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Integrating Biodiversity & Environmental Issues into Municipal Landuse Planning in the Olifants Catchment

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Based on reports by Deborah Vromans, Stephen Holness & Wehncke vd Merwe

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Introduction

South Africa has made significant strides towards developing an integrated approach to development planning at national, provincial and municipal levels, which integrates the different sector plans into cross-cutting Integrated Development Plans (IDPs) under the guidance of the National Development Plan. While this cross-sectoral approach to development planning is completely appropriate for addressing the complexity of development and natural resource management, it does increase the need for coordination between the different actors. Coordination is needed during the formulation of policy, but also in the regulatory frameworks and practical implementation processes through which development and resource use actually occur day-to-day on the ground. Spatial planning is a key tool for mediating between development plans and priorities and the actual granting of approvals for land use change or development.

South Africa has embraced a strategic approach to spatial planning which facilitates integration across sectors as well as vertical integration between different spatial scales and levels of government. All South African municipalities are required by law to develop both an **Integrated Development Plan (IDP)** and a **Spatial Development Framework (SDF)** (Municipal Systems Act 2000).

The IDP indicates the overall priorities and development directions of the municipality, the framework for sector plans and budgets and the main programmes and capital projects over the next five years

The SDF indicates the spatial vision for the municipality and the means of implementation, over a 5-year planning period. Since municipal SDFs represent the key spatial informant which governs land use decision-making and capital investment, it is critical that the SDF incorporates the best available environmental and biodiversity information into the spatial planning process.

Systematic conservation planning is a strategic spatial planning approach used to identify priority areas for biodiversity conservation and to guide land use decisions. Conservation plans are usually developed at provincial level, and South African conservation planning products are internationally recognised as excellent. However, to achieve their purpose, these conservation planning products must be effectively incorporated and integrated into the municipal SDFs and IDPs.

The RESILIM-O team has recognised the importance of integrating biodiversity and environmental issues into municipal planning processes in the Olifants catchment. This is necessary to ensure a solid foundation for biodiversity conservation and natural resource management, and contributes directly to the RESILIM-O goal of increasing the number of hectares of land under improved management.



How well are biodiversity & environmental issues represented in municipal planning?

Twenty-two local municipalities and one metropolitan municipality (City of Tshwane) fall within the Olifants catchment (Figure 1). Several of these extend beyond the boundaries of the catchment. Municipalities with only a small portion of their area within the catchment were excluded from this review (namely, Ekurhuleni Metro, Sedibeng DM, Lesedi, Albert Luthuli, Mogalakwena and Modimolle). Municipalities in the catchment are organised into 7 district municipalities.

We developed an assessment methodology which used 31 criteria, with sub-criteria, to assess the level of inclusion of biodiversity and environmental issues in the primary planning documents produced by municipalities (IDPs and SDFs; methodology available on request). The scores were used to place the municipalities into categories ranging from Excellent (category A) to Very Poor (category F), as detailed in Table 1.

