



Mapungubwe Cultural Landscape World Heritage Site

ENVIRONMENTAL MANAGEMENT FRAMEWORK

Final

November 2014

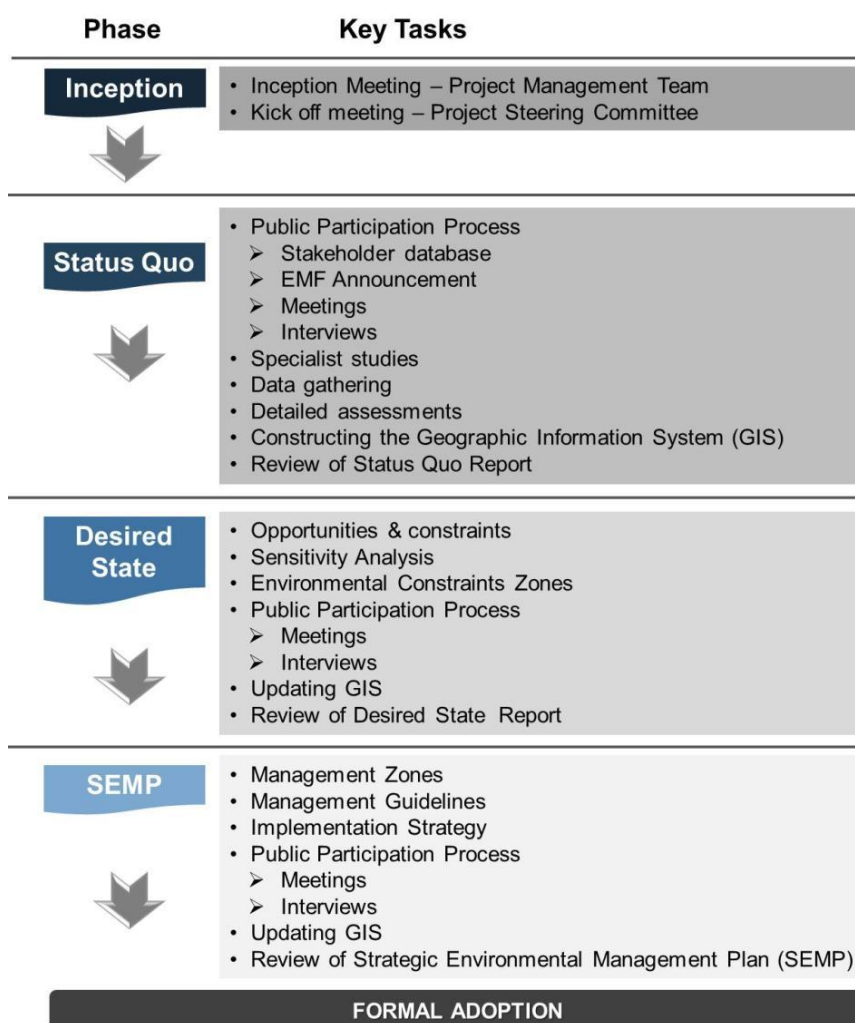




EXECUTIVE SUMMARY

The Department of Environmental Affairs (DEA), in collaboration with the Limpopo Department of Economic Development, Environment and Tourism (LEDET) and South African National Parks (SANParks), embarked on a process to develop an Environmental Management Framework (EMF) for the Mapungubwe Cultural Landscape World Heritage Site (MCLWHS). Nemai Consulting was appointed to prepare the MCLMWHS EMF.

An EMF is a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific activities may best be undertaken and to offer performance standards for achieving and maintaining the desired state of that area. The EMF development approach, which is outlined in the figure to follow, is consistent with the requirements stipulated in the National Environmental Management Act (NEMA) (Act No. 107 of 1998) and the EMF Regulations (GN No. R547 of 18 June 2010).



This report represents the Strategic Environmental Management Plan (SEMP) of the EMF process and serves to plot the way forward for attaining the desired state. The SEMP bridges the divide between the current state of the environment in MCLWHS and the desired state. It aims to achieve this by managing the sustainable utilisation of land through Management Guidelines and by controlling the activities that may impact on environmental attributes in specific geographical areas.

The Desired State phase of the EMF was concluded with the delineation of Environmental Management Zones (EMZs). Each of these zones represents a specific demarcated area that requires active control to ensure that its potential is realised. The EMZs depict the assimilated sensitivity maps that were integrated with the development pressures and trends, opportunities, constraints and public aspirations.

To facilitate the attainment of the desired state for these EMZs, guidelines are required that stipulate compatible activities that support the vision for these zones and specific management requirements and objectives that need to be adhered to when development is proposed in a zone. The SEMP also attempts to manage activities in the EMZs linked to the listing notices (GN no. R544, R545 and R546) of the Environmental Impact Assessment (EIA) Regulations of 2010, in accordance with Section 24 of NEMA

The SEMP culminates in a strategy for the implementation of the EMF, which consists of the following:

- ❖ A pragmatic approach to the implementation of the MCLWHS EMF based on the commonly adopted management system of a Plan-Do-Check-Act cycle;
- ❖ Linkages with other Planning and Policy Instruments;
- ❖ Striving towards the Desired State;
- ❖ Giving Effect to the EMF –
 - EMF Enabling Institutional Arrangements;
 - EMF Implementation Duties;
 - EMF Functionality;
 - EMF Review;
- ❖ Management Framework for Strategic Issues & Priorities; and
- ❖ Monitoring, Evaluation & Review

TITLE AND APPROVAL PAGE

Title: *Mapungubwe Cultural Landscape World Heritage Site
Environmental Management Framework: Strategic Environmental
Management Plan*

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Status of Report: *FINAL*

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AMENDMENTS PAGE


Date	Nature of Amendment	Amendment No.	Signature
Sept 2014	Draft for Public Review	0	
Nov 2014	Final for Client Submission	1	

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LIST OF ACRONYMS & ABBREVIATIONS

CDF	Conservation Development Framework
CLWHS	Cultural Landscape World Heritage Site
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DWS	Department of Water and Sanitation
ECZ	Environmental Constraint Zone
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMZ	Environmental Management Zone
FEPA	Freshwater Ecosystem Priority Area
GIS	Geographical Information System
GMTFCA	Greater Mapungubwe Transfrontier Conservation Area
GN	Government Notice
LEDET	Limpopo Department of Economic Development, Environment and Tourism
MCLWHS	Mapungubwe Cultural Landscape World Heritage Site
MNP	Mapungubwe National Park
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEMPA	National Environmental Management: Protected Areas Act (Act 57 of 2003)
RDM	Resource Directed Measures
SANParks	South African National Parks
SDCs	Source Directed Controls
SEMP	Strategic Environmental Management Plan
WWTW	Waste Water Treatment Works

DEFINITIONS / GLOSSARY OF TERMS

Attributes

The quality ascribed to an element in the environment that distinguishes it in character, form or nature from other elements in the environment.

Management Guidelines

Specific provisions applied in the management of each individual attribute or activity associated with the respective Management Zones.

Environment

The surroundings in which humans exist and which comprise:

- *The land, water and atmosphere of the earth;*
- *Micro-organisms, plant and animal life;*
- *Any part or combination of a) and b) and the interrelationships among and between them; and*
- *The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.*

Environmental Feature

Elements and attributes of the biophysical, economic and social environment that comprise a data category.

Environmental Management Framework (EMF)

The study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific activities may best be practiced and to offer performance standards for maintaining appropriate use of such land.

Geographical Areas

A logical spatially demarcated area defined by an EMF as being sensitive, requiring specific management intervention to ensure its future environmental integrity.

Management Zones

Specific demarcated geographical area, represented spatially on a map illustrating a specific sensitive feature which needs to be managed in a pro-active and dedicated way.

THE MAPUNGUBWE CULTURAL LANDSCAPE

The Mapungubwe Cultural Landscape has been occupied by diverse peoples, over thousands of years. Between about 900 and 1300 it was the centre of the first powerful indigenous kingdom in Southern Africa, and laid the foundation for subsequent settlement patterns in the region.

The landscape retains evidence of human society, settlement and interaction: the lives, values and belief systems of those who have inhabited it; the interactions between inhabitants and with those with whom they came into contact; and of the interaction between people and nature, over time.



The Mapungubwe National Park was established in 1996
 The Mapungubwe Cultural Landscape was declared as a National Heritage Site in 2001
 The Mapungubwe Cultural Landscape was inscribed on UNESCO's World Heritage List in 2003

INTRODUCTION

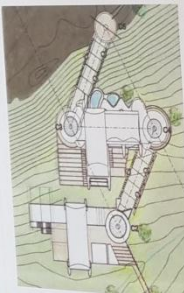
CONSTRUCTION OF THE MAPUNGUBWE INTERPRETIVE CENTRE

South African National Parks (SANParks) planned the development of an Interpretive Centre in Mapungubwe National Park to celebrate the significance and cultural history of this World Heritage Site.

