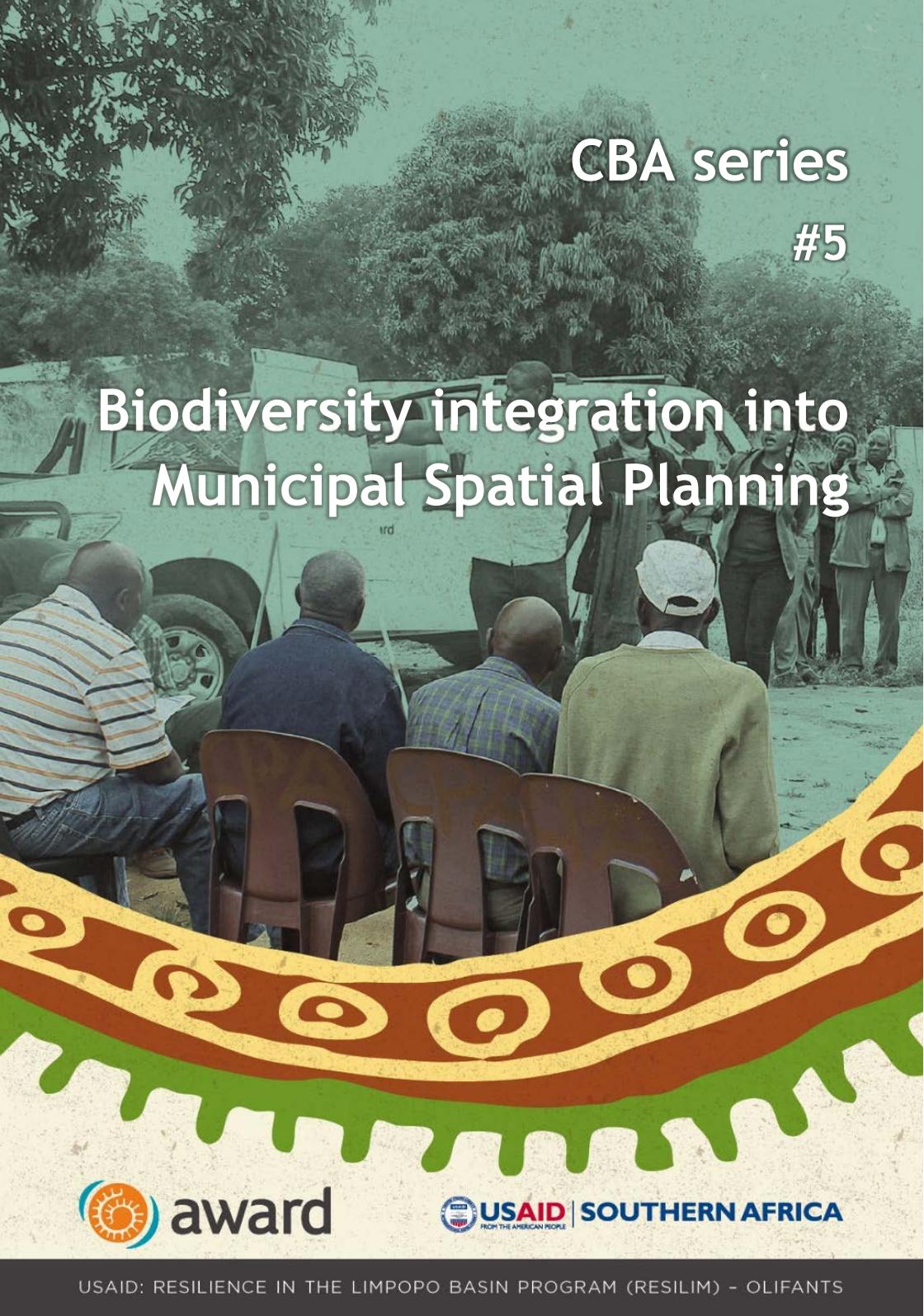