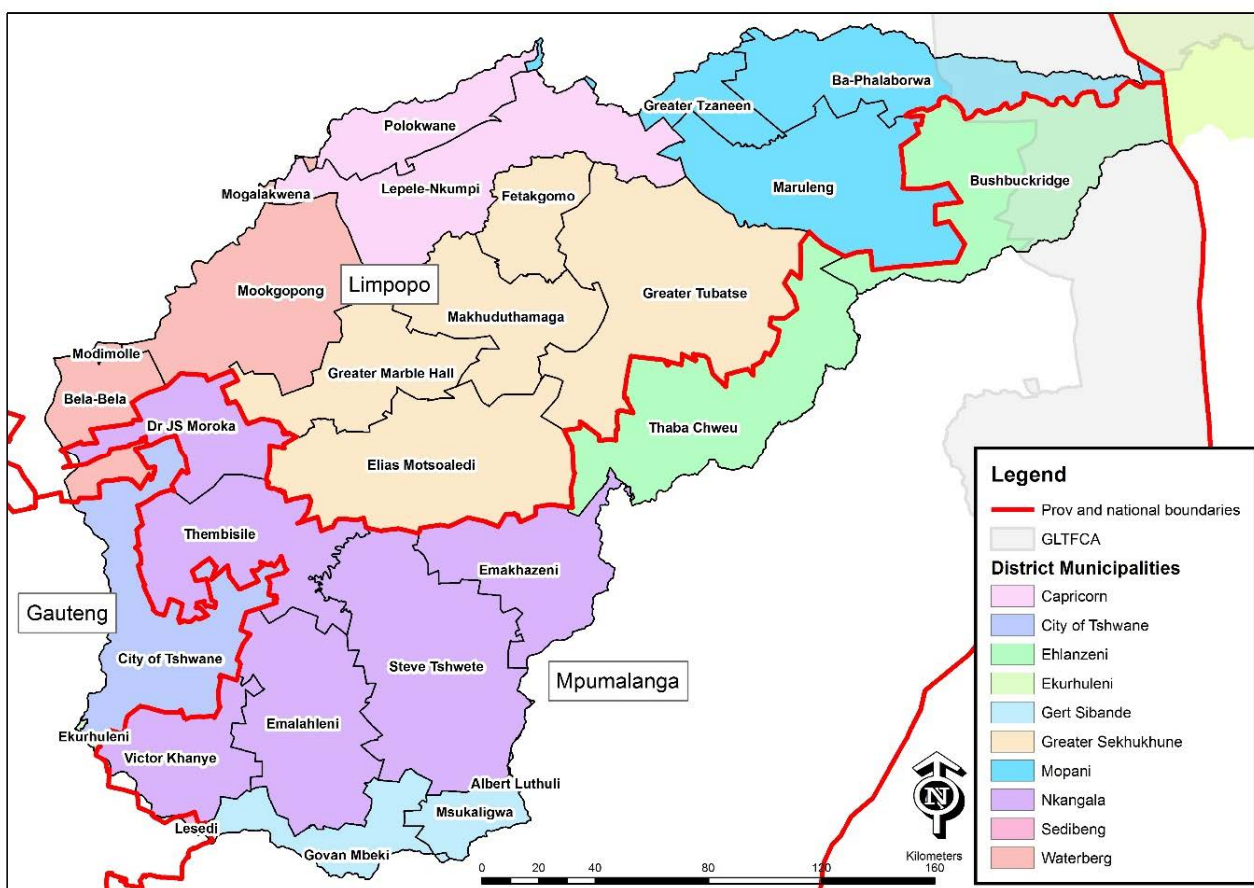


Figure 1: Map indicating the District and Local Municipalities of the Olifants catchment.



TABLE 1: DESCRIPTIONS OF THE CATEGORIES USED TO ASSESS THE LEVEL OF INCLUSION OF BIODIVERSITY AND ENVIRONMENTAL ISSUES IN KEY MUNICIPAL PLANNING DOCUMENTS.

| Category | % | Description |
|----------|-----------|---|
| A | 90-100% | Excellent. These municipalities should as a minimum, have indicated and cross-referenced the biodiversity priorities (e.g. Critical Biodiversity Areas and Ecological Support Areas etc.) in the non-biodiversity planning documents (SDF, IDP, LED), and capacity for environmental management is present in the municipal structures and funding. The range of environmental issues (e.g. water quality) and associated management measures (e.g. green drop ratings) would be in place. These municipalities would have the range of biodiversity specific planning documents, and would have fulfilled the majority of the criteria. |
| B | 80 - <90% | Very good. As a minimum, biodiversity priorities (e.g. Critical Biodiversity Areas and Ecological Support Areas), including ecosystem service areas, such as wetlands and high water yielding areas, and a range of environmental issues and associated management measures, such as flooding and disaster risk mitigation, water quality, sustainable water abstraction, alien plant control and air pollution control, are included in the IDP and SDF. Several biodiversity specific documents are available. |
| C | 60 - <80% | Good. As a minimum biodiversity is included through an environmental summary or environmental analysis in the IDP; and biodiversity data has been used in the development of the SDF as a measure for ensuring sustainable development. Environmental issues (e.g. water quality, water abstraction, air pollution) are included in the IDP with some management measures in place (e.g. green drop ratings, air pollution monitoring). A few biodiversity specific documents are available. |
| D | 46 - <60% | Fair. Biodiversity does feature in most of the documents, and most importantly the IDP and SDF, but it does not necessarily form one of the cornerstones of sustainable development. At the upper end of the spectrum spatial biodiversity data is included, but not necessarily representing Critical Biodiversity Areas or systematic biodiversity plans. At the lowest end of the spectrum, the spatial biodiversity data is lacking or does not inform other sector plans. Some of the key environmental issues (e.g. water quality, water abstraction, air pollution) are included in the IDP, with some management measures in place (e.g. green drop ratings, air pollution monitoring, recycling). Limited biodiversity specific documents and appropriate environmental projects are indicated. Environmental management capacity is inadequate or absent. |
| E | 21 - 45% | Poor. Biodiversity does feature in the IDP and/or SDF, but inclusion and integration is unsatisfactory or low and quality of the environmental data is not adequate. Limited biodiversity specific documents, if any. |
| F | 0 - 20% | Extremely poor. None or only a few of the required planning documents have been developed, and the inclusion of biodiversity is absent or minimal. Environmental risks, projects and programmes are mostly absent in guiding sustainable development. Biodiversity specific documents are absent. |



