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1. INTRODUCTION

In the EMF process, the desired state of the environment was set for various environmental aspects. The final step in the compilation of the EMF is the determination of Environmental Management Zones (EMZ) and the Strategic Environmental Management Plan (SEMP) that will aid the achievement of the desired state. Environmental Management Zones were defined or determined through the analysis and assessment of the information obtained in the status quo and desired state phases. The zones represent areas of environmental sensitivity, areas of tourism attraction, historical sites, untransformed areas, areas of agricultural importance as well as areas identified in terms of the Spatial Development Plan as areas of environmental importance and built up areas. The project steering committee was engaged to confirm the different zones and to clearly define the correct categorisation of the zones. The management zones will serve to guide development as they determine where and how certain development activities should take place.

2. THE PURPOSE OF ENVIRONMENTAL MANAGEMENT ZONES

During the Status Quo phase of the project, there were distinct areas that were defined by biophysical, economic and social factors. The establishment of EMZ makes it possible to focus on the characteristics and context of each of these areas instead of looking at the whole EMF area as one big management zone. The reason for this is that the areas have distinct environmental features with their own specific opportunities and constraints as well as expectations of stakeholders. Each of these areas requires a different set of management interventions in order to achieve the desired state of environment in RLM.

3. CLASSIFICATION OF ENVIRONMENTAL MANAGEMENT ZONES

Environmental Management Zones are based on the spatial section of the desired state of the environment and the biophysical constraints and opportunities. The zones do not only apply to sensitive areas but are classified according to different land use desires. They represent areas which the municipality would like to protect, conserve and manage. These zones serve to guide developers in terms of the compatibility of proposed developments. Thus, a broad-based management zoning was used instead of zoning each environmental aspect. The zones however were not allocated management buffers due to lack of guidelines for determining buffers for the North West province.
4. LEGAL CONTEXT

According to the current EIA Regulations (Regulation 71), an Environmental Management Framework must, *inter alia*,

“…indicate the kind of activities that would be undesirable in the area or in specific parts of the area;”

This is given further legitimacy by section 24(2) of NEMA that indicates:

“The Minister, or an MEC with the concurrence of the Minister, may identify…
(b) geographical areas based on environmental attributes, and as specified in spatial development tools adopted in the prescribed manner by the environmental authority, in which specified activities may not commence without environmental authorisation from the competent authority;
(c) geographical areas based on environmental attributes, and specified in spatial development tools adopted in the prescribed manner by the environmental authority, in which specified activities may be excluded from authorisation by the competent authority…
Provided that where an activity falls under the jurisdiction of another Minister or MEC, a decision in respect of paragraphs (a) to (d) must be taken after consultation with such other Minister or MEC.”

The geographical areas and spatial development tools referred to in section 24(2) are defined in section 24(3) of NEMA:

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

An Environmental Management Framework primarily qualifies as ‘information and maps’ that inform assessments for environmental authorisations, but may be used to inform the Minister or MEC in terms of the identification of ‘geographical areas’ when interpreted or used as ‘spatial development tools’. The requirement for the identification of geographical areas based on environmental attributes is satisfied through the demarcation of various environmental
management zones – i.e. areas of particular contiguous sensitivity or land use that become structuring elements in the final management framework and management plan.

5. IDENTIFIED ENVIRONMENTAL MANAGEMENT ZONES

Four environmental management zones were identified for RLM. The zones are:

- Conservation Management Zone
- Aquatic Management Zone
- Agricultural Holdings Management Zone and
- Built up Areas Management Zone

The map below gives a spatial representation of the different management zones identified for RLM.
Figure 1: RLM Environmental Management Zones
5.1 CONSERVATION MANAGEMENT ZONE

The conservancy management zone comprises of open spaces, conservation areas, proclaimed and non-proclaimed protected areas, heritage sites and tourism areas. These areas are characterized by their biodiversity, ecological, cultural and recreational importance. Conservation areas in this context refer to areas of high biodiversity and ecological status, which are not necessarily in proclaimed areas.