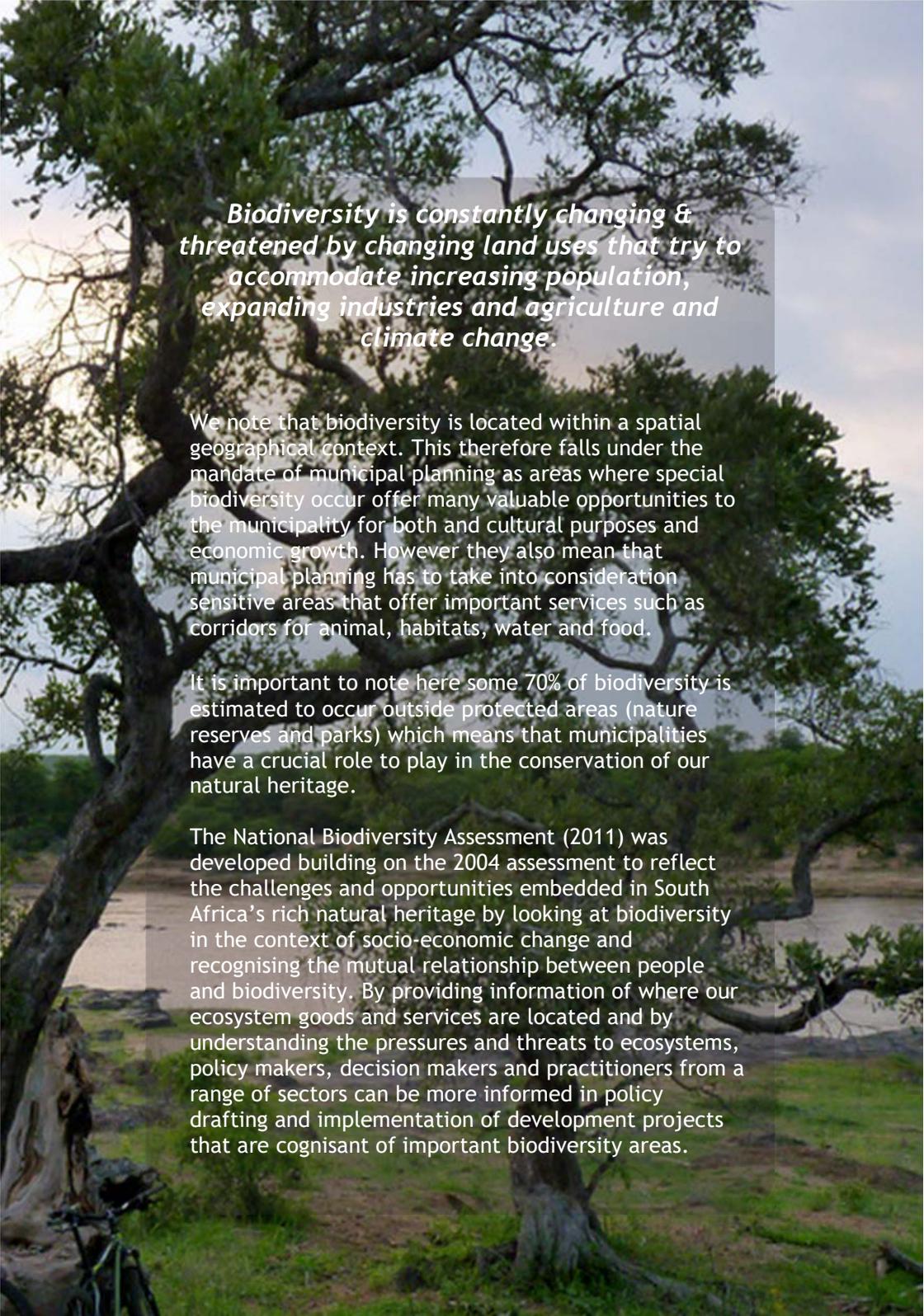


