservation sectors. Skills training programmes supported by the government and private sector is strongly desired.

Housing

Housing should be limited to what is necessary in this zone. Housing in this zone should accommodate those employed at the tourism facilities and conservation areas.

5.3.3. Preferred, compatible and undesired developments

Preferred activities

- Conservation of nature in protected areas in terms of the National Environmental Management: Protected Areas Act; and
- Tourism facilities that make use of the surrounding natural and cultural environments as the main attractions place in a manner that:

- Limits disturbance to natural vegetation to the minimum possible after undertaking an environmental assessment as required in terms of Government Notice No. R. 564 of 18 June 2010;
- does not consume additional natural resources;
- does not impact negatively on the sense of place of the area, being particularly sensitive to not breaking the skyline or impeding on views;
- recycles its waste products; and
- treats its sewage before release into natural streams.

Compatible activities

- Larger game lodges, country hotels, lifestyle estates within large nature/cultural areas that take place on disturbed

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sites (no clearing of indigenous vegetation should be allowed) in a manner that:

- Limits disturbance to natural vegetation to the minimum possible after undertaking an environmental assessment as required in terms of Government Notice No. R. 564 of 18 June 2010;
 - does not impact negatively on the sense of place of the area, being particularly sensitive to not breaking the skyline or impeding on views;
 - recycles its waste products; and
 - treats its sewage before release into natural streams.
- Existing game farms that are managed with conservation as the core activity;
 - Existing hunting activities but within the context of conservation of nature as the main priority;
 - Existing farming activities that takes place in manner that does not consume additional, natural resources and does not impact negatively on the sense of place of the area; and
 - Existing roads that are maintained at a level that is safe and appropriate for tourism activities.

Undesirable activities

- Mining of any sort;
- Industries of any sort;
- Energy generation plants with the exception of those that provide carbon free energy to the local area on disturbed areas in a manner that does not have a negative impact on the sense of place of the area, being particularly sensitive to not breaking the skyline or impeding on views;
- Urbanisation and dense residential settlement; and
- Golf courses and golf estates.

5.4. ZONE 3: GAME AND CATTLE FARMING (INCLUDING HUNTING) AREAS WITH COMMERCIAL FOCUS

5.4.1. Description

This zone represents areas with largely natural vegetation that is used extensively for grazing by game and/or cattle.

5.4.2. Desired state

Water utilisation

Water should be treated as a scarce resource in this area

Water quality

Water quality in this zone should not be allowed to deteriorate.

Conservation

Although nature conservation is not the focus in this area, farms should be managed in such a way that the natural vegetation cover is maintained in a good sustainable condition.

Tourism

Tourism in the form of commercial hunting lodges and game viewing should be encouraged as secondary activities in this zone.

Agriculture

Agriculture is not desired in this zone. Existing agricultural activities may continue provided that such activities are not expanded.

Game and cattle farming

Commercial game and cattle farming is the focus of this zone. This includes commercial hunting. The focus of this zone is farming in order to make a profit, with conservation of nature as a secondary benefit.

Business and retail

Large scale commercial business and retail is not desired in this zone. Business should adhere to local planning requirements.

Service infrastructure

Service infrastructure should be limited to what is necessary but should nonetheless be of a good quality. Roads should be kept to the minimum standard necessary, but should be well maintained and safe to use.

Solid waste disposal

Solid waste disposal is not desired in this zone. A programme should be established to deliver pre-sorted solid waste generated in this area to designated depots from where reuse, recycling and composting can be implemented.

Sewage treatment and disposal

The disposal of any untreated sewage in this zone (where there is a concentration of people in facilities such as lodges) should not be allowed.

Employment

Employment in the zone should be focused mainly in the game farming, cattle farming, hunting, and hospitality sectors. Skills training programmes for local people, supported by the government and private sector, is desired.

Housing

No urbanisation of any kind should be allowed in this zone.

5.4.3. Preferred, compatible and undesired developments

Preferred activities

- Keeping of game and/or cattle for commercial purposes in a responsible manner that makes sustainable use of the natural vegetation cover of the area; and
- Tourism facilities, including hunting lodges in a manner that:
 - Limits disturbance to natural vegetation to the minimum possible after undertaking an

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environmental assessment as required in terms of Government Notice No. R. 564 of 18 June 2010;

- o does not consume additional natural resources;
- o does not impact negatively on the sense of place of the area, being particularly sensitive to not breaking the skyline or impeding on views;
- o recycles its waste products; and
- o treats its sewage before release into natural streams.

Compatible activities

- Larger game lodges, country hotels, lifestyle estates within large nature/cultural areas that take place in a manner that:
 - o Limits disturbance to natural vegetation to the minimum possible after undertaking an environmental assessment as required in terms of Government Notice No. R. 564 of 18 June 2010;
 - o does not consume additional natural resources;
 - o does not impact negatively on the sense of place of the area, being particularly sensitive to not breaking the skyline or impeding on views;
 - o recycles its waste products; and
 - o treats its sewage before release into natural streams.
- Existing farming activities that takes place in manner that does not consume additional, natural resources and does not impact negatively on the sense of place of the area; and
- Existing roads that are maintained at a level that is safe and appropriate for tourism activities.

Undesirable activities

- Mining of any sort;

- Industries of any sort;
- Energy generation plants with the exception of those that provide carbon free energy to the local area on disturbed areas in a manner that does not have a negative impact on the sense of place of the area, being particularly sensitive to not breaking the skyline or impeding on views;
- Urbanisation and dense residential settlement; and
- Golf courses and golf estates.