The construction of the Mapungubwe Interpretive Centre was funded by the Department of Environmental Affairs Social Responsibility Programme under the auspices of the South African Government's Expanded Public Works Programme (EPWP). The EPWP is aimed at providing poverty- and income relief through temporary work for the unemployed to carry out locally useful activities.

The project was structured to be labour intensive creating 160 temporary jobs for unemployed people from local communities surrounding the park for a period of 27 months, achieving 47 816 person-days. During the construction process, six SME's were created.

In 2009, the Centre received the accolade for the World Building of the year award at the World Architecture Festival held in Spain.



Design of the Building
 During a closed competition for architectural designs, SANParks selected the proposal from Leratohl Rich Architects. The concept design of the building revolves around a series of vaults springing from buttresses, connected by walkways that create a zigzagged ramped route through the complex. The type of vaulting, which made up the bulk of the design proposal, is a traditional Mediterranean technique which is not in common use today. This 700-year old Mediterranean tradition had to be adapted for the South African context.

Architecture and development met in a labour-intensive programme to employ local workers with minimal skill to make both the materials for the building and the building itself.



Making a Tile

Manufacturing of the tiles

The choice of unreinforced tile-vaults led to the first major decision of the project to replace the traditional use of fired-clay bricks with less energy intensive stabilised earth tiles manufactured on site. Sixty local people were employed for a period of a year to manufacture in excess of 200,000 tiles. The tiles were made of local earth and sand mixed with 5% cement and pressed using a modified Hydratorm block press. Using a hand-press, tiles of sufficient strength for vaulting were manufactured one by one and stacked on site.



Stacks of tiles

Designing & Construction of the Vaults

Three types of vaults were used during construction:

- Rectangular large span vault
- Domed vault
- Shallow barrel vault

Design of the Vaults

Tile vaults rely on fast-setting gypsum mortar and thin tiles laid on edge. The tiles were stuck together using limited structural formwork and geometrical guides helped to define the shape during construction. The rapid set of the mortar and the structural shape allowed the mason to span between guides, relying on structural action to develop while the building was under construction. The project incorporates ten masonry vaults, ranging in span from 5 meters to 20meters, and a similar number of regular barrel vaults and domes.



Tiles laid with gypsum



Construction of vault with formwork in place

Construction of the Vaults

Over the eight-month course of building the vaults, there were nearly a hundred people trained in the tile-vaulting construction technique. The knowledge and experience of using a trowel was the basic skill required, but the range of new materials, especially gypsum with a setting time of less than a minute in the temperature of Mapungubwe, really tested even basic trowel skills. Construction in a curve or arch, with minimal forms and guidance, meant that the worker had to have an eye for the shape. Vaults were covered with water proof materials, and clad with local stone which added a stabilizing load to the vaults and integrated it into its surroundings.

Award Winning Mapungubwe Interpretive Centre

Unemployed people from the local communities played an important role to build this world class facility, and through training provided the skills to construct highly complex vaults and roofs. The Building has won seven awards to date for various aspects including architecture, structural design, and sustainability.



Mapungubwe Interpretive Centre

1 INTRODUCTION

1.1 Background

The Department of Environmental Affairs (DEA), in collaboration with the Limpopo Department of Economic Development, Environment and Tourism (LEDET) and South African National Parks (SANParks), embarked on a process to develop an Environmental Management Framework (EMF) for the Mapungubwe Cultural Landscape World Heritage Site (MCLWHS). Nemai Consulting was appointed to prepare the MCLMWHWS EMF.

According to the EMF Regulations (Government Notice No. R547 of 18 June 2010), an EMF is a *study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific land uses may best be practiced and to offer performance standards for maintaining appropriate use of such land*. An EMF includes a framework of spatially represented information connected to significant environmental (i.e. ecological, social and economic) parameters, such as ecology, hydrology, infrastructure and services. A key function of an EMF is to proactively identify areas of potential conflict between development proposals and critical/sensitive environments (DEAT, 1998).

As shown in **Figure 1**, the two major components of the MCLWHS EMF will entail Public Participation and Technical Development. Once the EMF is finalised, it will undergo promulgation and gazetting in order to render it as a formal decision-making tool in the environmental and planning arenas.

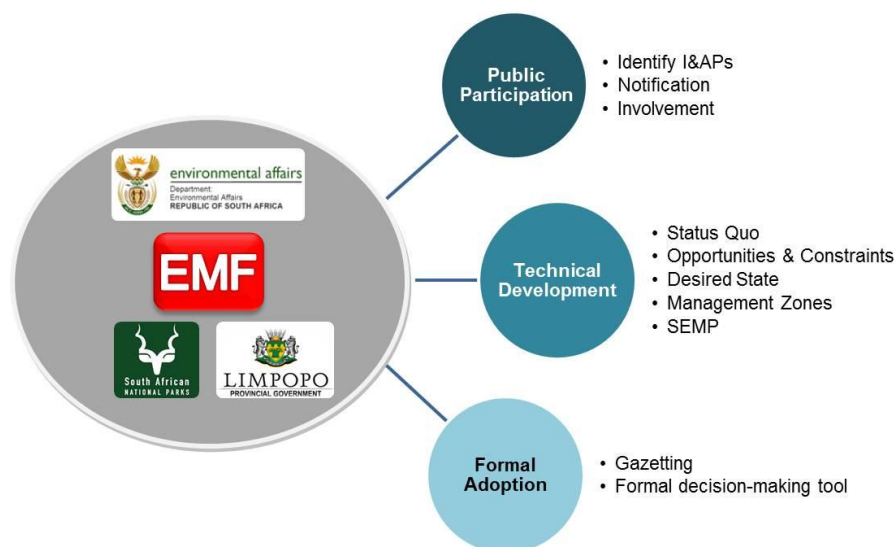


Figure 1: EMF Components

As part of the MCLWHS EMF development process, the following deliverables will be produced: Status Quo Report, Desired State Report and Strategic Environmental Management Plan (SEMP) (see insert).

This report represents the SEMF (**Volume 3**) of the EMF process and serves to plot the way forward for attaining the desired state.

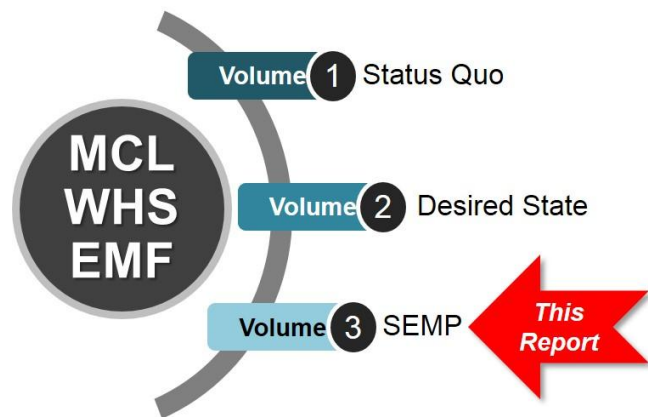


Figure 2: MCLWHS EMF Building Blocks

1.2 EMF Study Area

The EMF Study area includes the core of the MCLWHS as well as the 2009 proclaimed buffer zone (**Figure 4**).

Mapungubwe (meaning 'hill of the jackal') is situated in the northernmost district in Limpopo (see **Figure 3**). It lies on the international borders of South Africa, Zimbabwe and Botswana. Mapungubwe falls predominantly within the Vhembe District Municipality and the Musina Local Municipality. A small part of the buffer zone in the south-western corner is situated in the Capricorn District Municipality and the Blouberg Local Municipality.