5.1.1 Protected Areas in RLM

According to the National Environmental Management: Protected Areas Act, 2003, the system of protected areas in South Africa consists of the following kinds of protected areas:

a) special nature reserves, nature reserves (including wilderness areas) and protected environments;
b) world heritage sites;
c) specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and
d) mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

This means that protected areas can either be proclaimed or informal in nature. They can be classified as nature reserves, conservancies and areas of historical importance. The value of protected areas range from the protection of natural habitats and associated flora and fauna to the maintenance of environmental stability of surrounding areas.

The study area consists of two proclaimed protected areas namely; the Magaliesberg Protected Environment (MPE) and Kgaswane Mountain Reserve.

a) Magaliesberg Protected Environment

The Magaliesberg, named after an early African Chief Mogale, is the most important range of mountains in both Gauteng and North West Provinces. The importance of the Magaliesberg lies in its ecological value and cultural heritage. The bushveld and highveld vegetation of the Magaliesberg are habitat to a vast diversity of plant and animal species, including several which are endemic to the area. The Magaliesberg Protected Environment (MPE) is declared under section 28 (7) of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003). The Magaliesberg Protected Environment (MPE) has however been excluded from the
scope of this report as it has already been covered under a separate EMF, the Magaliesburg Protected Environment EMF, 2008.

b) Kgaswane Mountain Reserve

Kgaswane Mountain Reserve is managed by the North West Parks and Tourism Board (NWP&TB). It is situated on the northern slopes of the Magaliesberg, a few kilometers southwest of Rustenburg. This protected environment of high conservation value is very important as a catchment area with a significant wetland, the largest in Magaliesberg, which can be a possible Ramsar site. Other attributes include the following:

- The wetland supplies good clean water to rivers leaving the reserve
- Good hiking area and the only significant public area in the Magaliesberg which is accessible and open to the public
- Its scenic value
- A game conservation area
- High biological diversity and values
- An excellent biodiversity area for conducting environmental education and research
5.1.1.1 Legislation, Policies and Guidelines

In South Africa, the National Environmental Management: Protected Areas Act, 2003 governs protected areas. This act provides for the management of protected areas and gives guidance of activities, which are permitted or restricted, in protected areas. The objectives of the act are:

- to provide, within the framework of national legislation, including the National Environmental Management Act, for the declaration and management of protected areas;
- to provide for co-operative governance in the declaration and management of protected areas;
to effect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity;

- to promote participation of local communities in the management of protected areas, where appropriate;

- to provide for a representative network of protected areas on state land, private land and communal land; and

- to promote sustainable utilisation of protected areas for the benefit of people, in a manner that would preserve the ecological character of such areas.

The act is interpreted and applied in accordance with the National Environmental Management principles and must be read with the applicable provisions of NEMA and the Biodiversity Act. In the event that a section of the act conflicts with municipal by-laws, the section of the act prevails.

Parks in North West play a coordinated role in achieving the objectives of the North West Parks and Tourism Board Act No.3 of 1977. The objectives of this act are the following:

- Establishment and management of parks to conserve representative indigenous biodiversity;

- Promotion of travel services and facilities in the province; and

- Encouragement of the people within the province to travel.

North West Parks and Tourism Board (NWP&TB)’s vision for the nature reserve is for the reserve to “contribute to the socio-economic well being of the people of the region through appropriate management of the wetland, its associated catchments and surrounding natural environment and allow for controlled nature-based outdoor activities”.

5.1.1.2 Opportunities

- The wetlands and natural pools in Kgaswane Mountain Reserve provide good source of high quality clean water;

- Protected areas provide an opportunity for conservation of biological diversity and natural processes;

- Kgaswane Mountain Reserve is the only area in the Magaliesberg that can be accessed by the public. It also provides public access for environmental education and research;

- Protected areas offer good tourism attraction sites and therefore contribute towards the economy of the area;
These areas also offer communities with areas where they can merchandise their artistic goods to tourists that visit the area;

Management of protected areas offers job opportunities to communities in the area; and

There is an opportunity to increase this zone by identifying privately owned nature reserves that can form part of the zone.

5.1.1.3 Constraints

- Only limited and specific development can be allowed in and around protected areas;
- Conservation, ecological and protected areas in built up areas and areas located to mines will restrict development.