5.5. ZONE 4: MINING FOCUS AREA

5.5.1. Description

This zone represents areas where significant mineral resources of strategic national importance occur within largely natural environments.

5.5.2. Desired state

Water utilisation

Larger scale water utilisation will be necessary to support mining and industrial activities in this zone. Activities should not be allowed to proceed unless the necessary water allocations and permits are in place.

Water quality

Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced. Heavy penalties should be imposed on pollution caused by mining and industry.

Conservation

Conservation of natural habitat should be the primary focus of required buffer areas around mining and industrial sites. Preference should be given to catering for threatened species that may occur in this zone.

Tourism

N/A.

Agriculture

Agriculture is not desired in this zone. Existing agricultural activities may continue provided that such activities are not expanded.

Game and cattle farming

Game and cattle farming should be the default activity in parts of the zone that is not used for mining or industrial purposes.

Business and retail

N/A

Service infrastructure

Service infrastructure should be sufficient to support both mining and other developments in the area. Transport infrastructure is of particular importance. A strategy for the transport of coal out of the Waterberg District, by rail or by road should be carefully planned. The current infrastructure is insufficient.

Service infrastructure development in the area should also cater for the influx of people associated with the new developments in these zones.

Solid waste disposal

All solid waste should be discarded at permitted solid waste sites. Sufficient permitted solid waste disposal sites should be established at key locations to deal with the waste generated in this zone. Strict enforcement and proper management at such sites is necessary to minimize negative impact. Recycling collection points should be encouraged wherever possible.

Sewage treatment and disposal

Sewage treatment plants and disposal sites capable of properly dealing with the sewage and waste water generated in the area is necessary to prevent pollution of rivers and streams.

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Employment

Employment in the zone should be focussed on providing opportunities for local unemployed people. This should go hand in hand with appropriate education and training.

Housing

Housing the area should preferably be concentrated in urban areas where the benefits of high densities can be exploited in respect to education facilities, health care facilities and the efficient provision of municipal services.

5.5.3. Preferred, compatible and undesired developments

Preferred activities

- Mining of minerals;
- Industrial activities that are directly associated with mining provided that it is accommodated in such a manner that it does not restrict or constrain potential mineral exploitation; and
- Roads and railway infrastructure that is necessary for the safe and proper transportation of mineral products and people.

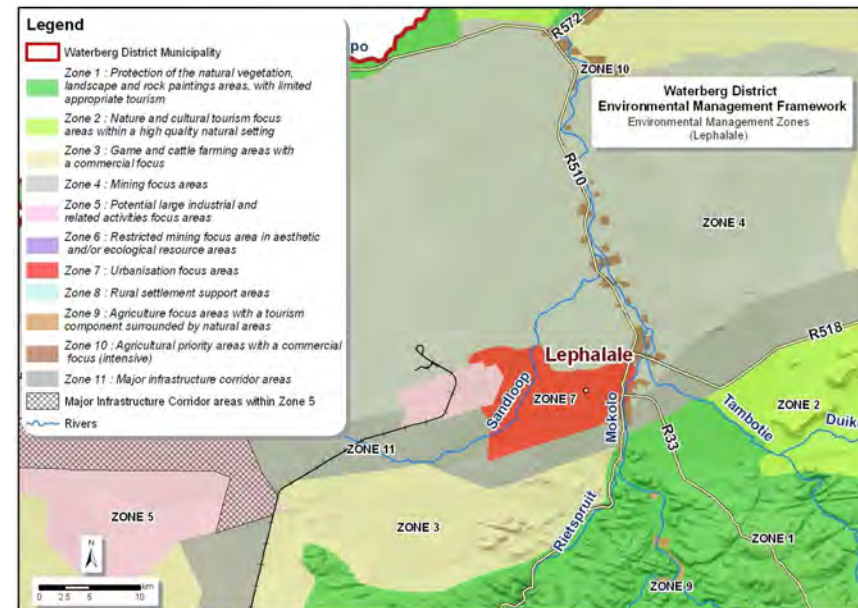
Compatible activities

- Existing farming activities;
- Keeping of game and/or cattle for commercial purposes in a responsible manner that makes sustainable use of the natural vegetation cover of the area in parts where mining is not possible or where mining will only become a factor in the medium to long term; and
- Tourism facilities on disturbed land, including hunting lodges (indigenous vegetation should not be removed) in parts where mining is not possible or where mining will only become a factor in the medium to long term.

Undesirable activities

- Any activity that sterilises the potential to explore a mineral resource in the area.

Map 36: Environmental Management Zones: Lephalale



5.6. ZONE 5: POTENTIAL LARGE INDUSTRIAL AND RELATED ACTIVITIES FOCUS AREAS

5.6.1. Description

This zone represents areas in close proximity to major coal fields which are being considered for the development of industrial activities to beneficiate the mineral product and where infrastructure like power generation facilities are being considered. The zone's relationship to existing and likely future transportation infrastructure and necessary urban development is also important.

5.6.2. Desired state

Water utilisation

Larger scale water utilisation will be necessary to support mining and industrial activities in this zone. Activities should not be allowed to proceed unless the necessary water allocations and permits are in place.

Water quality

Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced. Heavy penalties should be imposed on pollution caused by mining and industry.

Conservation

Conservation of natural habitat should be the primary focus of required buffer areas around mining and industrial sites. Preference should be given to catering for threatened species that may occur in this zone.