CBA series

#5

Biodiversity integration into Municipal Spatial Planning



A large, leafy tree with a thick trunk and spreading branches dominates the left side of the image. The background shows a natural landscape with a body of water and a cloudy sky. A bicycle is partially visible in the bottom left corner. The text is overlaid on a semi-transparent grey box.

Biodiversity is constantly changing & threatened by changing land uses that try to accommodate increasing population, expanding industries and agriculture and climate change.

We note that biodiversity is located within a spatial geographical context. This therefore falls under the mandate of municipal planning as areas where special biodiversity occur offer many valuable opportunities to the municipality for both and cultural purposes and economic growth. However they also mean that municipal planning has to take into consideration sensitive areas that offer important services such as corridors for animal, habitats, water and food.

It is important to note here some 70% of biodiversity is estimated to occur outside protected areas (nature reserves and parks) which means that municipalities have a crucial role to play in the conservation of our natural heritage.

The National Biodiversity Assessment (2011) was developed building on the 2004 assessment to reflect the challenges and opportunities embedded in South Africa's rich natural heritage by looking at biodiversity in the context of socio-economic change and recognising the mutual relationship between people and biodiversity. By providing information of where our ecosystem goods and services are located and by understanding the pressures and threats to ecosystems, policy makers, decision makers and practitioners from a range of sectors can be more informed in policy drafting and implementation of development projects that are cognisant of important biodiversity areas.

What is Biodiversity?

Biological diversity, or biodiversity, is a term which encapsulates the ‘variety of life’.

According to the formal definition of biodiversity, as captured in the International Convention on Biological Diversity and the National Environmental Management: Biodiversity Act (Act

“variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and includes diversity within species, between species and of ecosystems”

It is important that not only species of biodiversity are included but ecosystems too.

What is a Spatial Development Framework (SDF)?

The SDF is a **legally binding spatial framework that promotes sustainable environmental, economic and social development in a municipality.** Municipalities are obliged to develop maps termed Spatial Development Frameworks¹ (SDFs) which is a plan that outlines the desired spatial development pattern in a municipality. The SDF map is also accompanied by the SDF report. The SDF map is the spatial depiction of an Integrated Development Plan (IDP); and should be interpreted as the tool which integrates all sector plans.

In Limpopo Province, each District has a Bioregional Plan, with the Sekhukhune BRP which is the last that is being developed. A BSP is a municipal level version key informant on biodiversity. Once gazetted, the BSP or BRP becomes an official plan that has to be consulted.

The SDF must ensure sustainability (Section 7b of the Spatial Planning and Land Use Management Act, 16 of 2013; and Section 26 of the Municipal Systems Act, 32 of 2000).

An aerial photograph of a rural landscape. The foreground shows a dirt road winding through green fields and scattered houses with various roof types. The middle ground features a cluster of houses and more greenery. The background consists of rolling green hills under a clear sky. A semi-transparent green box is overlaid on the center of the image, containing text.

What is the role of municipal spatial planners in biodiversity conservation?

Spatial planners are not conservation and biodiversity specialists but it is important that they have a basic minimum knowledge of the biodiversity and its value to the municipality.

We therefore suggest that the way for integration biodiversity into spatial planning starts with the contextual profile, analysis of patterns and trends over time and what the implications this might have for spatial planning. We then also suggest that the District have a number of operating principles that can guide its spatial planners in incorporating biodiversity into spatial planning.

The Critical Biodiversity Areas (CBA) Map & guidelines provide crucial information which assist in the development of an SDF, namely:

- **Strategic Environmental Assessment¹ (SEA):** According to legislation², SDFs should include an SEA and must be aligned with those of neighbouring municipalities. A municipal SEA identifies areas where particular development types can occur and "red-flags" or cautions against development in sensitive areas. The CBA Map provides more accurate spatial information and policy guidelines for incorporation into an SEA map.
- **Urban Edge Demarcation³:** The SDF must delineate urban edges around existing urban nodes to protect the rural environment from urban sprawl and to encourage efficient settlement patterns. The CBA Map can be used to delineate the urban edge.
- **Land Use Schemes⁴:** During the revision of the municipal land use scheme and when rezoning or subdivision applications are being processed in terms of the Spatial Planning and Land Use Management Act (16 of 2013), the CBA Map should be consulted in order to avoid environmentally sensitive areas.
- **Environmental Management Frameworks (EMF)** designate areas on a map where development can or cannot occur without an authorization, thereby streamlining the process of authorising developments. EMFs also provide management priorities.