5.1.1.4 Development Guidelines

I. Kgawane Mountain Reserve is proclaimed under the jurisdiction of the North West Parks and Tourism Board (NWP&TB). A management master plan with vision, policies and operating guidelines for the nature reserve has been compiled by parks management. This plan must be used as a guideline to manage and protect the nature reserve.

II. Preferred land uses should be aimed at biodiversity and cultural heritage conservation and management within this zone. Only low-impact recreational facilities and activities should be supported in the area e.g. limited accommodation and education facilities, hiking and mountain biking trails, bird hides, etc.

III. The ecological, aesthetical and tourism value of this management zone should be retained by ensuring that no development takes place directly adjacent to the riparian zones of water courses and areas with identified species of conservation value.

5.1.2 Tourism Areas

RLM offers a variety of tourism attractions. The natural assets observed in nature reserves, dams and conservation areas offer many indigenous fauna and flora, beautiful scenic views of ridges and mountains and places of recreation and environmental education. Several privately owned nature reserves occur in the area. The report refers to two areas which are well know for their tourism attractions; the Vaalkop Dam Nature Reserve and the Mountain Sanctuary Park Nature Reserve.
a) Mountain Sanctuary Park Nature Reserve

The Mountain Sanctuary Park is the largest privately-owned nature reserve found in the Magaliesberg. It is one of the tourist attraction sites in RLM that offers a natural and unspoilt nature reserve with mountain streams and pools. It also offers a variety of animal species and pristine vegetation.

Plate 4.2.1: Tourism attractions at Mountain Sanctuary Park (Pictures and text obtained from the mountain-sanctuary website)

Activities in the nature reserve include nature walks to see a wide variety of Magaliesberg’s indigenous plants, animals and birds, swimming in natural rock-pools scattered around the park, walking trails, abseiling, rock climbing and mountain biking.
b) Vaalkop Dam Nature Reserve

The Vaalkop Dam Nature Reserve is situated north-east of Rustenburg. The Nature Reserve is tailor-made for bird watchers with over 340 bird species recorded in the area. As a result part of the reserve has been set aside as a bird sanctuary (which is not open to the general public). The Vaalkop dam has a variety of fish species which includes the carp and yellowfish. These species make the dam an attractive angling destination. Certain parts of the reserve offer boating opportunities. The dam is divided into two conservation areas. On the south eastern sector boating, camping, picnicking and angling is permitted, while on the sector furthest from the dam wall strict conservation restrictions apply and this section is only opened by prior arrangement to bird clubs and researchers.

Plate 4.2.2: Vaalkop Dam Nature Reserve (Pictures from tourismnorthwest)
5.1.2.1 Legislation, Policies and Guidelines

According to the Rustenburg State of the Environment Report (2008), Rustenburg Municipal Area has a Spatial Tourism Master Plan (2006), which provides up to date and comprehensive information relating to the tourism sector in Rustenburg. Legislation that is relevant in this section includes acts and regulations that regulate the different elements that make up tourism attractions in the area such as natural resources, cultural and heritage resources and mining resources. RLM must work towards the goal of ensuring that their natural resources are managed and utilized in a sustainable manner. Focus must be on the implementation of guidelines and policies that will ensure that the objectives of the Integrated Environmental Management Policy (IEMP) are reached.

5.1.2.2 Opportunities

- Tourism has an economic value as many activities associated with it generate income for both the community and the municipality;
- Cultural resources contribute to the history of the area and provide tourism attractions as well as good educational areas;
- Nature reserves and open spaces are good recreational facilities, not only for tourists but also for the communities in the area; and
- Tourism areas also constitute protected and conservation areas that play a major role in the conservation of biodiversity.