Municipalities in the catchment all received scores of either FAIR or POOR according to our criteria (Tables 2 and 3), with the highest score being 59.3%.

The majority of municipal IDPs did not include an adequate environmental component. Compared with the content of the socio-economic and other chapters of the IDP, the environmental chapter was substantially less weighty in the majority of IDPs, yet all recognized that the environment is important in ensuring sustainable development.

The IDP environmental analysis, in most instances, provided a description of the biophysical environment, indicated nature reserves and mentioned the importance of conservation for tourism development, as well as some other environmental issues (e.g. deforestation, climate change, land degradation). However, maps of biodiversity priority areas (CBAs, irreplaceable sites or other strategic environmentally sensitive areas identified in the SDF) and the biodiversity land use guidelines (where present) were not

incorporated into the IDPs. It appears from this relatively rapid review that most IDP spatial projects are not spatially presented in the SDF, although the IDP does indicate location (where projects are required, for example Ward 1). In a number of instances service delivery backlogs and housing expansion areas were mapped, for example in Ephriam Mogale LM, Elias Motsoaledi LM. However, the locality of all proposed projects should be determined according to and assessed against the spatial environmental priorities and final SDF map, which should incorporate the environmental priorities.

The quality of environmental data was generally better in the SDFs, although some SDFs lacked an environmental chapter. However, the SDF environmental data were not well integrated into the IDP document. This is problematic because while the SDF document is usually produced by external consultants, it is the IDP Manager who is responsible for translating the SDF into sector spatial plans and projects.

TABLE 2: DISTRICT MUNICIPALITIES INDICATING PERCENTAGE SCORES FROM HIGHEST TO LOWEST.

| Municipality | Max Score | Allocated Total Score | % | Category | Province |
|-----------------------|-----------|-----------------------|------|----------|------------|
| Nkangala DM | 59 | 35 | 59.3 | D FAIR | Mpumalanga |
| Mopani DM | 61 | 35.5 | 58.2 | D FAIR | Limpopo |
| Waterberg DM | 60 | 34.5 | 57.5 | D FAIR | Limpopo |
| Gert Sibande DM | 59 | 33 | 55.9 | D FAIR | Mpumalanga |
| Capricorn DM | 60 | 30.5 | 50.8 | D FAIR | Limpopo |
| Ehlanzeni DM | 62 | 31.5 | 50.8 | D FAIR | Mpumalanga |
| Greater Sekhukhune DM | 60 | 30.5 | 50.8 | D FAIR | Limpopo |



TABLE 3: LOCAL AND METROPOLITAN MUNICIPALITIES INDICATING PERCENTAGE SCORES FROM HIGHEST TO LOWEST.