The CBA Map, for the most part, was aligned with the Olifants and Letaba Catchment EMF (required as part of the legal process of gazetting the Mopani District Bioregional Plan). Zone G (Tzaneen / Phalaborwa Activity Corridor) falls within CBAs and ESAs, and thus approval of inappropriate land uses should avoid CBAs and ESAs within Zone G. The CBA Map can be used to inform any new EMFs.

- **Urban Open Space Systems (UOSS)** provide ecosystem services at the local level e.g. clean air, fresh water, wastewater purification, flood protection and recreational space. In some instances, a CBA Map may assist in identifying certain areas that provide ecosystem services within urban settlements. In others, the ecological concepts of the CBA Map may be carried through to UOSS, such as avoiding drainage areas & wetlands.
- **Policy guidelines:** The land use guidelines (in the Biodiversity Resource Pack) provide key policy recommendations for input into the SDF and associated Land Use Management System.

The municipality is encouraged to develop a **GIS Land Use Management Database to monitor land use changes in CBA and ESA** as part of their Land Use Management System

¹ DEAT has published (1) A Guideline Document - Strategic Environmental Assessment in South Africa (2000); and (2) Strategic Environmental Assessment Guideline - Integrated Environmental Guideline Series 4 (2007).

² Section 21j of the Spatial Planning and Land Use Management Act (16 of 2013).

Guide to integrating the Critical Biodiversity Areas (CBA) map into the Integrated Development Plan

The Biodiversity Sector Plan (as part of the published District Bioregional Plan) should be used in various multi-sectoral planning procedures to promote sustainable development, especially at the municipal level.

The Integrated Development Plan (IDP) reflects multi-sectoral planning at the municipal level. It must comply with the 'Environmental Right' of the Constitution (Section 24) and the NEMA principles (Section 2). In order to ensure environmental sustainability¹, it usually includes an Environmental Sector Plan (or Integrated Environmental Management Programme).

The Biodiversity Sector Plan provides a CBA Map and guidelines for use in developing the IDP through the SDF. The SDF indicates the location of identified projects during the 'projects phase' of the IDP, thereby integrating the two processes, including the various sector plans (e.g. transport, water). The CBA and ESA should be the spatial focus of biodiversity conservation projects identified in the projects phase e.g. eco-tourism, rehabilitation.

Part of the Environmental Sector Plan can comprise a range of environmental management tools to promote sustainability and compliance with various planning and environmental legislation. The Biodiversity Sector Plan (as part of the published Mopani District Bioregional Plan) should be used as input from the biodiversity sector into the Environmental Sector Plan

¹ IDP Guide Pack: General Overview Integrated Development Planning. Prepared by the Department of Provincial and Local Government

“ The CBA Map & guidelines can be used to guide the location and nature of development and conservation, whilst aligning with adjacent municipal SDFs. These products also promote the establishment of 'Sustainable Human Settlements' by encouraging nodal development and protecting ecosystem services/ecological infrastructure. ”

A guide to incorporating the Maruleng Biodiversity Sector Plan, as part of the Mopani District Bioregional Plan) into the IDP and SDF (adapted from the Pierce and Mader (2006)).