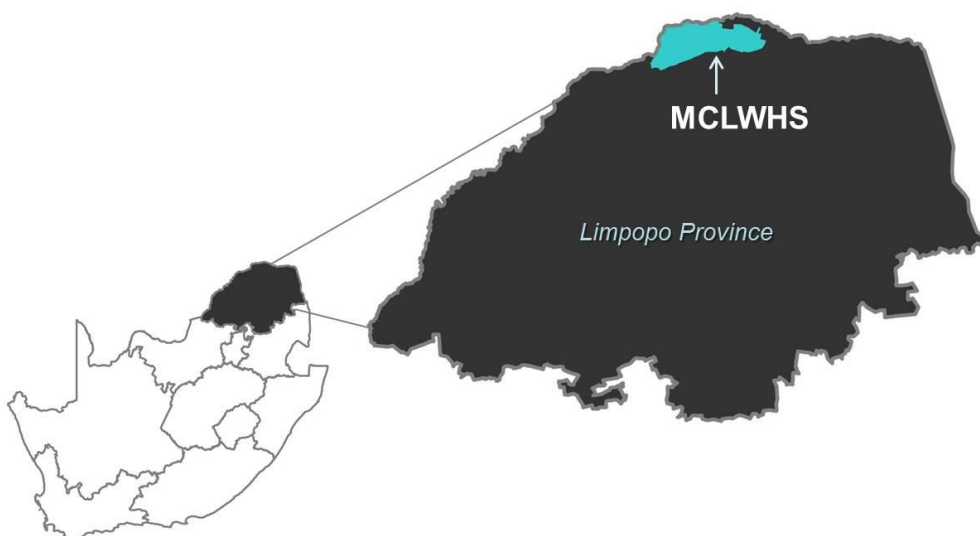


Figure 3: MCLWHS & Buffer National and Provincial Geographical Context

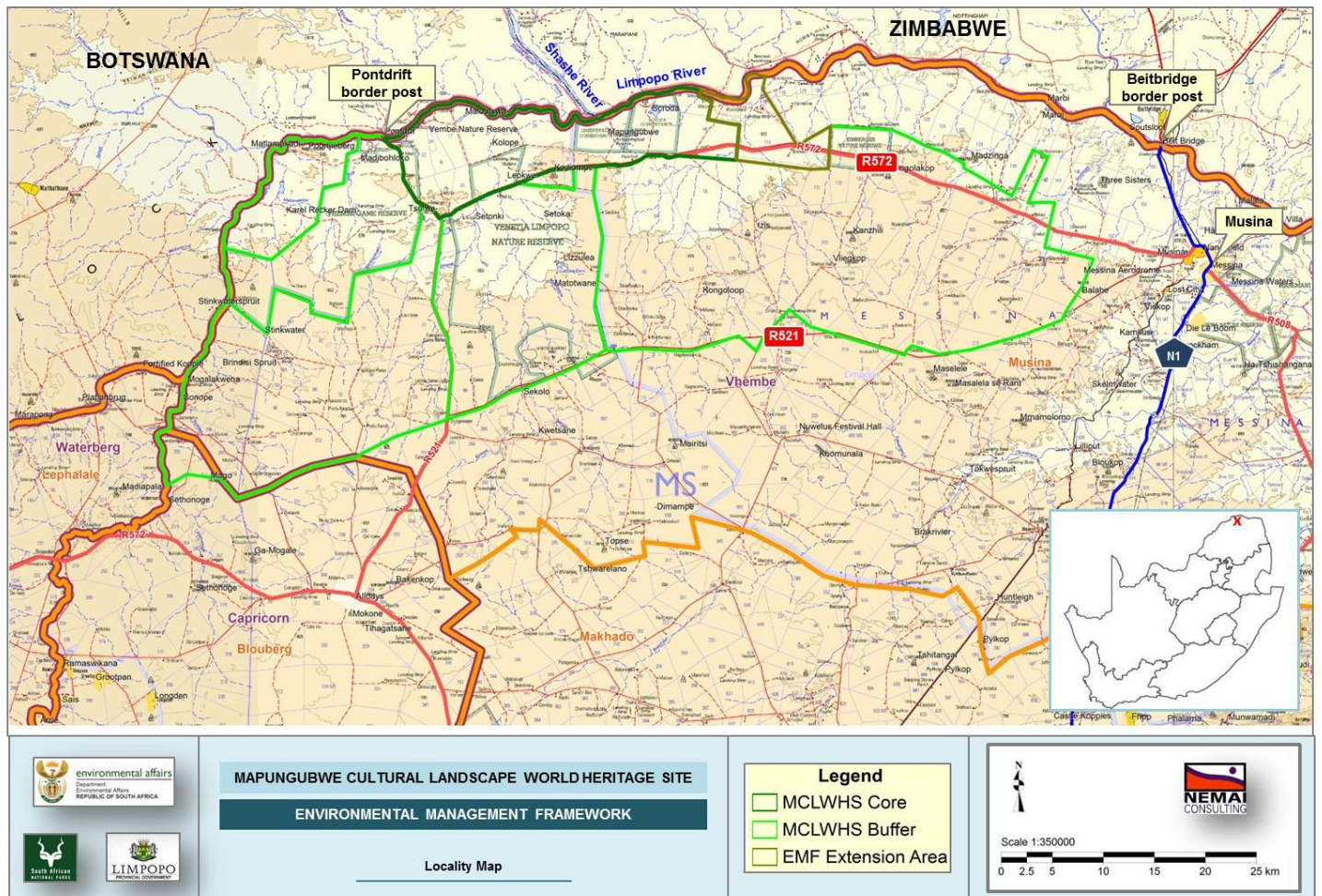


Figure 4: Locality Map – EMF Study Area

The coordinates of the MCLWHS are as follows:

- ❖ NW corner 22°12'56"S 29°08'22"E;
- ❖ NE corner 22°10'10"S 29°29'04"E;
- ❖ SE corner 22°14'15"S 29°31'35"E; and
- ❖ SW corner 22°17'40"S 29°12'00"E.

1.3 MCLWHS Boundaries

1.3.1 Core Area

The core of the WHS is 28 168.66 ha in extent and is made up of 22 original farms (DEA, 2013). According to the WHS nomination dossier (DEAT, 2002), the boundaries of the MCLWHS correspond to the Vhembe-Dongola National Park which was later re-named to the Mapungubwe National Park (MNP). These boundaries are as follows (**Figure 4**):

- ❖ North - Limpopo River;
- ❖ West - Alldays-Pont Drift road;
- ❖ South - Messina-Pont Drift road and the boundary of the farm Riedel; and
- ❖ East - the boundary of the farm Riedel and the western side of the irrigated lands on the farm Weipe.

1.3.2 2009 Proclaimed Buffer Zone

The 2009 proclaimed buffer zone is significant in size as it covers approximately 237 100 ha of land on the western, southern and eastern part of the core (DEA, 2013). The buffer zone comprises the following (**Figure 5**):

- ❖ Venetia-Limpopo Nature Reserve;
- ❖ Vhembe Nature Reserve;
- ❖ Limpopo Valley Game Reserve; and
- ❖ Privately owned land in the north-western and south-western part of the buffer zone.

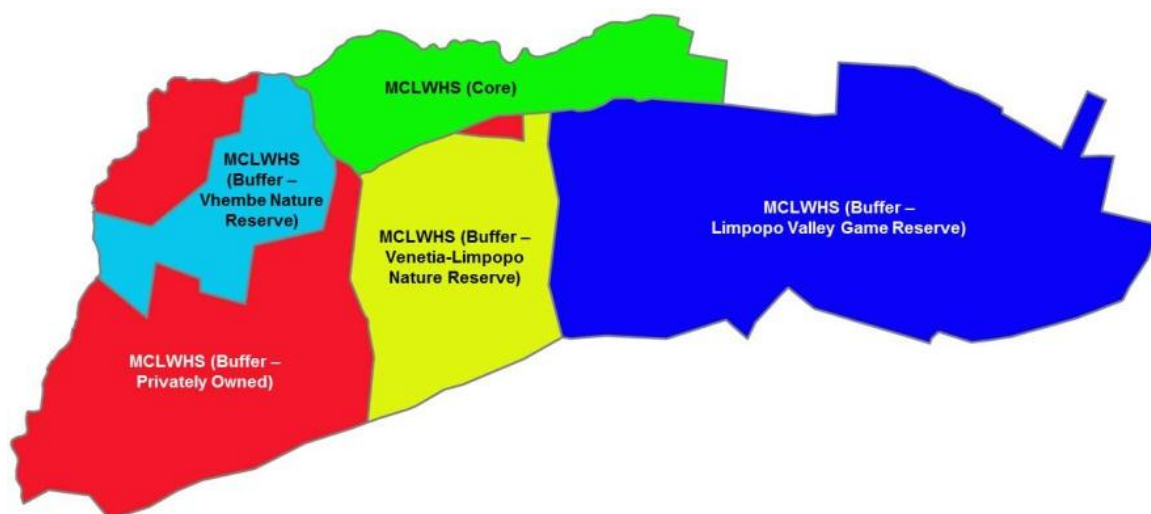


Figure 5: Core Area and Buffer Zone of MCLWHS

1.3.3 Proposed New Buffer Zone

A study was commissioned to review the size of the 2009 proclaimed buffer and align land uses to the promotion of conservation and biodiversity in and around the core of the MCLWHS. According to the audit of land use activities (DEA, 2013), there is a strong view that the 2009 Proclaimed buffer zone is too large and therefore not practical for a coherent environmental management plan as well as for a balanced approach considerate of the

South African development priorities around the world heritage property, in the context of competing land uses.