5.1.2.3 Constraints

- Tourism areas in RLM include privately owned game reserves. Many of these were not mapped since their data was not available during the conduct of the study; and
- The scenic views of ridges are impacted on by development and mining activities. Examples of these are Norite koppies, which are mined and not rehabilitated after mining. Development close to the Kgaswane Mountain Reserve leads to loss of biodiversity associated with the nature reserve as well as the ecological corridor in and around the reserve.
5.1.2.4 Development Guidelines

Preferred land uses should be aimed at biodiversity and cultural heritage conservation and management within this zone. Only low-impact recreational facilities and activities should be supported e.g. limited accommodation and education facilities, hiking and mountain biking trails, bird hides, etc. In conservation areas outside proclaimed protected areas, the zone supports tourism facilities (eco- and cultural) and lifestyle developments. The ecological, aesthetical and tourism value of this management zone should be retained by ensuring that no development takes place directly adjacent to the riparian zones of water courses and areas with identified species of conservation value.

5.1.3 Areas of cultural or heritage importance

The study area has a number of important cultural / heritage sites. The sites include areas, structures, places, natural features and material of palaeontological, archaeological, historical,
aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social / interaction. There are heritage sites relating to iron/stone age, Anglo-boer history and indigenous tribes such as the Tswana and Ndebele.

Some of the heritage sites owe their existence to the mining activities in RLM. They are historical mining towns such as Kroondal that were established by people reaching out to mining activities. Such areas do no only contain mining activities as heritage activities but structures such as the Anglican Church, the Lutheran Church, Kroondal library, Kroondal station.

Cultural/ Heritage sites are managed through the National Heritage Resources Act, 1999 (Act No. 25 of 1999). This legislation is under the jurisdiction of the South African Heritage Resources Agency. For the purpose of this EMF, the management of heritage sites is left for the South African Heritage Resources Agency

5.2 AQUATIC SYSTEMS MANAGEMENT ZONE

RLM is mainly characterized by aquatic systems such as rivers, streams, wetlands and dams of which most of them are not in good condition. All aquatic systems are considered sensitive and therefore have been mapped and designated their own management zone in their own zone (Figure 1). The current state of the aquatic systems in RLM needs to be improved. The municipality must aim at improving the quality of water in rivers and streams by discouraging polluting activities close to these systems.

a) Rivers

The main rivers in the study area are the Hex, Elands and Sterkstroom. The Elands River flows from west to east across the top of the study area into the Vaalkop Dam. A number of tributaries run from south to north into the Elands River, including the Lefaragane River which flows south to north joining the Elands River close to the northern border of the study area.

The Hex River is the largest river in the area. It is impounded downstream by the Vaalkop dam and upstream by the Bospoort dam. The Waterkloofspruit, Waterfallspruit and Dorpspruit are tributaries of the Hex River that originate from the catchment of Kgaswane Mountain Reserve. The Hex River is a source of portable water in the area.
The south of RLM has the Sterkstroom River, Mooi River, and Klein River as the main streams. The Sterkstroom River flows into Olifansnek Dam from a southern direction and the Mooi River receives water from the wells around Mathopestad village.

b) Dams

i. Vaalkop dam

The Vaalkop dam (Plate 4.3.1) is located in the Crocodile River valley to the north-east of Rustenburg. The dam covers 1,045 hectares offering plenty of opportunities for water sports as well as a popular bird watching location. Fish species in the dam, such as yellowfish and carp, are abundant making it a top angling destination.

![Plate 5.2.1: Vaalkop dam](image)

ii. Bospoort dam

The Bospoort Dam is a small state-owned impoundment situated on the Hex River upstream of the Vaalkop Dam, northeast of Rustenburg in the Crocodile (Plate 5.2.2). The dam covers a surface area of 379.0 ha at full supply level. The dam is subject to a large amount of fishing effort. The Bospoort Dam is used for irrigation and domestic water supply. The Bospoort Water Treatment Works (WTW) was constructed at the dam to treat the water for potable supply to town. Due to increase in deterioration of water quality, the Bospoort WTW ceased to operate as a
result of nuisance problems (taste and odour) caused by excessive proliferation of algal bloom. Possible contaminants are sewage treatment works upstream, agricultural run-offs, urban run-offs and re-circulation of nutrients from bottom sediments (Mogakabe and van Ginkel, 2008).