Tourism

N/A.

Agriculture

Agriculture is not desired in this zone. Existing agricultural activities may continue provided that such activities are not expanded.

Game and cattle farming

Game and cattle farming should be the default activity in parts of the zone that is not used for mining or industrial purposes.

Business and retail

N/A

Service infrastructure

Service infrastructure should be sufficient to support both mining and other developments in the area. Transport infrastructure is of particular importance. A strategy for the transport of coal out of the Waterberg District, by rail or by road should be carefully planned. The current infrastructure is insufficient.

Service infrastructure development in the area should also cater for the influx of people associated with the new developments in these zones.

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Solid waste disposal

All solid waste should be discarded at permitted solid waste sites. Sufficient permitted solid waste disposal sites should be established at key locations to deal with the waste generated in this zone. Strict enforcement and proper management at such sites is necessary to minimize negative impact. Recycling collection points should be encouraged wherever possible.

Sewage treatment and disposal

Sewage treatment plants and disposal sites capable of properly dealing with the sewage and waste water generated in the area is necessary to prevent pollution of rivers and streams.

Employment

Employment in the zone should be focussed on providing opportunities for local unemployed people. This should go hand in hand with appropriate education and training.

Housing

Housing the area should preferably be concentrated in urban areas where the benefits of high densities can be exploited in respect to education facilities, health care facilities and the efficient provision of municipal services.

5.6.3. Preferred, compatible and undesired developments

Preferred activities

- Heavy industrial activities that operate within national standards that regulate pollution;
- Activities and development directly related to and in support of the industrial activities, including urban support functions such as residential development directly related to large heavy industries, support services and related secondary light industries that support the effective and efficient operation of the specific heavy industries;
- Keeping of game and/or cattle for commercial purposes in a responsible manner that makes sustainable use of the

natural vegetation cover of the area in parts where industry and related activities are not possible or where industry will only become a factor in the medium to long term;

- Tourism facilities on disturbed land, including hunting lodges (indigenous vegetation should not be removed) in parts where industry and related activities are not possible or where industry will only become a factor in the medium to long term.

Compatible activities

- Existing farming activities;
- Roads, railways and other infrastructure that is necessary for the safe and proper transportation of industrial products and people.

Undesirable activities

- Any activity that does not meet national standards in terms of pollution of the air, water or land.
- Uncoordinated and/or fragmented urban areas, industry and infrastructure that results in lower efficiencies, higher costs, greater environmental impact and the area not reaching its full economic and social potential.
- Proclamation of any land use including conservation that would reduce the industrial potential of the area.

5.7. ZONE 6: RESTRICTED MINING FOCUS AREAS IN AESTHETIC AND/OR ECOLOGICAL RESOURCE AREAS

5.7.1. Description

Water utilisation should be kept to a minimum. Ecological water requirements should be met at all times.

5.7.2. Desired State

Water utilisation

Water utilisation should be kept to a minimum. Ecological water requirements should be met at all times.

Water quality

Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced. Heavy penalties should be employed to punish users who pollute water sources.

Conservation

Conservation of ecological and/or aesthetic resources should be a prerequisite to mining and industrial development in the area.

Tourism

Tourism should be encouraged as a secondary activity especially in respect to cultural tourism.

Agriculture

Agriculture is not desired in this zone. Existing agricultural activities may continue provided that such activities are not expanded.

Game and cattle farming

Game and cattle farming is a secondary activity in the areas.

Business and retail

N/A

Service infrastructure

Service infrastructure should be sufficient to support mining in the area. Transport infrastructure is of particular importance. The impact of heavy vehicle traffic especially through towns should be limited.

Solid waste disposal

All solid waste should be discarded at permitted solid waste sites. Sufficient permitted solid waste disposal sites should be established at key locations to deal with the waste generated in this zone. Strict enforcement and proper management at such sites is necessary to minimize negative impact. Recycling collection points should be encouraged wherever possible.

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Sewage treatment and disposal

Sewage treatment plants and disposal sites capable of properly dealing with the sewage and waste water generated in the area is necessary to prevent pollution of rivers and streams.

Employment

Employment in the zone should be focussed on providing opportunities for local unemployed people. This should go hand in hand with appropriate education and training.

Housing

Housing the area should preferably be concentrated in existing urban areas.

5.7.3. Preferred, compatible and undesired developments

Preferred activities

- Mining of minerals that is done in a well planned manner that will ensure that it will not cause widespread and unacceptable damage to the aesthetic and/or ecological values of the area; and
- Keeping of game and/or cattle for commercial purposes in a responsible manner that makes sustainable use of the natural vegetation cover of the area in parts where mining is not possible or where mining will only become a factor in the medium to long term.