| IDP Phases | Basic elements in developing the SDF | Use of the Biodiversity Sector Plan (CBA Map and guidelines) |
|---|---|--|
| Phase 1: Analysis | | |
| <ul style="list-style-type: none"> – Gather all information. – Analyse information for: <ul style="list-style-type: none"> a] trends; and b] issues that can be shown on a map. – Identify needs, including normalisation after apartheid, transport etc. – Report for public comment. | <ul style="list-style-type: none"> – Biodiversity importance of land (or category on the CBA Map), current land use, agriculture, the built environment, infrastructure, transport routes, watersheds, geology etc., heritage sites, State of Environment Reporting, Strategic Environmental Assessment. <ul style="list-style-type: none"> a] trends (e.g. the direction in which the town is growing, land suitable for development); b] ii) issues (e.g. a need for housing, schools or a clinic in a certain area; protecting ecosystem services). | <ul style="list-style-type: none"> – Planners and decision-makers use the Maruleng Biodiversity Sector Plan (Mopani District Bioregional Plan) Critical Biodiversity Areas Map and guidelines to identify which areas to develop and which to leave undeveloped and conserved. |
| Phase 2: Strategy | | |
| <ul style="list-style-type: none"> – Identify vision, mission, objectives, strategies for dealing with needs, problems and issues, such as Local Economic Development (LED), poverty alleviation, the natural environment, possible projects. – Reports for public comment. | <ul style="list-style-type: none"> – Critical Biodiversity Areas Map indicates: Priority areas for conservation, opportunities and constraints on developments. – Report(s) for public comment. | <ul style="list-style-type: none"> – Plan which areas to develop and which to leave undeveloped and conserved. |

| IDP Phases | Basic elements in developing the SDF | Use of the Biodiversity Sector Plan (CBA Map and guidelines) |
|--|---|---|
| Phase 3: Projects | | |
| <ul style="list-style-type: none"> – Identify priorities, refine projects. Prioritise projects and finances, which together influence the SDF. Assess environmental impacts of projects. | <ul style="list-style-type: none"> – Critical Biodiversity Areas Map indicates areas where restoration projects or other biodiversity related projects for poverty alleviation can take place e.g. Working for Water, Green Economy etc. | <ul style="list-style-type: none"> – Identify areas for restoration projects, or other biodiversity related projects. |
| Phase 4: Integration | | |
| <ul style="list-style-type: none"> – 5-yr financial plan and programmes for capital investment, integrated LED, environment (including biodiversity), poverty alleviation, gender equity etc. – Draft IDP report for public comment. | <ul style="list-style-type: none"> – Draft report and map based on the Critical Biodiversity Areas Map with overlying infrastructure and land uses, sites for integrated projects (e.g. large scale housing development, poverty alleviation projects e.g. restoration), open spaces, urban edge, development nodes, corridors, cemeteries, waste sites, social and emergency services. – Draft SDF report and map for public comment. | <ul style="list-style-type: none"> – Provincial officials, NGOs and public to ensure that the CBA Map is upheld. |
| Phase 5: Approval | | |
| <ul style="list-style-type: none"> – Final IDP report approved based on the Critical Biodiversity Areas Map and other BSP information. | <ul style="list-style-type: none"> – Final SDF report and map approved based on the Critical Biodiversity Areas Map and other BSP information. | <ul style="list-style-type: none"> – Councillors, municipal officials, provincial officials, NGOs and the public to ensure that the CBA Map is upheld. |

The Environmental Sector Plan of the IDP

The Biodiversity Sector Plan is only one component of the Environmental Sector Plan (or Environmental Management Programme), which covers a range of environmental management issues e.g. control of wastewater discharge, air pollution, land degradation and soil erosion. The Environmental Sector Plan of the IDP comprises projects or programmes that aim at achieving environmental sustainability. These can be mechanisms or tools for ensuring the protection of CBA and ESA. Note that the projects list below is not an exhaustive list of all potential environmental projects.