Plate 5.2.2: Evidence of algal bloom in Bospoort dam

iii. Buffelspoort dam

Buffelspoort Dam is located to the east of Rustenburg and north of the Magaliesburg mountain range. It is situated at the confluence of the Sterkstroom River and Klein River. The dam is part of the Sterkstroom Government Water Scheme (SGWS), a government controlled water scheme, which was built in 1935 for the storing of water for irrigation purposes. The Sterkstroom River is the primary inlet, flowing into the Buffelspoort dam from the south west, and exiting in a northerly direction beyond the dam wall. Klein River enters the dam from the south east. Buffelspoort Dam is often referred to as the being the cleanest Dam in the North West. Plate 5.2.3 below presents Buffelspoort Dam and the associated land use activities. The area surrounding the Buffelspoort Dam is a significant tourism node located within the RLM. The area contains a number of lodges and resorts and is located within the scenic Magaliesberg Protected Environment (MPE).
Plate 5.2.3: Buffelspoort dam and development and agricultural activities around the dam
iv. **Olifantsnek dam**

The Olifantsnek dam lies in the Hex River drainage catchment and is fed by the Rooikloofspruit, Sterkstroom Spruit and Hex River in the south. The dam drains into the Bospoort dam in the north and serves to provide potable water to Rustenburg and surrounds. It is a privately owned dam owned by the Olifantsnek Water Board and utilised to irrigate small citrus orchards and support small scale angling activities. The quality of the inflowing water is typical of unpolluted water in this area though nitrate levels in the water of the dam have been observed to be high, possibly due to fertilizer run-off from the catchment.

c) **Wetlands**

Wetland are areas of land that is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or land that is periodically covered with shallow water and usually inhabited by hydrophytes. Wetlands are highly productive and valuable ecosystems of ecological and economic value but these systems are often taken for granted because their functions are not clearly visible. The table below lists some of these functions and links each to an economic benefit. Disturbance and loss of wetlands due to the pressures of land transformation reduces their storage capacity and water purification ability. The loss of storage capacity consequently reduces the dry season water availability in rivers, resulting in longer drier periods and, conversely and more intense flows in the wet season, which exacerbate flooding.
Table 5.2: Ecological and economic wetland functions

<table>
<thead>
<tr>
<th>Ecological function</th>
<th>Economic Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood and flow control</td>
<td>Flood protection</td>
</tr>
<tr>
<td>Storm buffering and sediment retention</td>
<td>Storm protection</td>
</tr>
<tr>
<td>Groundwater recharge/discharge</td>
<td>Water supply</td>
</tr>
<tr>
<td>Water quality maintenance/nutrient retention</td>
<td>Improved water quality and waste disposal</td>
</tr>
<tr>
<td>Habitat and nursery for plant and animal species</td>
<td>Recreational fishing and hunting</td>
</tr>
<tr>
<td></td>
<td>Harvesting of natural materials</td>
</tr>
<tr>
<td></td>
<td>Energy resources</td>
</tr>
<tr>
<td>Biological diversity</td>
<td>Potential future use</td>
</tr>
<tr>
<td></td>
<td>Appreciation of species existence</td>
</tr>
<tr>
<td>Natural environment</td>
<td>Recreational activities</td>
</tr>
<tr>
<td></td>
<td>Appreciation of uniqueness to culture/heritage</td>
</tr>
</tbody>
</table>

5.2.1 Legislation, Policies and Guidelines

The National Environmental Management Act (NEMA), the National Water Act and the Biodiversity Act require the responsible management of ecological and biophysical resources. The National Department of Water and Environmental Affairs (DWEA) is the custodian of the National Water Act. All activities related to the use of water or in close proximity to watercourses require water use license from the water section of this department.
5.2.2 Opportunities

- Wetlands contribute to natural filtration and purification of water thereby providing our river courses with clean water. They also hold water, which they release during dry seasons and provide habitat for amphibians, fish and waterfowl and breeding grounds for a number of these species;
- If well maintained, aquatic systems provide attractive ecological environments. Dams contribute towards tourism attractions as they are utilized as areas of recreational boating, angling, fishing and bird watching; and
- Rivers and dams contribute as reliable sources of good quality water in the area for both agricultural and domestic use.