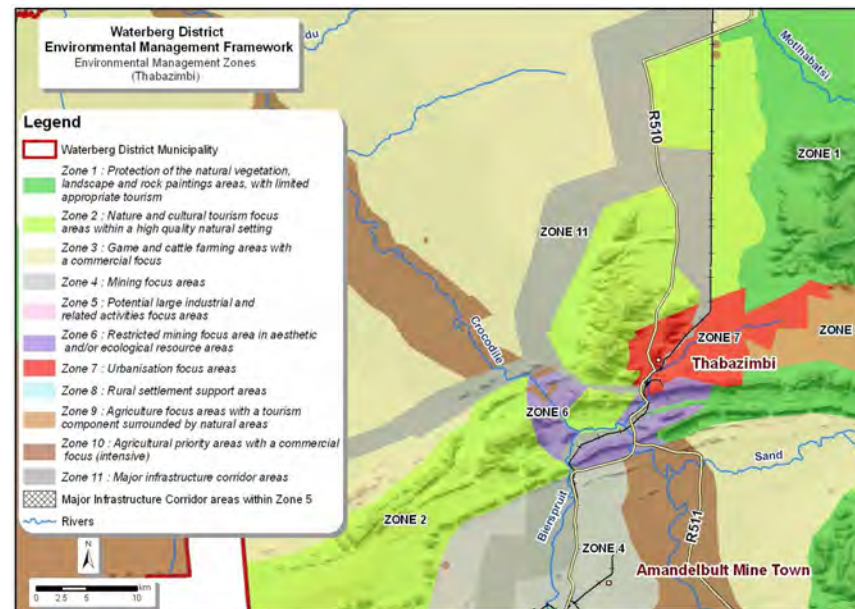
Compatible activities

- Tourism facilities, including hunting lodges (indigenous vegetation should not be removed) in parts where mining is not possible or where mining will only become a factor in the medium to long term.
- Existing farming activities; and
- Roads and railway infrastructure that are necessary for the safe and proper transportation of mineral products.

Undesirable activities

- Any activity that sterilises the potential to explore a mineral resource in the area.

Map 37: Environmental Management Zones: Thabazimbi



5.8. ZONE 7: URBANISATION FOCUS AREAS AND NODES

5.8.1. Description

This zone represents areas that have been designated as the areas that form the urban development boundaries as defined by the relevant local Spatial Development Frameworks (SDF).

5.8.2. Desired State

Water utilisation

The main water utilisation in this zone will be for human consumption.

Water quality

Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced and policed. The quality of water supplied should be monitored at all times to ensure that it remains potable.

Conservation

Conservation should be focussed on cultural historical elements that can contribute to the character of towns.

Tourism

Some tourism (to take advantage of the people and culture of the area) could take place.

Agriculture

N/A

Game and cattle farming

N/A

Business and retail

Commercial business and retail is a primary function of these zones.

Service infrastructure

Service infrastructure should be sufficient to support the anticipated growth of urban areas. Transport infrastructure is of particular importance.

Solid waste disposal

All solid waste should be discarded at permitted solid waste sites. Sufficient permitted solid waste disposal sites should be established at key locations to deal with the waste generated in this zone. Strict enforcement and proper management at such sites is necessary to minimise negative impacts. Recycling collection points should be encouraged wherever possible.

Sewage treatment and disposal

Sewage treatment plants and disposal sites capable of properly dealing with the sewage and waste water generated in the area is necessary to prevent pollution of rivers and streams. Compliance monitoring and enforcement is important.

Employment

Employment in the zone should be focussed on providing opportunities for local unemployed people. This should go hand in hand with appropriate education and training.

Housing

The identified urban areas should become the focus for housing that serves the surrounding area as well as education facilities, health care facilities and the efficient provision of municipal services.

5.8.3. Preferred, compatible and undesired developments

Preferred activities

- All urban functions in accordance with the relevant SDF; and
- Tourism facilities that serves the region with specific emphasis on cultural and historical elements within towns.

Compatible activities

- Existing farming activities; and
- Roads infrastructure that is necessary and safe for use by the population in the district.

Undesirable activities

- Any activity that hinders the towns to fulfil their urban densification functions.

5.9. ZONE 8: RURAL SETTLEMENT AREAS

5.9.1. Description

This zone represents areas where large rural communities are mainly dependent on subsistence in conditions that are often not ideal. The historic factors that led to the current situation in these areas and that continue to manifest itself in poverty must also be recognised.

5.9.2. Desired state

Water utilisation in this zone should be primarily used for human consumption and subsistence farming. The protection of underground water resources is very important in these areas, both in terms of reserves and the prevention of pollution.

Water utilisation

Water utilisation in this zone should be primarily used for human consumption and subsistence farming. The protection of underground water resources is very important in these areas, both in terms of reserves and the prevention of pollution.

Water quality

Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced. Education in the possible hazards involved in water consumption directly from rivers and other untreated water supplies should be provided.

Conservation

N/A.

Tourism

Cultural tourism should be encouraged in this zone.

Agriculture

Subsistence farming is a key element of survival in this zone. Education and farming skills training is essential to ensure that the soil resource is not degraded any further and that sustainable farming practices are adopted.

Game and cattle farming

N/A

Business and retail

Commercial business and retail in support of the rural communities should be encouraged.

Service infrastructure

Basic infrastructure and services should be provided.

Solid waste disposal

The reuse and recycling of solid waste within the communities should be encouraged as a contributing economic activity in this zone.

Sewage treatment and disposal

Efficient water borne sewage systems will not be feasible in all places due to the relatively low density of the dwellings in these areas. Pit latrines are therefore acceptable within these areas.

Employment

People in these areas are mostly self employed and the focus should be education and training with government support to enhance skills and increase economic activity.

Housing

Government should support the replacement of informal structures with formal structures and also encourage urbanisation to cities and towns.

5.9.3. Preferred, compatible and undesired developments

Preferred activities

- Sustainable subsistence farming supported by government initiatives in respect to land utilisation, training and financial support;
- The development of secondary economic enterprises and entrepreneurial skills that primarily targets the needs of the communities in these areas; and
- Cultural tourism facilities.

Compatible activities

- Existing farming activities;

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- Roads and other infrastructure that is necessary for the development of these areas.