The new buffer zone which is 104 800ha in size is significantly smaller than the existing buffer zone which is currently 237 000ha in size. **Figure 6** shows the proposed new buffer zone that is outlined in blue. On 26 June 2014, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) approved the new buffer zone boundaries.

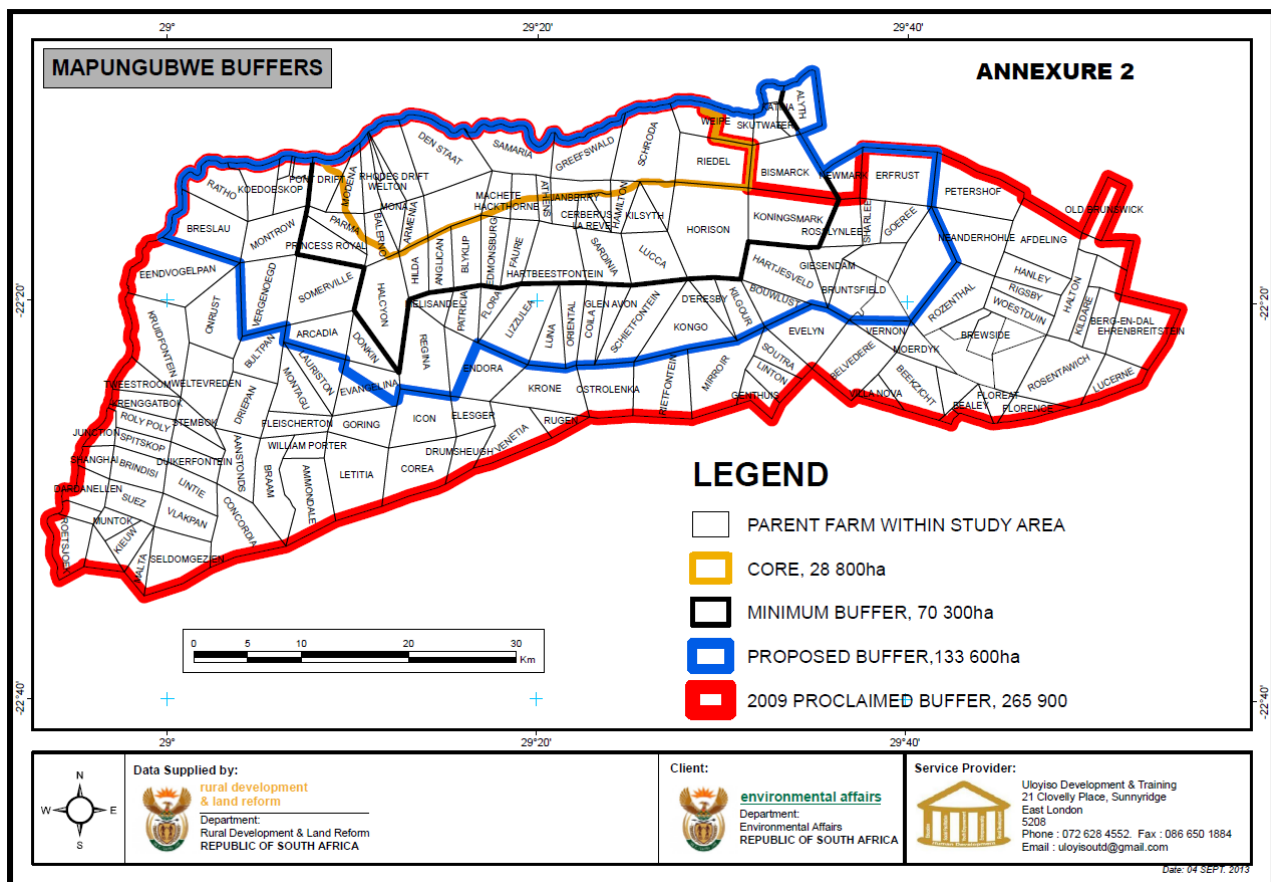


Figure 6: Proposed New Buffer Zone of MCLWHS

1.3.4 Extended area

No buffer zone exists to the east of the WHS, where threats exist due to current and proposed land uses (notably mining and to a lesser extent agriculture). The EMF Study area was thus extended to include the gap between the current core area and Vele Colliery (as shown in **Figure 7**).

- ❖ The extended area incorporates the following properties:
- ❖ Bismarck 116 MS;

- ❖ Portion 1 of Newmark 121 MS;
- ❖ Katina 805 MS;
- ❖ Skutwater 115 MS; and
- ❖ A portion of the Remainder of Weipe 47 MS, as well as Portions 2, 3, 4, 5 and 6 of Weipe 47 MS.

It should be noted that the extended area forms part of the new buffer zone.

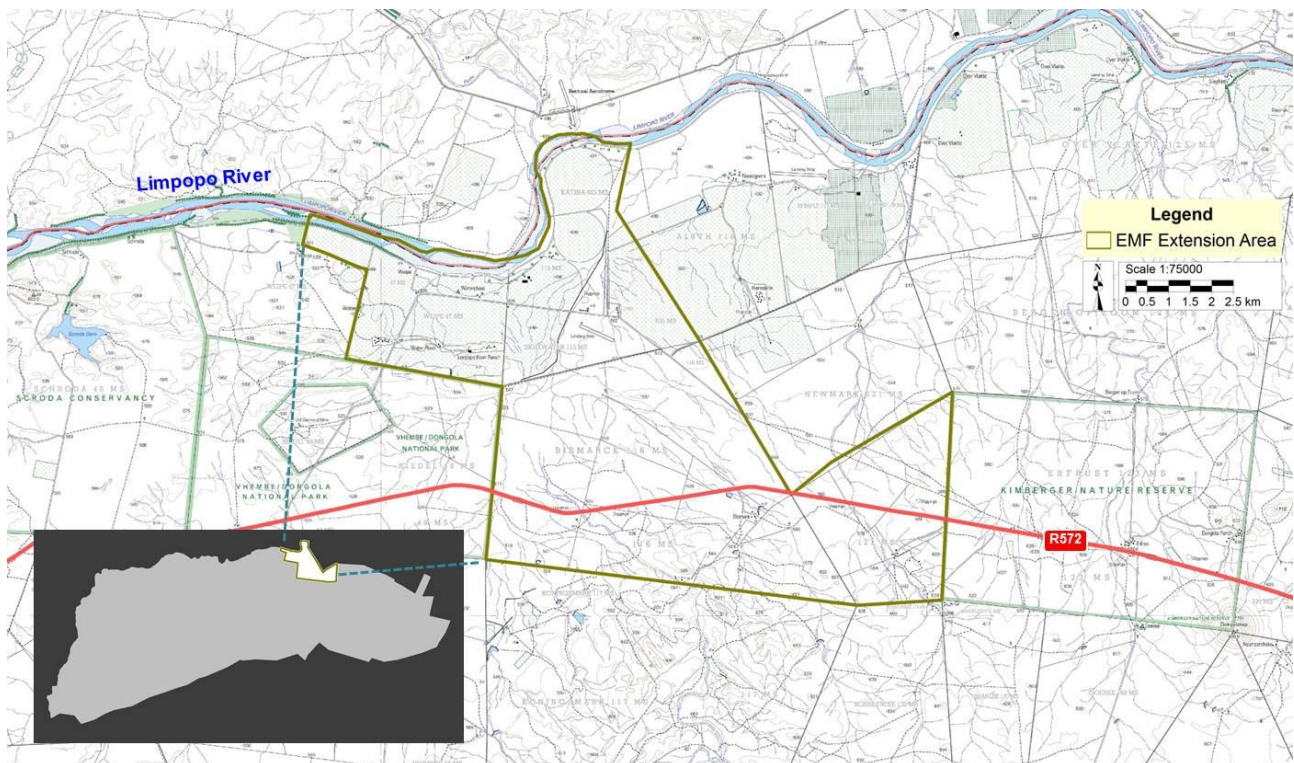


Figure 7: MCLWHS EMF Extension Area

1.4 EMF Objectives

As the norm, an EMF aims to achieve the following:

- ❖ Promoting sustainability;
- ❖ Securing environmental protection; and
- ❖ Promoting cooperative environmental governance.



Within this context, the primary objectives of the MCLWHS EMF include the following:

1. To facilitate decision-making to ensure sustainable management of significant environmental features in the WHS and its buffer zone;
2. To provide strategic guidance on environmental, economic and social issues in the WHS and its buffer;
3. To identify environmentally sensitive areas;
4. To identify the environmental and development opportunities and constraints;
5. To assess the economic and environmental potential of the area;
6. To provide a decision support system in respect of environmental issues and priorities in the EMF area; and
7. To include existing policies as frameworks for establishing values, guidelines and standards for future developments.