| Municipality | Max Score | Allocated Total Score | % | Category | Province |
|-----------------------|-----------|-----------------------|------|----------|------------|
| Polokwane LM | 60 | 35.5 | 59.2 | D FAIR | Limpopo |
| Emakhazeni LM | 61 | 35 | 57.4 | D FAIR | Mpumalanga |
| Bela-Bela | 60 | 32.5 | 54.2 | D FAIR | Limpopo |
| Maruleng LM | 61 | 33 | 54.1 | D FAIR | Limpopo |
| Steve Tshwete LM | 61 | 31 | 50.8 | D FAIR | Mpumalanga |
| Ba-Phalaborwa LM | 61 | 30.5 | 50.0 | D FAIR | Limpopo |
| Bushbuckridge LM | 62 | 30 | 48.4 | D FAIR | Mpumalanga |
| Greater Tzaneen LM | 60 | 29 | 48.3 | D FAIR | Limpopo |
| Victor Khanye LM | 57 | 27.5 | 48.2 | D FAIR | Mpumalanga |
| Mookgophong | 59 | 28 | 47.5 | D FAIR | Limpopo |
| Lepele Nhumpi LM | 60 | 28 | 46.7 | D FAIR | Limpopo |
| Elias Motsoaledi LM | 59 | 27 | 45.8 | E POOR | Limpopo |
| Makhuduthamaga LM | 57 | 25.5 | 44.7 | E POOR | Limpopo |
| Emalahleni LM | 59 | 26 | 44.1 | E POOR | Mpumalanga |
| City of Tshwane Metro | 56 | 24.5 | 43.8 | E POOR | Gauteng |
| Ephriam Mogale LM | 60 | 25.5 | 43.2 | E POOR | Limpopo |
| Fetakgomo LM | 61 | 25.5 | 42.5 | E POOR | Limpopo |
| Govan Mbeki LM | 58 | 24.5 | 42.2 | E POOR | Mpumalanga |
| Msukaligwa LM | 58 | 25.25 | 41.4 | E POOR | Mpumalanga |
| Dr JS Moroka LM | 59 | 23.5 | 39.8 | E POOR | Mpumalanga |
| Thembisile Hani LM | 59 | 23 | 39 | E POOR | Mpumalanga |
| Thaba Chweu LM | 60 | 22 | 36.7 | E POOR | Mpumalanga |
| Greater Tubatse LM | 60 | 21.5 | 35.8 | E POOR | Limpopo |



In the Mpumalanga Province, the lack of good quality environmental data was particularly evident because the IDPs did not integrate the Mpumalanga conservation plan that was included in the SDFs. An environmental analysis was absent from the Dr JS Moroka LM, Emalahleni LM, Steve Tshwete LM, Govan Mbeki LM, Msukaligwa LM and Bushbuckridge LM. Here the emphasis was on environmental management and focused mostly on waste management and air pollution, which are mandated functions. An environmental analysis component was absent in the Gert Sibande DM IDP and the City of Tshwane Metropolitan Municipality in the Gauteng Province (see box). In contrast, the Limpopo Province IDPs included an environmental analysis or chapter (the SDFs of the Fetakgomo LM and Makhuduthamaga LM did not, although environmentally sensitive areas were considered). However, the environmental data of the IDPs was also generally of a poor quality, even if the SDFs pre-dated the Limpopo C-Plan information.

The IDP environmental chapter was generally not a well-structured or coherent section which flowed from the analyses to issues, legal requirements and management measures, which could in turn identify relevant projects and programmes and provide linkages to the socio-economic and institutional issues. Cross-referencing from environmental issues to associated projects (or identifying the absence of necessary projects) was generally inadequate. Consequently, while most municipalities

acknowledged the importance of the environment, this did not translate into any substantial incorporation of issues in terms of projects, programmes or environmental management tools.

For example, many municipalities identified water pollution as an environmental issue. This should be linked to the National Water Act and general authorisations regarding sewage waste water quality etc. and then to the Green Drop ratings score-card, which would be a project or programme under water quality management. In all municipalities where the Green Drop rating system was implemented, it fell within the sanitation services chapter. Although this is logical because it relates to sewage infrastructure management and maintenance programmes, it also relates to environmental management, with implications for social well-being, and should be cross-referenced in the environmental analysis. The same could be said for recycling or waste management, rehabilitation of landfill sites and air quality monitoring projects; this is complicated by the fact that these projects are often included under the national Key Performance Area of “Service Delivery”. Detailed biodiversity sector plans, Environmental Management Plans (EMPs), Environmental Management Frameworks (EMFs) and State of the Environment reports (SOER), required for adequate management of the environment, were generally lacking.

How accurate are the results?

This was a rapid survey and therefore focused largely on the IDP and SDF documents. These are the key development planning documents. The SDF is the spatial component of the IDP, whereas the IDP should integrate all sector plans e.g. LED, EMP etc. Therefore the IDP and SDF should, by default, integrate the various sector plans, while the SDF guides the sectors spatially through the biodiversity and socio-economic analyses. However, not consulting all the various environmental management tools such as EMP, EMF, SOER, or other tools that should incorporate ecological issues e.g. Land Use Management Policies (protection of biodiversity), Disaster Management Plans (flood prone areas), Land Use Schemes (conservation zones) or Climate Change Strategies, does not allow for a full assessment of the level of inclusion of ecological issues,

in municipal planning (note that in a few instances some of these documents were sourced).