Undesirable activities

- Any activity or development that negatively affects a poor person in the area

5.10. ZONE 9: AGRICULTURE FOCUS AREAS WITH A TOURISM COMPONENT

5.10.1. Description

This zone represents areas with a strong rural agricultural character that is surrounded by areas of generally high natural, visual and cultural quality that has significant potential for the development of nature and/or culture based tourism in addition to agriculture. It also forms the area from which the conservation use in zone 1 can be explored and experienced (especially in areas that lies below the escarpment).

5.10.2. Desired state

Conservation

These areas are surrounded by natural areas with prominent visual features (e.g. the Waterberg escarpment). It is therefore a zone from which spectacular natural scenes can be viewed and should therefore be maintained as agricultural land in order to maintain the rural harmony that currently exist between this zone and Zone 1.

Tourism

Limited tourism facilities on farms should be encouraged in this zone.

Agriculture

Commercial agriculture is the main focus of this zone.

Game and cattle farming

N/A.

Business and retail

Business and retail is not a focus in this zone.

Service infrastructure

Service infrastructure in the form of roads is especially important. Well maintained roads will ensure that agricultural produce can be efficiently transported to the relevant markets.

Solid waste disposal

Large scale solid waste disposal is not desired in this zone. Central points for waste collection and recycling should be determined.

Sewage treatment and disposal

N/A.

Employment

Appropriate skills training facilities, supported by both the government and private sectors would help to uplift people on the farms and should align the area.

Housing

Farms provide essential housing in rural areas for a large population. Housing in this zone should accommodate those employed within the agricultural sector.

5.10.3. Preferred, compatible and undesired developments

Preferred activities

- Agriculture activities (livestock keeping and cultivation); and
- Tourism facilities at homesteads or on land that is not suitable for cultivation that makes use of the surrounding natural and cultural environments as the main attractions.

Compatible activities

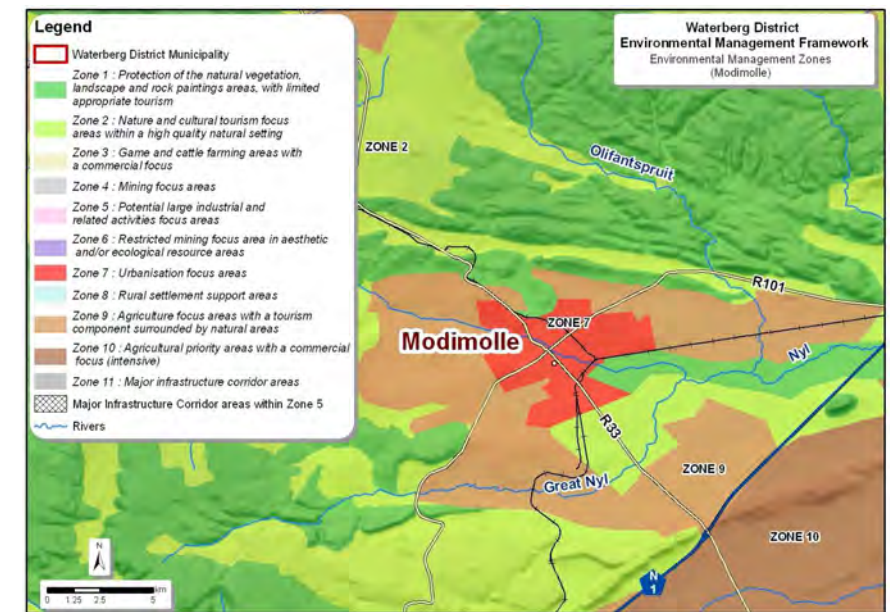
- Existing game farms that are managed in a way that does not exceed the capacity of the vegetation to carry the game that is stocked on the farm;

- Existing hunting activities on game farms; and
- Existing roads that are maintained at a level that is safe and appropriate for agricultural activities.

Undesirable activities

- Mining of any sort;
- Industries with the exception of agro-industry as part of farming operations;
- Energy generation plants with the exception of those that provide carbon free energy to the local area on disturbed areas in a manner that does not have a negative impact on the sense of place of the area, being particularly sensitive to not breaking the skyline or impeding on views;
- Urbanisation and dense residential settlement; and
- Golf courses and golf estates.

Map 38: Environmental Management Zones: Modimolle



5.11. ZONE 10: AGRICULTURE AREAS WITH COMMERCIAL FOCUS

5.11.1. Description

This zone represents areas with a strong rural agricultural character and is important for food production, food security and

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the employment opportunities that are linked to the agricultural activities. Agriculture is the main activity that occurs in these areas.

5.11.2. Desired state

Water utilisation

Sustainable use of water for irrigation should be the priority in these area.

Water quality

Water quality in this zone should not be allowed to deteriorate. Legislation to protect water quality and prevent pollution should be strictly enforced, especially pollution from fertilisers and pesticides.

Conservation

N/A

Tourism

N/A

Agriculture

Commercial agriculture is the main focus of this zone. Agriculture provides employment and stability. Land with high agricultural potential should be protected and reserved for agricultural purposes. Support of emerging land owners is desired, so that they may utilise their land productively and responsibly. This support should also include skills training and technical support.

Game and cattle farming

N/A.

Business and retail

Business and retail is not a focus in this zone.

Service infrastructure

Service infrastructure in the form of roads is especially important. Well maintained roads will ensure that agricultural produce can be efficiently transported to the relevant markets.

Solid waste disposal

Large scale solid waste disposal is not desired in this zone. Central points for waste collection and recycling should be determined.