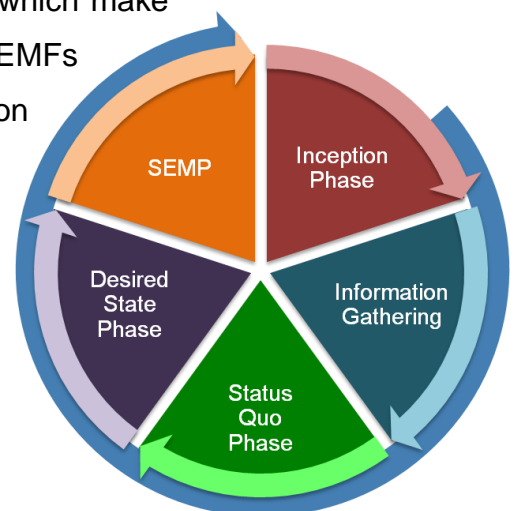
In its formal context, the EMF that is adopted by the Minister or MEC will be taken into consideration when reviewing applications for environmental authorisation in or affecting the areas to which the EMF applies.

1.5 EMF Development Approach

The EMF development approach is consistent with the requirements stipulated in the following primary legislation that governs the process:

- ❖ The National Environmental Management Act (Act 107 of 1998) (NEMA), in particular Sections 2, 23 and 24; and
- ❖ The EMF Regulations (GN No. R547 of 18 June 2010), which make provision for the development, content and adoption of EMFs as a proactive environmental management decision support tool.

In addition, the MCLWHS EMF also conforms to the Guideline on Environmental Management Frameworks in terms of the EMF Regulations of 2010, Integrated Environmental Management Guideline Series 6 (DEA, 2010).



1.6 EMF Methodology

An overview of the methodology to develop the EMF is broadly presented in Figure 8.

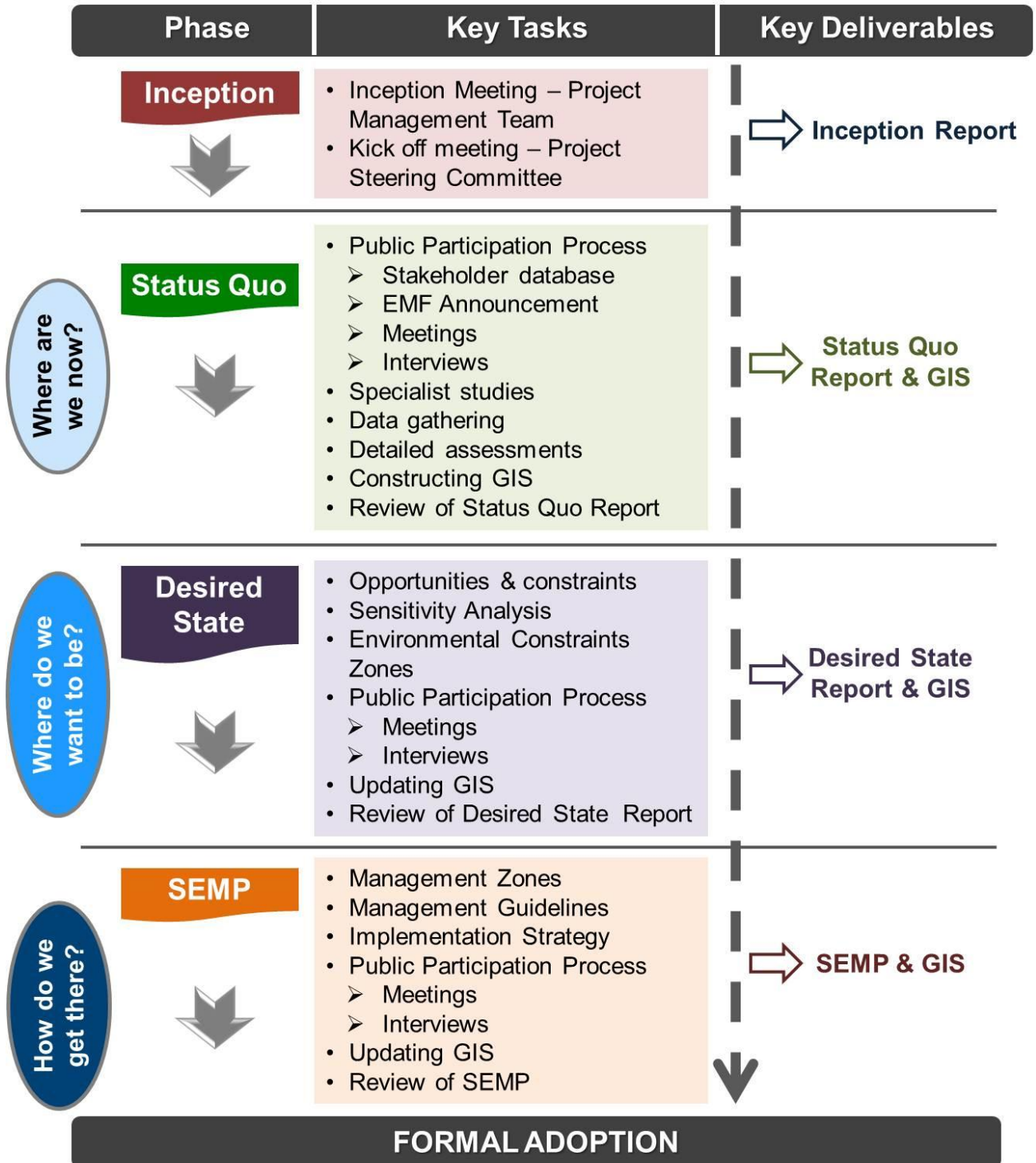
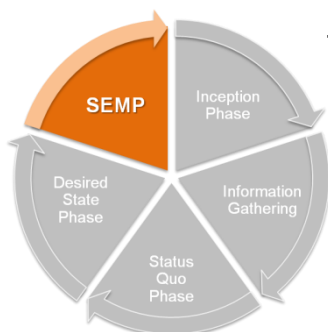


Figure 8: Broad overview of EMF Development Process

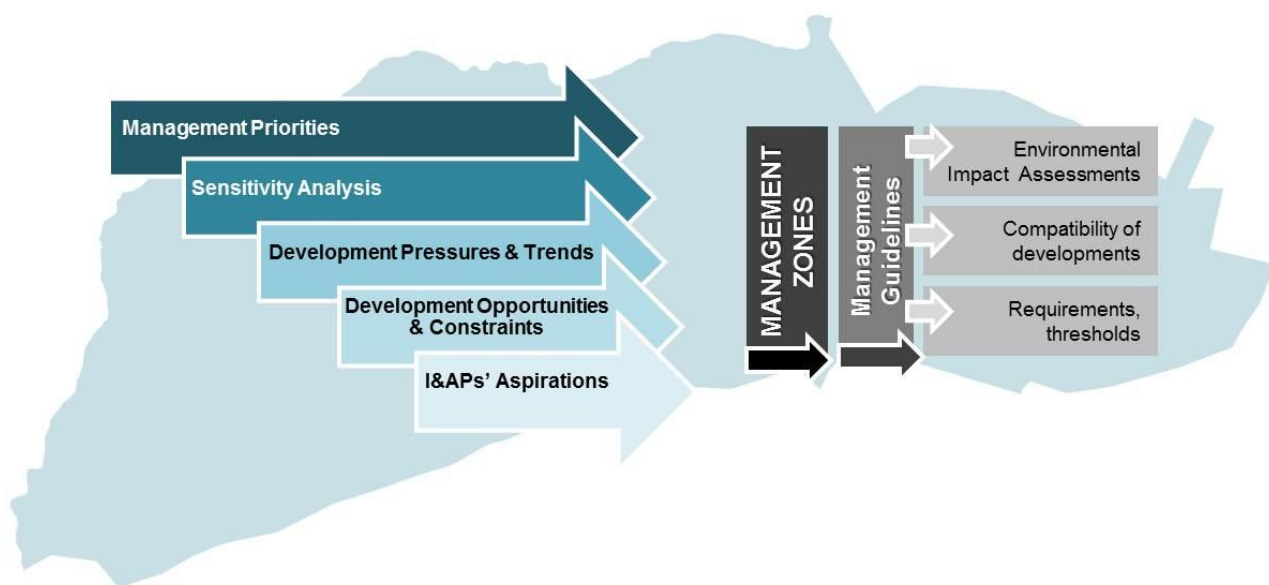
1.7 Culmination of the EMF Development Process



The SEMP bridges the divide between the current state of the environment and the desired state. It aims to achieve this by managing the sustainable utilisation of land through Management Guidelines and by controlling the activities that may impact on environmental attributes in specific geographical areas.