State of the Environment Reporting: Data Collection and Management

A key mechanism for monitoring the state of biodiversity is a State of Environment Report (SoER). The Critical Biodiversity Areas Map can be used to inform the SoER as it provides information on the extent of PA, CBA and ESA in the Municipality (Refer to Table 12)

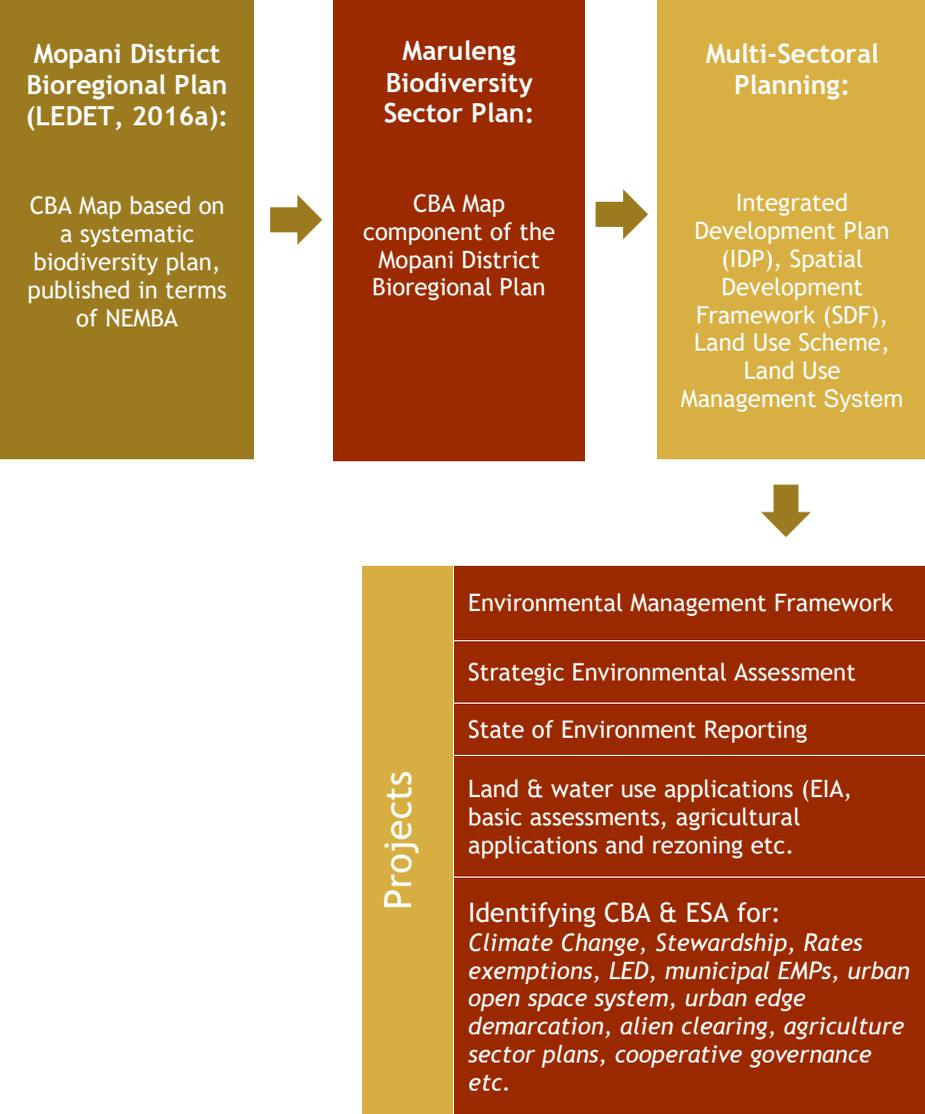
Data collection & management in relation to the CBA map

In order to monitor the loss of CBA and ESA, the municipality is encouraged to develop a **GIS Land Use Management Database**. The GIS Land Use Management Database should record the extent (ha) loss of natural habitat within each CBA Map category at the time land development applications are approved.

Applicants should therefore submit the final approved development area (ha) as a GIS shapefile (map) for inclusion into the GIS database, which should form part of the municipal Land use Management System.

This will also allow the Municipality to evaluate future applications and to assist with monitoring changes in the CBA Map (as part of the Mopani District Bioregional Plan).