Sewage treatment and disposal

N/A.

Employment

Appropriate skills training facilities, supported by both the government and private sectors would help to uplift people on the farms and should align the area.

Housing

Farms provide essential housing in rural areas for a large population. Housing in this zone should be to accommodate those employed within the agricultural sector.

5.11.3. Preferred, compatible and undesired developments

Preferred activities

- Agriculture activities with an emphasis on dry land as well as irrigated crop cultivation; and
- Infrastructure that support agricultural production, including agro-industries.

Compatible activities

- Cattle and game farming that are managed in a way that does not exceed the capacity of the vegetation to carry the cattle or game that is stocked on the farm; and
- Existing roads that are maintained at a level that is safe and appropriate for agricultural activities.

Undesirable activities

- Any activity that reduces the potential of the land, including soil and landscape transformation, to support agriculture;
- Mining activities;

- Industries with the exception agro-industry as part of farming operations;
- Energy generation plants of any sort including wind turbines and solar panels and reflectors (excluding small systems that are used on farms);
- Urbanisation and dense residential settlement; and
- Golf courses and golf estates.

5.12. ZONE 11: MAJOR INFRASTRUCTURE CORRIDORS

5.12.1. Description

This zone represents areas where the concentration of linear infrastructure proposed in order to prevent the unnecessary large impact that uncoordinated infrastructure location would have on the district. The following was considered in defining the corridors:

- The environmental management zones with their underlying sensitivities;
- Existing infrastructure and routes;
- Expected future development; and
- Existing and potential future links outside the district.

In interpreting the corridors the following must be taken into account:

- The corridors were situated in such a way that it provides practical routes for linear infrastructure; and
- The sensitive areas (Zones 1 and 2" that occurs "inside" (to the east or south) of the corridors are sensitive to visually sensitive to large scale intrusions. The "inside" boundaries of the corridor should therefore be regarded as hard or fixed boundaries while the outside boundaries (to the west and north) of the corridors can be regarded as soft in instances where technical requirements necessitates a wider separation between linear infrastructure.

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5.12.2. Desired state

This zone mostly forms part of the game and cattle farming areas (Zone 4). It is however proposed that these areas also be used as the major corridors for bulk infrastructure including high voltage power lines, railway lines, major roads and pipelines. This is necessary in order to prevent these infrastructure elements from impacting negatively on more sensitive areas in the district. The desired state as expressed under Zone 3, also applies to these areas.

Transport policy

The policy of the Department of Transport is reflected in the speech of the Minister of Transport on 27 September 2010 - "Rail is also a key part of our plans to move both our freight and passengers from road to rail". In the context of the Waterberg it is especially relevant to the transportation of coal. The transport of coal must be done by rail and road transport of coal must be phased out as soon as possible. The upgrade of the Thabazimbi to Lephalale railway line, associated infrastructure and running stock is therefore a high priority from both an economic and environmental perspective.

5.12.3. Preferred, compatible and undesired developments

Preferred activities

- Linear infrastructure including major roads, railway lines, electricity distribution lines, pipelines, etc;

Compatible activities

- Existing farming activities;
- Keeping of game and/or cattle for commercial purposes in a responsible manner that makes sustainable use of the natural vegetation cover of the area; and
- Existing linear infrastructure.

Undesirable activities

- Any activity or development that will compromise the functioning of the areas as a corridor.

5.13. NEMA 24(2)(B) AND (C) IMPLEMENTATION

The listed activities in Listing Notice 3 (Notice No. R. 546 in the Government Gazette of 18 June 2010) will apply to Zones 1 and 2 as being "sensitive areas as identified in an environmental management framework...".

It is recommended that that local service infrastructure development and maintenance activities that are listed in terms of Listing Notice 1 (Notice No. R. 544 in the Government Gazette of 18 June 2010) and Listing Notice 2 (Notice No. R. 545 in the Government Gazette of 18 June 2010) be excluded from applications as provided for in NEMA 24(2)(c) where such areas fall outside Zones 1 or 2. This must be done during the next revision of the listing notices by the DEA.

Towards Hangklip



Photo: S. Taljaardt

Nylsvley



Photo: D. Jasen van Vuuren

Grootegeeluk Mine



Photo: D. Jasen van Vuuren

6. ENVIRONMENTAL MANAGEMENT GUIDELINES

6.1. INTRODUCTION

The environmental management guidelines provide detail a set of measures that will assist in achieving specific outcomes in the Waterberg District. Where appropriate the guidelines are also tailored for to deal with issues in specific environmental management zones in line with the specific objectives for that particular zone. Policies and legislation that are considered relevant in achieving the objectives of the guidelines are referenced. The relevant competent authorities with the mandate of either enforcing or overseeing the implementation of aspects of the guidelines are also indicated.

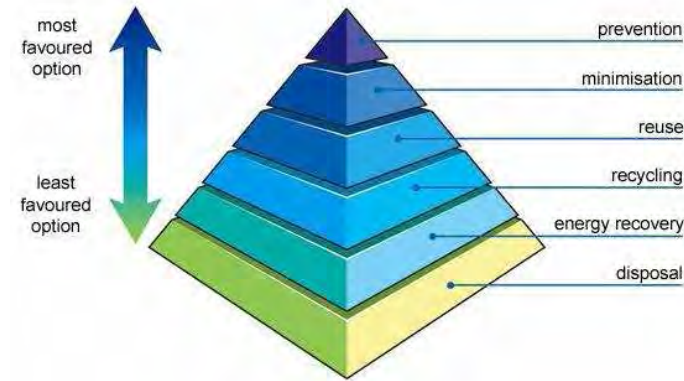
6.2. SOLID WASTE MANAGEMENT AND RECYCLING

6.2.1. The need for the guideline

The district is largely rural in nature with a number of small to medium sized towns and a large number of rural villages, especially in the eastern part. While urban centres are relatively well served with formal waste management services, the rural areas tend to rely on informal disposal mechanisms including burning of waste and open pits. The volumes of waste emanating especially from rural residential areas and lodges are significant to the extent that it is becoming a problem to deal with in situ.