5.2.3 Constraints

- Aquatic systems are under pressure of pollution, localized flooding, erosion and siltation resulting from unplanned developments;
- Commercial, agricultural, industrial and informal settlement activities contaminate ground and surface water;
- Water demands from mining and industrial sources exert pressure on the water quality and supply of surface water;
- Mining effluent and dewatering affect the quality of water;
- Non-compliance of sewage works, acidification (eg, from acid mine drainage), diffuse pollution from dense settlements, treated sewage effluents and Impoundments are all impacts observed on aquatic systems in RLM; and
- Artificial diversions occur throughout the catchment, done mainly for agricultural, industrial and mining purposes impact negatively on the aquatic biodiversity of the area. An example of such diversions is seen in the Ikhameleng Township in the Hex River Catchment, which was done by the Xtrata mines by heaping mine dumps in the river course to divert the flow.
Plate 5.2.4: Evidence of development on wetland. This picture shows Freedom Park settlement and its surrounds established on the Wildebeesfontein wetlands.
5.2.4 Development Guidelines

Aquatic systems are very sensitive environments that need protection towards any form of disturbance. The transition between the water in watercourses and land (riparian area) also form an important part of these areas as it contributes to their ecological function. All aquatic systems including riparian zones must be delineated from development. Floodlines are used to determine the different sensitive areas around watercourses and aid in the determination of the edge of the watercourse. No development is allowed in aquatic environments and any activity close to a watercourse or riparian zone of a water course requires must be in line with the National Water Act and the National Environmental Management Act.

A detailed wetland inventory was conducted by the RLM in 2008 with the main aim of highlighting the distribution and conditions of the wetlands within the municipal area. In addition, the objective was to put in place a strategic management plan of the management, rehabilitation and restoration of wetlands. The recommendations of this inventory must be implemented. A catchment policy must be established using the information contained in the inventory. The aim of the policy will be to establish a municipal guiding tool that would inform development around aquatic systems. The Department of Water Affairs’ guideline on “practical field procedure on the identification and delineation of wetlands and riparian areas” must be used to guide the delineation of wetlands and riparian zones in areas where development is proposed close to these systems.

All settlements in wetland areas must be investigated to determine if they cannot be relocated to a safer environment as they are prone to flooding. It is important that communities are educated about the importance of wetlands and the risks of settling in these areas.
5.3 AGRICULTURAL HOLDINGS MANAGEMENT ZONE

RLM is mainly characterized by commercial farming that ranges from citrus to vegetable farming. Furthermore, the rural part of RLM also practices subsistence farming of maize, sunflower and vegetables. Historically, agriculture used to be the main RLM GDP contributor, however due to trade offs to other activities such as mining and development, agriculture has turned into a less preferred source of income. Figure 5 below represents areas of active agricultural activities.

Plate 5.3.1: Evidence of change in the use of agricultural land over a period of two years in Kroondal. Most part of land has been transformed from farming to either residential or industrial activities

5.3.1 Legislation, Policies and Guidelines

There are many acts that regulate agricultural related activities in South Africa. The one, which is most relevant for this study, is the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). This act provides for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water sources and vegetation, and the combating of weeds and invader plants. It must also be noted that though this act exists, land use applications even is land designated for agricultural purposes still needs to comply with the National Environment Management Act.
5.3.2 Opportunities

- According to the Rustenburg State of the Environment Report, "agriculture is one of the largest employers in the Bojanala Platinum District. It is also an important source of export revenue and provides inputs for the food processing industry in Rustenburg (particularly of citrus, tobacco and poultry). Organically grown produce, horticulture and citrus derivatives offer scope for expansion"; and

- RLM can look at land in the south around Mathopestat and Heldina for pursuing extensive agricultural activities. The southern areas that stretch along the foot of the northern reaches of the Magaliesberg Mountain Range including Kroondal though already impacted on have potential for intensive small-scale agriculture. Most agricultural land is being lost to other activities such as township developments and mining. An example of this is in Kroondal where most part of the land has been transformed by settlement developments.