The Desired State phase of the EMF (refer to MCLWHS EMF Volume 2: Desired State Report) was concluded with the delineation of Environmental Management Zones (EMZs). Each of these zones represents a specific demarcated area that requires active control to ensure that its potential is realised. The EMZs depict the assimilated sensitivity maps that were integrated with the development pressures and trends, opportunities, constraints and public aspirations.

To facilitate the attainment of the desired state for these EMZs, guidelines are required that stipulate compatible activities that support the vision for these zones and specific management requirements and objectives that need to be adhered to when development is proposed in a zone. The SEMP also attempts to manage activities in the EMZs linked to the listing notices (GN no. R544, R545 and R546) of the Environmental Impact Assessment (EIA) Regulations of 2010, in accordance with Section 24 of NEMA.





MANAGEMENT GUIDELINES



SECTION 2

2 MANAGEMENT GUIDELINES

Management Guidelines are measures and objectives that promote the realisation of the desired state, as well as requirements that need to be taken into consideration when contemplating development within the EMZs. The Management Guidelines are primarily based on the following:

- ❖ Environmental management priorities in the EMF study area;
- ❖ Existing statutory and regulatory provisions;
- ❖ Existing policies, strategies, plans and programmes of various government departments;
- ❖ Findings of specialist studies;
- ❖ Outcomes of public participation; and
- ❖ Best practices.

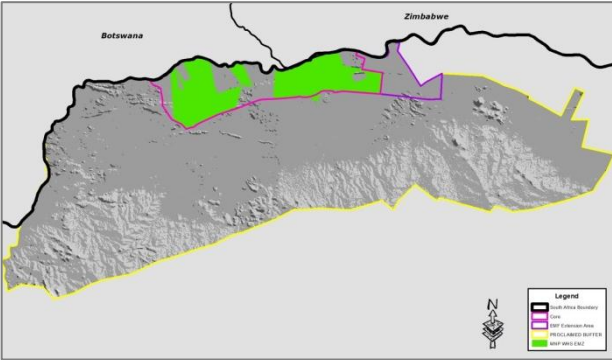
As stated in the EMF Guidelines (DEA, 2010), the Management Guidelines are not prescriptive regarding land use and do not indicate which land uses must occur in which areas. Rather, the guidelines indicate specific minimum environmental requirements and performance criteria, which need to be abided by and satisfied before approval of a development application should be considered.

The Management Guidelines for each EMZ are displays in the sub-sections to follow according to the format displayed in **Table 1**.

Table 1: Management Guidelines Framework

ENVIRONMENTAL MANAGEMENT ZONE: _____			
Mapped Management Zone	Authorities	Desired State	
<i>Relevant to the management of environmental attribute(s)</i>	<i>Authorities with jurisdiction over environmental attributes in EMZ.</i>	<i>Statement(s) pertaining to the future desirable state of the EMZ or its associated environmental attributes. Depicted in EMZ.</i>	
Management Priorities	<i>Based on the environmental status, issues, constraints and opportunities.</i>		
Management Guidelines	<i>Specific management measures, objectives and requirements related to environmental attributes and the overall EMZ.</i>		
Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<i>Activities/developments that promote and are supportive of the desired state and management objectives of the EMZ, and that need to be encouraged.</i>	<i>Activities/developments that are in conflict with the desired state and management objectives of the EMZ, and that need to be discouraged.</i>	<i>Quantitative /qualitative description of what is to be achieved</i>	<i>Means of measuring achievement of targets</i>

ENVIRONMENTAL MANAGEMENT ZONE: Mapungubwe National Park & World Heritage Site

Mapped Management Zone	Lead Authorities	Desired State
	<ul style="list-style-type: none"> ▪ DEA ▪ SANParks 	<ul style="list-style-type: none"> ▪ The Mapungubwe National Park (MNP) and WHS is to be managed in accordance with the Management Plan developed for the period 2013 – 2018. This Plan was authorised in terms of Sections 39 and 41 of the National Environmental Management: Protected Areas Act (NEMPA) (Act 57 of 2003) and chapter 4 of the World Heritage Convention Act (Act 49 of 1999). ▪ The programmes contained within the Management Plan (SANParks, 2013) are designed to achieve the desired state for the park and focus primarily on the conservation of the unique cultural-historical and biodiversity characteristics of the area, including the status of the park as a World Heritage Site and a Transfrontier Conservation Area ▪ Vision – “Mapungubwe Cultural Landscape will be managed and developed to conserve its cultural heritage and biodiversity for all.”

Policies	Strategies	Plans & Programmes	Implementation Mechanisms
<ul style="list-style-type: none"> ▪ SANParks buffer zone policy. 		<ul style="list-style-type: none"> ▪ MNP & WHS Management Plan (SANParks, 2013) ▪ Zonation Plan 	<ul style="list-style-type: none"> ▪ Management Plan programmes ▪ Environmental Management System ▪ Authorisation of related listed activities in terms of the EIA Regulations (2010). ▪ Development permits issued in terms of NEMPA. ▪ SANParks may impose conditions in addition to (but consistent with) conditions set by other authorities and legislation. ▪ MNP Rules

<p>Management Priorities</p>	<ul style="list-style-type: none"> ▪ Support and facilitate land planning and practices that safeguard and enhance the following: <ul style="list-style-type: none"> ○ WHS Outstanding Universal Values; ○ Cultural heritage; ○ Biodiversity values; ○ Objectives of the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA). ▪ DEA to develop a policy for the MCLWHS buffer zone. ▪ Consolidate park and produce conservation development framework (CDF). ▪ Areas suitable for proclamation as wilderness under NEMPA need to be identified, and their formal proclamation pursued where possible. ▪ Maintain working relationships between the various spheres of government to ensure a collaborative effort to conserve MNP and WHS and its buffer zone. ▪ Facilitate private public partnerships within MNP. ▪ Facilitate environmental / cultural education and contribute to environmental awareness ▪ Resolution of land claims. Amongst others, adhere to National Cabinet decision in 2002 regarding the settlement of restitution claims in protected areas, World Heritage sites and State forests. This framework integrates both NEMA and Restitution of Land Rights Acts. After the settling of a claim SANParks and the land claimants must consider entering into an agreement which provides a framework for their future relationship. ▪ Integration with Institutional Arrangements of the GMTFCA. ▪ Develop a Climate Change Strategy for the MNP.
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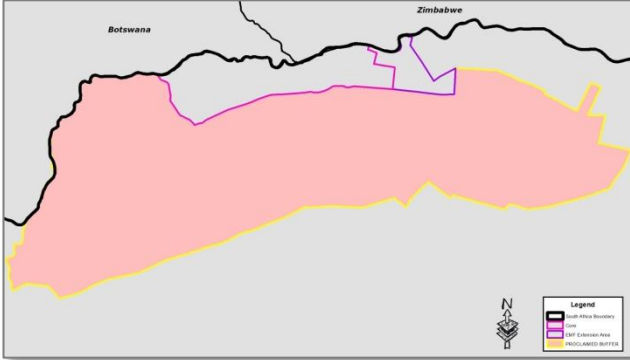
<p>Management Guidelines</p>	<ul style="list-style-type: none"> ▪ Activities to adhere to the MNP and WHS Management Plan (SANParks, 2013). ▪ Activities to comply with the Zoning Plan, which is based on the park’s biophysical, heritage and scenic
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	<p>resources, as well as current and planned infrastructure and tourist routes / products.</p> <ul style="list-style-type: none"> ▪ Activities to support programmes listed in the Strategic Plan of the park's Management Plan (SANParks, 2013), which are grouped into the following categories: <ul style="list-style-type: none"> ○ Bioregional; ○ Biodiversity; ○ Tourism; ○ People and conservation; and ○ Effective park management. ▪ Developments and significant activities to be screened against enviro-legal requirements and to be presented to Park Forum and advisory committee. ▪ In terms of Government Notice No. R546 of 18 June 2010, DEA or LEDET (depending on lead authority status) to review and comment on listed development applications that are within 10km of the WHS within RSA borders. ▪ Where an EIA is not legally required for activities within the Park, consideration should be given to developing an Environmental Management Programme to address the possible impacts associated with an activity. ▪ Specialist disciplines required (where relevant) – <i>Terrestrial Ecology (and associated sub-disciplines), Aquatic Ecology, Visual, Socio-economic, Social, Heritage, Geotechnical, Geohydrology, etc. (as required)</i>
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Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<ul style="list-style-type: none"> ▪ <i>Dictated by Zoning Plan.</i> ▪ <i>No un-authorized development in MNP and WHS.</i> ▪ <i>Development in buffer zones discussed under separate Management Zone.</i> 		<p><i>To be aligned with target and indicators contained in Management Plan for the park.</i></p>	



ENVIRONMENTAL MANAGEMENT ZONE: Buffer Zone

Mapped Management Zone	Lead Authorities	Desired State
	<ul style="list-style-type: none"> ▪ DEA ▪ LEDET ▪ SANParks 	<ul style="list-style-type: none"> ▪ Maintain buffer zone for the MCLWHS to manage conflicts between external and internal management objectives, and to protect the core area and its Outstanding Universal Values that is afforded formal protection. ▪ Assist adjacent communities to secure appropriate and sustainable benefits from the Park and buffer zone.