6.2.2. Guidelines

Solid waste management that focuses on waste prevention, waste minimisation, reuse, recycling, energy recovery and responsible disposal should become part of the conditions of approval of every new development application in the area.



The following specific steps should be considered when applications are reviewed by authorities:

- Disposal sites must meet the required legal standards and should preferably be shared by users who should collectively be held responsible for its management and maintenance. Dispersion of small sites all over the place should be discouraged. All future and current disposal sites should be inspected and licenced where they meet the legal requirements or be shut where they don't.
- Composting and fermentation projects that generate energy in the form of biogas or heat should be explored and be integrated with "eco-friendly" tourism developments and green production initiatives in the area.
- Recycling, especially recycling of glass, metal and paper should become part of the management of every mine, industry, farm lodge or town in the area. As a form of compensative investment as part of the conditions of approval of developments in across all the zones but particularly in zones 1, 2, 4 and 5 can contribute to a fund that support recycling centres in the district. Recycling centres should be set up at the following places:
 - Vaalwater;
 - Lephalale;
 - Thabazimbi;
 - Modimolle;
 - Bela-Bela;
 - Mkopane; and

- Mokgophong.

- The reuse of materials is difficult and requires planning in terms of the wider consequences of materials that make up packaging etc. Produce containers that can be reused for the same or a different purpose should have preference over containers that are disposed of once the produce is used.
- Efficient use of produce will not only limit costs but will also minimise waste. New development should be planned to make the most efficient use of all continual input requirements such as food, beverages, cleaning liquids, etc.
- Whenever possible the production of waste should be avoided by choosing product and options that does not produce any waste.

6.3. SEWAGE DISPOSAL

6.3.1. The need for the guidelines

The disposal of untreated or poorly treated sewage into rivers and drainage streams is a serious concern in the district. This results in the eutrophication of freshwater ecosystems altering the biodiversity pattern and promoting dominance by certain groups of species (i.e. mostly alien biota). Municipal sewage treatment works are generally in unacceptably poor condition. The need for upgrade and proper management of sewage treatment works has been expressed as a strong concern during the desired state stage. The DWA together with the municipalities are addressing these issue. However some lodges and game farms, particularly, release significant quantities of poorly treated or untreated sewage into the environment. This is also no longer acceptable.

6.3.2. Guidelines

Sewage treatment that focuses on disinfecting and removing organic material from the waste wastewater should become part of the conditions of approval of every new development application in the area that produces effluent.

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The following should be considered when applications are reviewed by authorities:

- The concentration of sewage effluent to enable the use of better and more efficient treatment systems.
- Treatment systems should at least consist of the following components that should be designed by an appropriately qualified engineer or person, or purchased from a recognised and reputable manufacturer of such systems and should as a minimum include:
 - **Primary sewage treatment** in the form of a septic tank to cater for anaerobic digestion and settlement.
 - **Secondary sewage treatment** in the form of a leach field designed to remove organic material which is measured in Biochemical Oxygen Demand (BOD). Sewage high in BOD can deplete oxygen in receiving waters, causing fish kills and ecosystem changes.
- Some commercial systems also provide for a step between primary and secondary treatment biological process are used to reduce the BOD before releasing it into a leach field or using it for irrigation.
- The creation of a wetland before release into a leach field should also be considered, especially in Zones 1 and 2.
- Whatever system is decided on must be able to cater for varying flow levels to ensure that it stays operational during periods when there are low flows and can handle period where peak season demands or rainfall result in high flow levels.

6.4. TRANSFORMATION OF LAND

6.4.1. The need for the guidelines

The cumulative effect of the transformation of land in Zones 1, 2 and 9 will over time lead to the depreciation of the natural and production assets that occur in these areas. Given the importance of the resource base for the sustainable long term development of the area and fact that the EMF have provided for different zones for different types of activities it is appropriate that transformation of land in Zones 1, 2 and 9 be limited to the extent possible.

6.4.2. Guidelines

Developments that transform natural veld or cultivated land into any other cover should only be allowed if such development clearly present conservation, production or tourism advantages that could justify the transformation of land. This must be considered in the review of every application that involves the transformation of land in Zones 1, 2, or 9.

The following should be considered when applications are reviewed by authorities:

- Properties in zones 1 and 2 should not be subdivided. Consolidation of properties should be encouraged whenever possible.
- Development in Zones 1, 2 and 9 should occur in carefully selected clusters that have minimum impact on the natural and scenic values of the area.
- Dispersed development in Zone 1, 2 and 9 should not be allowed.
- Already disturbed areas in Zones 1 and 2 should be considered as the first option for development (the August 2010 Google/Spot images for the areas should be used as the baseline).
- Transformation of land should take the goals and targets of government as reflected in policies, legislation and other

documents into account. Relevant legislation and documents include:

- The National Environmental Management Act, 1998 (Act 107 of 1998) as amended (and its regulations);
- The Limpopo Environmental management Act, 2003 (Act 7 of 2003);
- The National Environmental Management Biodiversity Act, 2004 (Act 10 of 2004) as amended (and its regulations);
- The National Spatial Biodiversity Assessment, 2004 (and its technical support documents) ;
- The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) as amended;
- The National Forest Act, 1998 (Act 84 of 1998) as amended; and
- The Municipal Systems Act, 2000 (Act 32 of 2000).