5.3.3 Constraints

- According to this management zoning, the central part of the Municipal area primarily in ownership of the Royal Bafokeng Nation has potential for extensive agricultural activities, however it is not accessible by the municipality as it is solely in the jurisdiction of the Royal Bafokeng Tribal Authority;

- Increased interest on the platinum market has shifted economic reliance into the mining industry. This economic shift from reliance on agriculture is threatening agricultural land resulting in privately owned agricultural land being utilized for mining activities;

- Agricultural activities impact on natural resources especially watercourses and ridges;

- Most agricultural land is in the ownership of private land owners and as a result, it is difficult for the municipality to ensure and monitor activities that occur in these farms. Many of them are being lost to other land uses such as mining and settlement townships as seen in Kroondal;

- Most agricultural activities are located along watercourses and as a result contribute to the pollution that makes water of these systems of poor quality. Evidence of such activities is seen in Hartebeesfontein along the Hex River and Kroondal.
5.3.4 Development Guidelines

The zone should allow for both intensive and extensive agricultural activities. Land with high agricultural potential must specifically be utilized for intensive agricultural purposes. Control measures must be put in place to prevent subdivision of agricultural land for the purpose of non-agricultural activities. State-owned land within this management zone should be used to promote intensive agricultural development. Agricultural land should not be used as premises from which to operate any activities other than agricultural activities.

There is a need for education awareness to motivate communities to value agricultural activities and realize that these can still generate income in the area. This will help create job opportunities in rural areas and areas which are remote from the urban areas.
5.4 **BUILT UP AREAS MANAGEMENT ZONE**

Built up areas refer to areas with existing development. These areas were zoned in order to indicate the areas in RLM, which have already been impacted by development. Development in this case does not only mean residential development but also industrial and commercial development.

5.4.1 **Legislation, Policies and Guidelines**

Built up areas are controlled by town planning schemes. Development trends in this zone must be in line with the Town planning Scheme for that area except for areas where development encroaches on sensitive environment. In such cases, the NEMA will prevail and future development would have to go through environmental impact assessment.

Relevant Legislations include:

- Constitution of South Africa;
- National Environmental Management Act, 1998 (Act No. 107 of 1998);
- National Water Act, 1998 (Act No. 36 of 1998);
- National Heritage Resources Act, 1999 (Act No. 25 of 1999);
- Mineral and Petroleum Resources Development Act (No 28 of 2002);
- National Environmental Management: Air Quality Act (No 39 of 2004);
- Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983);
- Development Facilitation Act, 1995 (Act No. 67 of 1995);
- Land Development Objectives (LDO);
- Integrated Development Plans (IDP);
- Sub-division of Agricultural Land Act;
- Division of Land Ordinance; and
- Rustenburg Town Planning Scheme.

5.4.2 **Opportunities**

The built up zone has potential or gives room for urban expansion. Town planning must incorporate these areas into their urban edge so that future development is concentrated around
the area. By urbanizing this area, municipal services can be concentrated in the area ensuring that communities have access to the areas and opportunities that the area provide such as social services, job opportunities and easy access to transport.

5.4.3 Constraints

- Some of the built up areas are in sensitive areas and therefore expansion in such areas would be restricted to their sensitivity.
- Informal settlements need management and relocation as they are usually in areas not suitable for human settlement (e.g. too close to mining areas, in areas prone to flooding)

5.4.4 Development Guidelines

This zone should be used to accommodate economic and residential development. Urban expansion must be focused in this zone to contain the urban core area and prevent urban sprawl. The type of development and density is not restricted in this zone except for cases where such development is in close proximity to a sensitive environmental feature or in areas where Town planning requirements do not allow for high density.

6. CONCLUSION

The environmental management zones discussed above must be taken into consideration when land use applications are evaluated. The guidelines provided must be use to inform decision on such land use applications. The section of the EMF to follow illustrates fully and gives guiding tools on the processes to be followed to ensure that the objectives of the desired state of the environment are achieved. Thus, the information contained in the management zones together with all information gathered in the status quo and desired state of the environment will be used to establish the strategic environmental management plan for the EMF.
7. REFERENCES


Rustenburg Strategic Environmental Assessment 1 (2003).


Rustenburg Strategic Environmental Assessment 2 (2005).


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