Policies	Strategies	Plans & Programmes	Implementation Mechanisms
<ul style="list-style-type: none"> ▪ SANParks buffer zone policy. 			<ul style="list-style-type: none"> ▪ Authorisation of related listed activities in terms of the EIA Regulations (2010). ▪ SANParks may impose conditions in addition to (but consistent with) conditions set by other authorities and legislation.

Management Priorities	<ul style="list-style-type: none"> ▪ DEA to develop a formal policy and operational guidelines for the MCLWHS buffer zone. ▪ Implications of buffer zone to be clearly documented and presented to affected landowners and tenants. ▪ Promote broad based and sustainable economic activities that support tourism and conservation. ▪ Support and facilitate land planning and practices that enhance the overall objectives of the Greater Mapungubwe Transfrontier Conservation Area (GMTFCA). ▪ Maintain working relationships between the various spheres of government to ensure a collaborative effort to manage the buffer zone. ▪ Buffer zone EMZ to be integrated into municipal planning and decision-making. ▪ Promote marketing of the WHS and buffer zone. ▪ Dedicated catchment management for important water yield areas. ▪ Control of alien vegetation. ▪ Control of soil erosion. ▪ Viewshed protection. ▪ Appropriate land care (e.g. appropriate stocking rates). ▪ Integration with Institutional Arrangements of the GMTFCA. ▪ Establish infrastructure corridors for alignment of linear-type developments (e.g. pipelines and power lines).
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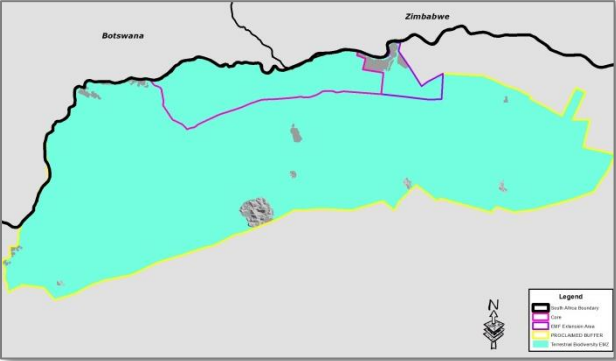
Management Guidelines	<ul style="list-style-type: none"> ▪ Protect areas where the landscape character is identical and similar to those of the MCLWHS. ▪ Safeguard areas and features of high conservation value (e.g. watercourses; areas underlain by sensitive groundwater resources; unmodified landscapes; areas of outstanding scenic beauty and visual quality, Critical Biodiversity Areas, etc.). ▪ Prevent disparate activities in visual impact zones. ▪ Developments and significant activities to be screened against enviro-legal requirements and to be presented to Park Forum and advisory committee. ▪ Environmental Impact Assessments for listed activities proposed within the buffer zone need to evaluate the impact of the proposal on the MCLWHS and its Outstanding Universal Values. ▪ Following the requisite assessments and due consideration of the buffer zone EMZ Management Guidelines, mining should be restricted to underground with no open pits. Appropriate offsets to be identified and negotiated with relevant authorities. ▪ In terms of Government Notice No. R546 of 18 June 2010, DEA or LEDET (depending on lead authority status) to review and comment on listed development applications that are within 10km of the WHS
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	<p>within RSA borders.</p> <ul style="list-style-type: none"> Application of Section 28 of NEMA which affords protection against significant pollution or degradation of the environment by imposing a duty of care and requiring remediation of environmental damage. The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist disciplines required (where relevant) – <i>Terrestrial Ecology (and associated sub-disciplines), Aquatic Ecology, Visual, Socio-economic, Social, Heritage, Geotechnical, Geohydrology, etc. (as required)</i>
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Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<ul style="list-style-type: none"> Low impact activities that support the objectives of the WHS. Conservation. Tourism (regulated; low impact). Ecological Corridors. Open space (regulated; low impact; excluding any permanent structures). 	<ul style="list-style-type: none"> Where the edge effects of activities will significantly adversely impact on the environment within the WHS. Development beyond existing transformation footprints. Activities that could adversely impact on the following – <ul style="list-style-type: none"> Resource quality of watercourses (water quality, flow regime, habitat, aquatic biota); Groundwater resources; Ecological corridors; Aesthetic qualities of the park. Activities that could cause noise or air quality pollution that exceed standards or impact of the park's activities. Urban expansion. Intensification of land use (e.g. golf estate). 	<p>No threats that may jeopardise the WHS Outstanding Universal Values</p>	<p>Edge effects associated with disparate activities / developments</p>



ENVIRONMENTAL MANAGEMENT ZONE: Terrestrial Biodiversity

Mapped Management Zone	Authorities	Desired State
	<ul style="list-style-type: none"> ▪ DEA ▪ LEDET ▪ SANParks ▪ DAFF 	<ul style="list-style-type: none"> ▪ The EMF study area contains a wealth of natural resources, which need to be appropriately protected to ensure that the associated environmental goods and services are not jeopardised.

Policies	Strategies	Plans & Programmes	Implementation Mechanisms
<ul style="list-style-type: none"> ▪ White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity (1997) 	<ul style="list-style-type: none"> ▪ National Biodiversity Strategy and Action Plan ▪ National Biodiversity Framework ▪ National Protected Area Expansion Strategy ▪ National Spatial Biodiversity Assessment ▪ National Biodiversity Strategy and Action Plan 	<ul style="list-style-type: none"> ▪ National Strategy for Sustainable Development and Action Plan ▪ TFCA Treaty and Integrated Development Plan ▪ MNP Management Plan (SANParks, 2013) ▪ LEDET C-plan 	<ul style="list-style-type: none"> ▪ Species-based conservation (listed species). ▪ Area-based conservation (protected areas, protected eco-systems). ▪ Purpose-based conservation. ▪ Management Plan programmes. ▪ State of Environment Reporting. ▪ Permitting of activities (threatened species, alien species, listed invasive species). ▪ Terrestrial protected areas. ▪ Control measures for alien and invasive plant species. ▪ Authorisation of related listed activities in terms of the EIA Regulations (2010), and in particular GN No. R546 of 18 June 2010.