6.5. DUTY OF CARE AND REMEDIATION OF ENVIRONMENTAL DAMAGE

6.5.1. The need for the guidelines

Chapter 7 of NEMA (Section 28) places a legal responsibility for the rectification of environmental degradation or damage on any parties whose actions may be deemed to have caused such degradation. The parties are obliged to take reasonable steps to either reverse or mitigate the impacts. Depending on the specific impacts, this may entail having to investigate, assess or evaluate the impacts as well as remedying the effects of the pollution or degradation.

Section 28 of NEMA gives environmental authorities powers to enforce the implementation of EMFs. This would include activities that are inconsistent with the objectives of environmental management zones. Within the ambit of EMFs, environmental authorities would be able to issue directives in cases where set guidelines for environmental management zones are not followed.

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NEMA gives Environmental Authorities power to give a directive for the rectification of environmental damage, or even undertaking the rectification themselves and claiming compensation from the parties responsible for such environmental degradation.

6.5.2. Guideline

In performing their compliance monitoring and enforcement duties, the relevant national and provincial officials should ensure that any activities that are inconsistent with the objectives of an environmental management zone that are likely to result in pollution and/or environmental degradation, trigger the duty of care mechanism in NEMA and to ensure that such environmental damage is rectified. The August 2010 Google/Spot images for the areas should be used as the baseline.

6.6. COMPENSATIVE INVESTMENT

6.6.1. The need for the guidelines

The implications of the development pressure on the Waterberg District is that the environmental and society in the district may become net losers as the national economy and society gain benefits. An example of this is tourism facilities that are managed from other provinces and even from overseas which result in minimal cash flows through the local economy and tax regime. Compensative investment may therefore be necessary to ensure that the development of the area has equitable local benefits

Compensative investments can include investments that companies make on capital projects that communities may not have funds to implement. A prime example of this in the Waterberg District is numerous projects where mining companies assist with upgrade of sewage works projects or water purification plants.

Compensative investments may also provide positive social impacts such as skills training, establishment of community centres, funding of community facilities and biodiversity offsets.

6.6.2. Guidelines

When applications are reviewed compensative investments should be considered when conditions for the activity are formulated. The following should be kept in mind:

- Compensative investments must not as an unintended consequence result in an irreversible or significantly negative change to the character or nature of the area (i.e. the environmental management zones in the case of the EMF).
- Compensative investments must not result in a net loss to society; it must have tangible and measurable benefits to society.
- The purpose of compensative investments must be clearly defined. Compensative investments must not be mistakenly seen as a justification for allowing significantly detrimental impacts to go ahead.
- Within reason, compensative investments must be regarded as mandatory contributions to society that developers are obliged to make. This is especially important in the context of the Waterberg District with low levels of employment and poor skills base.
- Compensative investments could enable sectors like mining and energy generation to consider innovative options of investing in social advancement programmes or ecological rehabilitation programmes to improve the character and socio-economic conditions in the district.
- In instances where biodiversity offsets are considered as compensative investment, the guidelines that are already in existence (Western Cape) and those that are currently being drawn up by SANBI should be considered.

6.7. STREAM FLOW MANAGEMENT

6.7.1. The need for the guideline

The development in the region, but especially the development of the coal field area of Lephalale is very dependant of the availability of enough water. In this context the Mogol River that currently supply almost all the water to Lephalale and the surrounding large scale mining and electricity generation facilities as well as the Crocodile River that is target to augment the water supply in near future are extremely important. The capacities of these systems must be protected by ensuring that stream flow is not further reduced.

Stream flow is governed by Chapter 4 of the National Water Act, under stream flow reduction activities.

6.7.2. Guidelines

As part of the consideration of water augmentation scenarios and schemes, the relevant officials should ensure that:

- Forestry plantations is not allowed in the Water Production Priority Area (Map 32).
- Unlicensed farm dams that have proliferated in rivers in the Waterberg District and are inconsistent with the maintenance of the water and the sustainable water production capacity of the Waterberg District should be removed.
- All farm dams issued with registered water use licences to facilitate equitable water allocation and management of water resources.
- No further dams should be allowed in Zones 1, 2 and 9.
- Existing legal dams that prevent adequate stream flow should be modified to increase the flow.

6.8. ERADICATION OF ALIEN VEGETATION

6.8.1. The need for the guideline

The uncontrolled spread of invasive alien vegetation presents a threat to natural ecosystems, reduces water production and impacts negatively on the indigenous natural nature of the area.

6.8.2. Guideline

Landowners should contribute to programmes such as Working for Water by clearing exotic vegetation from sensitive areas. The following should be considered:

- In order of priority, remove all exotic trees and other exotic vegetation from:
 - Rivers, streams and their natural floodplains;
 - Road reserves and servitudes; and
 - Natural veld where invasion is or has taken place.
- Wood that is generated by the clearing of exotic vegetation can be used as firewood or be processed into compost.
- Eradication initiatives must be followed up regularly to ensure that any regrowth is also removed.