Although overall the rapid assessment was considered sufficient, it did lead to distortions in some cases. For example, in the City of Tshwane the Gauteng Department of Agriculture and Rural Development (GDARD) conservation plan’s Irreplaceable Areas, Important Areas and Ecological Support Areas have been incorporated into regional maps, referred to as the Open Space and Environmental Sensitivity Plan. However, the IDP and SDF make no reference to the conservation plan and do not include an environmental analysis component. In other words, environmental management may be relatively good, but it is not adequately reflected in the IDP and SDF, hence the low score obtained by the municipality (Table 3)



Institutional capacity (environmental management staff) and financial capacity (IDP projects) were also lacking. Of the 30 municipalities, 11 recognized the need for environmental capacity within the municipality. The Ba-Phalaborwa LM IDP indicated that environmental management and education is not addressed directly within the municipal budget allocations.

The lack of environmental management capacity in the municipalities assessed is evidenced by the following:

- The lack of good biodiversity data in the form of systematic conservation plans or at minimum EMFs. However, the fact that many SDFs in the Limpopo Province are out-dated and/or pre-date the Provincial Limpopo Conservation Plan (Version 1 in 2011 and Version 2 in 2013) indicates a need to ensure that this biodiversity information is made available to the municipalities and relevant consultants by the Limpopo Department of Economic Development, Environment and Tourism (LEDET); and possibly with support from the South African National Biodiversity Institute mainstreaming programme. This also alludes to inadequate stakeholder engagement and inter-governmental relations during the IDP and SDF processes. For example, LEDET projects were evident in the majority of IDPs in Limpopo yet the Limpopo Conservation Plan was not. The role of SANBI (and the National Department of Environmental Affairs) is not indicated although national programmes and outcomes are often indicated in the IDPs. The Resilim-O Project could assist with mainstreaming this information.
- Misinterpretation of national priorities or programmes associated with protecting the environment (biodiversity conservation). National programmes and outcomes are not adequately articulated in the IDP projects.
- The lack of environmental management Key Performance Areas (KPA). Although environmental management is not a national KPA, municipalities can develop municipal KPAs, as was done in the Govan Mbeki and the Emalahleni local municipalities.
- The environmental services function is often interpreted as management of gardens and parks, recreational facilities, waste disposal and cemeteries as well as municipal environmental health services, rather than as biodiversity conservation or management of natural resources. This function often falls under community services. This confusion was highlighted in the Emakhazeni LM IDP. Solid waste management and air quality tends to be the focus of environmental management services, which are municipal mandates in terms of NEMWA and NEMAQ.
- Member of Executive Council comments on IDPs indicated that in many municipalities, projects were not informed by the municipal strategies. Frequently the strategy or goal was environmental management, yet environmental projects were not adequate e.g. lack of EMP, SOER, EMF etc.
- In some municipalities (particularly in Mpumalanga), the conservation plans that were integrated into the environmental component of the SDF were not adequately reflected in the desired spatial outcome or final SDF map, in that environmental priorities (irreplaceable sites etc.) were target areas for intensive land uses such as mining or potentially high impact land uses e.g. LED activities and land reform. This may mean that the environmental data were misinterpreted. In the Limpopo Province, many of the SDF maps, as referenced in the SDF document, were not in the document and could not be assessed.
- Lack of adequate integration or representation of the SDF environmental component in the IDP and other non-biodiversity specific documents.



How can the situation be improved?

We have developed a [guideline document](#) for municipalities which provides an appropriate Terms of Reference or Table of Contents for the environmental analysis section in municipal IDPs and SDFs. This document will help municipalities to develop a more coherent environmental analysis and management section in the IDP and SDF, which is not confused with environmental health or focused only on mandated functions such as waste management and air pollution.

A short-term goal is for RESILIM-O to [mainstream the Terms of Reference document](#), together with available systematic biodiversity plans (GIS shapefiles and documents) and other available data, with support from the provincial environmental departments and SANBI's mainstreaming programmes where necessary. Mainstreaming should include liaising with the municipalities, relevant consultants (e.g. SDF consultants), South African Local Government Association (SALGA) and the Provincial Department of Co-operative Governance, Human Settlements and Traditional Affairs (CoGHSTA). The provincial environmental departments (compilers of the systematic biodiversity plans) and the SANBI mainstreaming programme should be informed, at minimum, of the process.