Figure 1. Diagram indicating integration of the Biodiversity Sector Plan (BSP), as part of the Mopani District Bioregional Plan, into municipal planning. The SDF is the tool that integrates all sector plans in the IDP process.



The following indicators¹ are recommended for monitoring the state of biodiversity in relation to the CBA Map:

- a] Hectares/percentage loss of CBA and ESA over time.
- b] Hectares/percentage of CBA and ESA that are formally protected.
- c] Hectares/percentage of CBA and ESA that are appropriately zoned for protection.
- d] Extent (ha) of invasive alien plant clearing, wetland and riparian rehabilitation etc.
- e] Number/proportion of threatened species and ecosystems.

The biodiversity indicators identified in the published Mopani District Bioregional Plan must be used in municipal SoERs.

¹ Refer *National DEAT Guidelines: National Core Set of Environmental Indicators for state of environment reporting in South Africa (CSIR, 2001)*.

The Mopani District Bioregional Plan (LEDET, 2016a) recommends the development of a District-wide GIS database to manage approved land development applications, within each local municipality. The database should be updated annually to track the loss of biodiversity.



award

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.

P O Box 1919, Hoedspruit 1380, Limpopo, South Africa
T 015-793 0503 W award.org.za
Company Reg. No. 98/03011/08
Non-profit org. Reg. No. 006 - 821

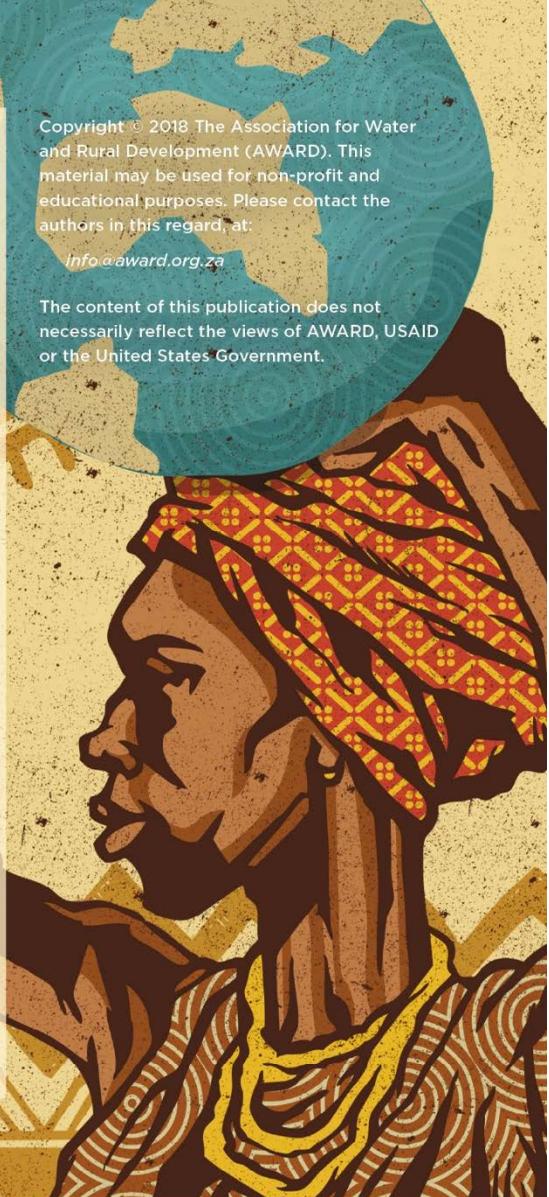
About USAID: RESILIM-O

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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info@award.org.za

The content of this publication does not necessarily reflect the views of AWARD, USAID or the United States Government.



Acknowledgements: Project funding and support

The USAID: RESILIM-O project is funded by the U.S. Agency for International Development under USAID/ Southern Africa RESILIENCE IN THE LIMPOPO BASIN PROGRAM (RESILIM). The RESILIM-O project is implemented by the Association for Water and Rural Development (AWARD), in collaboration with partners. Cooperative Agreement nr AID-674-A-13-00008



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