A long-term goal should involve the [enhancement of human resource capacity](#) in the municipalities, with an emphasis on establishing a dedicated unit that is responsible for environmental management as it relates to biodiversity management and protection. Possible support from provincial environmental and national sector departments

and programmes, including SANBI, should be investigated to fund these positions. The lack of a municipal mandate to manage the environment restricts environmental management at municipal level. Although it is recognized that environmental management should be a function of planning in terms of various legislation (Constitution, NEMA, land use legislation), it is not a municipal mandate. The fact that it is a provincial and national mandate suggests that the relevant departments and parastatals need to take a more active role in assisting municipalities in this function e.g. funding and providing human resource capacity at the local level.

The [IDP and SDF processes should be better integrated](#). The poor integration between the SDF and IDP documents suggests that the underlying processes are not as well aligned as they could be. For example, the SDF should be reviewed annually along with the IDP, rather than every 5 years. As indicated in the Nkangala DM SDF (2014), the SDF proposed projects and programmes can then be incorporated into the IDP and associated budgeting process. The key planning documents should improve the spatial integration of environmental issues, such as identifying areas of high alien infestation that require EPWP or Working for Water intervention, water pollution, strategic location of flood prone areas, housing required in biodiversity priority areas, soil erosion and land degradation areas requiring LandCare programmes, EPWP programmes or municipal rehabilitation programmes. In this regard, inter-governmental relations need to be strengthened.



A focus on Maruleng Local Municipality

The RESILIM-Olifants Programme has assisted Maruleng LM by providing appropriate spatial biodiversity and environmental information for inclusion into Maruleng's SDF (2014). Two key integrative biodiversity/environmental GIS layers were provided:

- Protected areas and conservation land use
- Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), from the Limpopo Province conservation plan

The Critical Biodiversity Areas (CBA) Map, which is the primary output of the Limpopo Conservation Plan v2, aims to guide sustainable development by

providing a synthesis of biodiversity information to decision makers. It serves as the common reference for all multi-sectoral planning procedures, identifying clearly which areas should be retained in a natural state in order to support the long term persistence of both biodiversity and the ecosystem services dependent on this biodiversity. The CBA map represents the single most important set of biodiversity information that needs to be included into the Maruleng SDF process. Importantly, this layer also informs development-related issues such as Environmental Impact Assessments.

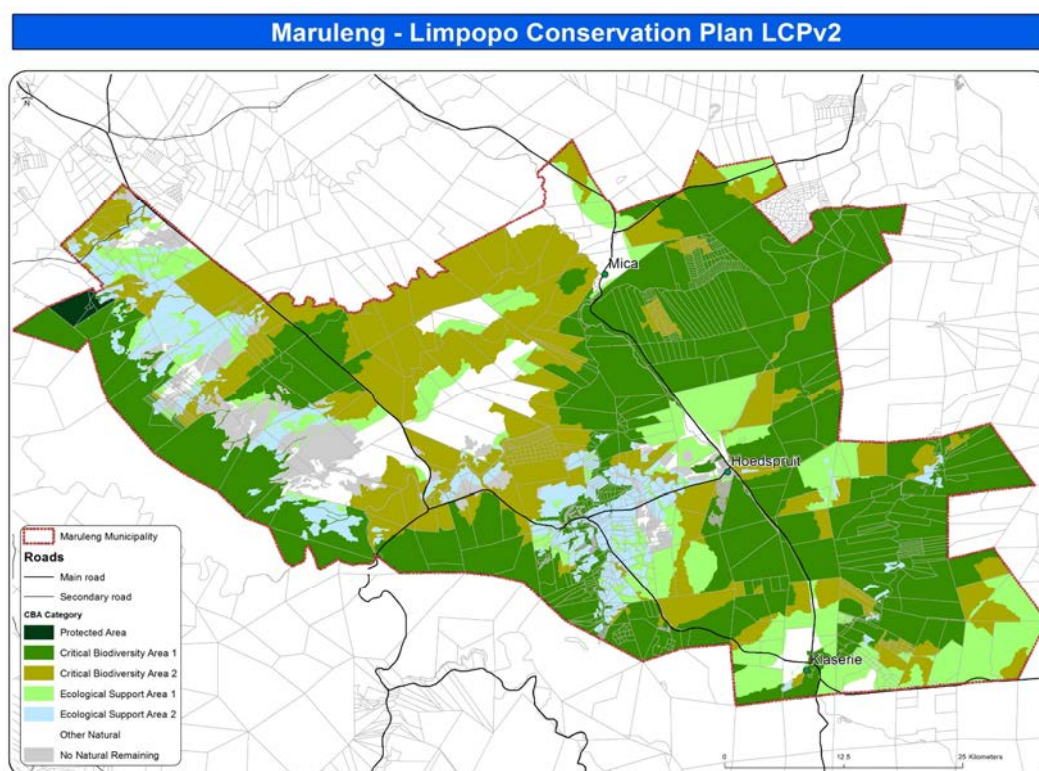


Figure 2: Critical Biodiversity Areas and Ecological Support Areas GIS layer supplied to Maruleng LM by the RESILIM-O team.

The Desired Management Objective refers to the ecological state in which a parcel of land or aquatic ecosystem should be maintained (Table 4). It guides the identification of appropriate land or resource use activities and management guidelines. Only land-use activities or resource use levels that are compatible with maintaining the Desired Management Objective should be encouraged. The Desired Management Objective refers to both biodiversity pattern and/or ecological processes. In formally protected areas and Critical Biodiversity Areas, it is important to maintain both biodiversity pattern and ecological processes, whilst in Ecological Support Areas it is important to maintain ecological processes only.



TABLE 4: DESIRED MANAGEMENT OBJECTIVES FOR THE DIFFERENT CATEGORIES OF LAND ON THE CRITICAL BIODIVERSITY AREAS MAP (FIGURE 3).

| CBA MAP CATEGORY: → | Protected Areas | Critical Biodiversity Areas | Ecological Support Areas | Other Natural Areas | No Natural Areas Remaining |
|------------------------------------|--|--|---|---|--|
| DESIRED MANAGEMENT OBJECTIVE: → | Overall maintain natural land. Rehabilitate degraded to natural or near natural and manage for no further degradation. Development should be restricted to small footprints within properties and landuses that overall are conservation compatible. | Overall maintain natural land. Rehabilitate degraded to natural or near natural and manage for no further degradation. Development should be restricted to small footprints within properties and landuses that overall are conservation compatible. | Maintain ecological processes. Development should be carefully restricted to ensure that it does not impact on ecological processes (e.g. set back development from riparian areas) | Sustainable Management within general rural land-use principles | Sustainable Management within general rural land-use principles. Favoured areas for development. |

Other biodiversity-related summary data and maps were also provided to the Maruleng LM, including the Limpopo Protected Area Expansion Strategy, Threatened Terrestrial Ecosystems,

Strategic Water Source Areas, Areas Supporting Climate Change Resilience, National Freshwater Ecosystem Priority Areas, Kruger to Canyons Biosphere Zones, and agricultural potential.



Acronyms Used

| | |
|---------|---|
| CBA | Critical Biodiversity Area |
| CoGHSTA | Department of Cooperative Governance, Human Settlements & Traditional Affairs |
| DM | District Municipality |
| EMF | Environmental Management Framework |
| EMP | Environmental Management Plan |
| EPWP | Expanded Public Works Programme |
| ESA | Ecological Support Area |
| GDARD | Gauteng Dept of Agriculture & Rural Development |
| GIS | Geographical Information System |
| IDP | Integrated Development Plan |
| KPA | Key Performance Area |
| LEDET | Limpopo Dept of Economic Development, Environment & Tourism |
| LM | Local Municipality |
| NEMA | National Environmental Management Act |
| SALGA | South African Local Government Association |
| SANBI | South African National Biodiversity Institute |
| SDF | Spatial Development Framework |
| SOER | State of the Environment Report |





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The Association for Water and Rural Development

AWARD is a non-profit organisation specialising in participatory, research-based project implementation. Their work addresses issues of sustainability, inequity and poverty by building natural-resource management competence and supporting sustainable livelihoods. One of their current projects, supported by USAID, focuses on the Olifants River and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems to sustain livelihoods and resilient economic development in the catchment.

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About USAID: RESILIM-O

USAID: RESILIM-O focuses on the Olifants River Basin and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems that support livelihoods and resilient economic development in the catchment. The 5-year programme, involving the South African and Mozambican portions of the Olifants catchment, is being implemented by the Association for Water and Rural Development (AWARD) and is funded by USAID Southern Africa.

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