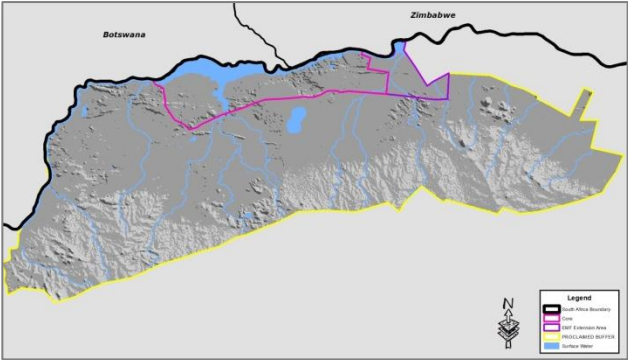
<p>Management Priorities</p>	<ul style="list-style-type: none"> ▪ Support and facilitate land planning and practices that enhance the following: <ul style="list-style-type: none"> ○ Overall biodiversity values and the role the region can play in conserving the Soutpansberg Centre of Endemism. ○ Objectives of the GMTFCA. ○ Economic objectives based on wildlife industries that are compatible with the regions overall biodiversity values including ecotourism developments. ▪ Conserve and maintain the fence that protects the gallery forest (which is listed as <i>Critically Endangered</i>) from elephants. ▪ Restore and conserve biodiversity and ecosystem patterns and processes. ▪ Promote the restoration of the Limpopo/Shashe River system and its tributaries to deliver basic ecosystem functions to surrounding environments. ▪ Rehabilitation of old lands, with particular emphasis on re-establishment of riparian woodland. ▪ Conserve long-term viable and representatives of sensitive and threatened vegetation types and control development pressure in the key sensitive areas. ▪ Rehabilitate Kalopi/Maloutswa wetland and pans. ▪ Remove and control invasive alien vegetation. ▪ Implement effective veld fire management strategies. ▪ Ensure that the habitat required for the Southern Ground-Hornbill remains intact. ▪ The use of signage and roadside fencing to direct wildlife to cross roads through existing culverts to reduce incidents of roadkill. ▪ National and local government structures must facilitate sustainable trade in medicinal plants and continue to monitor and regulate the use of medicinal plant species.
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Management Guidelines	<ul style="list-style-type: none"> ▪ Comply with land management objectives established for Critical Biodiversity Areas and Ecological Support Areas. ▪ Where land use conflict with areas earmarked for development, ensure adequate habitat and faunal impact assessments as well as overall feasibility assessments are done and identify appropriate feasibilities and /or mitigation measures, before any activities are approved or supported. ▪ Any irreconcilable activities in close proximity to ecologically sensitive species' habitats or initiatives / wildlife industries compatible with regions overall biodiversity objectives should be discouraged or strictly controlled. ▪ Safeguarding of protected fauna and flora species. ▪ Protection of threatened ecosystems. ▪ Manage alien invasive species (terrestrial and aquatic). ▪ Establish and maintain functional ecological corridors. ▪ Linear-type development (e.g. pipelines, transmission lines) should be aligned along existing and proposed transport corridors rather than along point to point cross-country routes. ▪ Discourage any development activities on slopes of 5° or more. ▪ Rehabilitation plans to be developed where disturbance occurs outside development footprint. ▪ Development restricted to already disturbed areas, as far as possible. ▪ The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist disciplines required (where relevant) – <i>Terrestrial Ecology and associated sub-disciplines</i>.
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Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<ul style="list-style-type: none"> ▪ Conservation. ▪ Low intensity sustainable and nature-based activities. ▪ Small scale accommodation supporting eco-tourism. ▪ Agricultural cropping enterprises on existing cultivated lands. ▪ Public / private conservation initiatives. ▪ Tourism (regulated; low impact). ▪ Ecological Corridors. ▪ Open space (regulated; low impact). 	<ul style="list-style-type: none"> ▪ Illegal or unsustainable use of natural resources. Any activity with the potential to reduce the biodiversity status. ▪ Any activity which threatens a Critical Biodiversity Area or Ecological Support Area. ▪ Any activity that poses a threat to sensitive species and habitat. ▪ Activities that jeopardise threatened ecosystems. ▪ Illegal activities (i.e. not authorised). ▪ Waste disposal facilities. ▪ Sewage treatment facilities. ▪ Urban or industrial development. ▪ Extensive tourism and commercial development. ▪ Agri-industry. ▪ Mining and quarries. ▪ Afforestation. ▪ Dense settlements. ▪ Large infrastructure corridors. 	<p>No loss of CBAs or threatened ecosystems.</p>	<p>% loss of protected fauna and flora species.</p>



ENVIRONMENTAL MANAGEMENT ZONE: Surface Water

Mapped Management Zone	Authorities	Desired State
	<ul style="list-style-type: none"> ■ Department of Water & Sanitation (DWS) ■ DEA ■ LEDET 	<ul style="list-style-type: none"> ■ Water resources to be managed to allow for sustainable and equitable use. ■ Future visions established by Catchment Management Agency to be adopted.

Policies	Strategies	Plans & Programmes	Implementation Mechanisms
<ul style="list-style-type: none"> ■ 	<ul style="list-style-type: none"> ■ National Water Resource Strategy ■ Internal Strategic Perspective ■ Catchment Management Strategy 	<ul style="list-style-type: none"> ■ Catchment Management Plan ■ River Health Programme ■ Waste Discharge Charge System ■ Working for Water Programme 	<ul style="list-style-type: none"> ■ Resource Directed Measures (RDM) - clear objectives for the desired level of protection of the resource – Reserve, Classification System, and Resource Quality Objectives. ■ Source Directed Controls (SDCs) – measures to control water use, e.g. water quality standards for waste water, waste water discharges, pollution prevention, and waste minimisation technologies. ■ National monitoring and information systems – address the monitoring, recording, assessing and dissemination of information on water resources. ■ Catchment Management Forum. ■ Authorisation of related listed activities in terms of the EIA Regulations (2010).

<p>Management Priorities</p>	<ul style="list-style-type: none"> ■ Support and facilitate land planning and practices that are aligned with the following: <ul style="list-style-type: none"> ○ The Reserve and Resource Quality Objectives; ○ Attaining the Management Class for affected water resources; ○ Objectives of the GMTFCA. ■ Promote the restoration of river flow and, water quality of the Limpopo / Shashe Rivers' system, its tributaries and groundwater dependant ecosystems, to deliver basic ecosystem functions to surrounding environments. ■ Encourage MCLWHS participation in relevant water use fora. ■ Develop an adaptive management programme for wetlands. ■ Developing the Golope/Maloutswa wetland as a key biodiversity feature in MCLWHS. ■ Rehabilitation of riparian areas affected by anthropogenic activities. ■ Control abstraction from Schroda Dam, especially during low-flow and dry periods. ■ Results from water quality and quantity monitoring programme for Schroda Dam to be shared with SANParks
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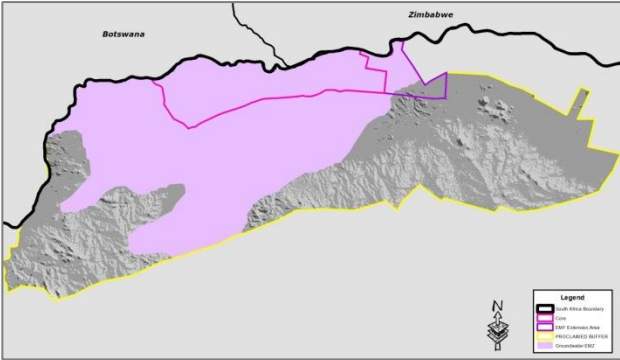
<p>Management Guidelines</p>	<ul style="list-style-type: none"> ■ Provision of adequate sanitation and waste management services. ■ Comply with Freshwater Ecosystem Priority Areas (FEPA) Management Guidelines. ■ For any proposed water use or development in proximity to a watercourse, a delineation of the wetland / riparian habitat needs to be undertaken in accordance with the DWS Guidelines. ■ Development to be located outside 1:100 year flood line and not to interfere with stormwater drainage. No mining or agricultural development within regulated area of the watercourse (i.e. 1:100 year floodline or delineated riparian / wetland habitat, whichever is greatest).
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	<ul style="list-style-type: none"> ▪ Adopt 32 metres buffer area from boundary of regulated area of a watercourse. Strict regulation of encroachment and incompatible activities. ▪ Regulated area of watercourse and associated buffer zone should be determined on a strategic priority basis, based on the nature of the activity. ▪ All watercourses (including delineated boundary and additional 32m buffer zone) should be regarded as sensitive until proven otherwise by a suitably qualified specialist. ▪ Water use Licence required for development within 500m radius of a wetland. ▪ Source directed controls (including compliance with licence conditions) for mining and other sources of impacts to resource quality (i.e. flow, water quality, habitat and aquatic biota). ▪ Mining and prospecting within the alluvial flood plains (outside of the regulated area) should not be permitted without the relevant approvals and detailed after-use plans and rehabilitation plans. ▪ Develop invasive alien species control plan for riparian areas / wetlands. ▪ Dedicated catchment management for watercourses that feed into the WHS. ▪ Implement a water quality monitoring programme and consider relevant water quality variables that pose a threat to the functionality of wetlands. ▪ Strict regulation of development with structural elements. ▪ Strict protection of sensitive alluvial vegetation with significant ecosystem status. ▪ Watercourse crossings need to undergo an authorisation process and need to adopt best practices (e.g. perpendicular crossings, avoid sensitive habitat, accommodate floods). ▪ The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist fields required (where relevant) – <i>Aquatic Ecology, Hydrology, Geomorphology</i>.
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Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<ul style="list-style-type: none"> ▪ Conservation. ▪ Tourism (regulated; low impact). ▪ Ecological Corridors. ▪ Open space (regulated; low impact; excluding any permanent structures). 	<ul style="list-style-type: none"> ▪ Activities that adversely affect resource quality (i.e. flow regime, water quality, aquatic biota, habitat and morphology). ▪ Waste disposal facilities. ▪ Sewage facilities (WWTW and sewage pump stations). ▪ Illegal activities (i.e. not authorised). ▪ Any activity with the potential to reduce the Present Ecological State or influence the future Management Class. 	Maintaining the Ecological Reserve and Management Class	Resource Quality Objectives



ENVIRONMENTAL MANAGEMENT ZONE: Groundwater

Mapped Management Zone	Authorities	Desired State
	<ul style="list-style-type: none"> ■ Department of Water & Sanitation (DWS) ■ DEA ■ LEDET 	<ul style="list-style-type: none"> ■ Water resources to be managed to allow for sustainable and equitable use. ■ Future visions established by Catchment Management Agency to be adopted.

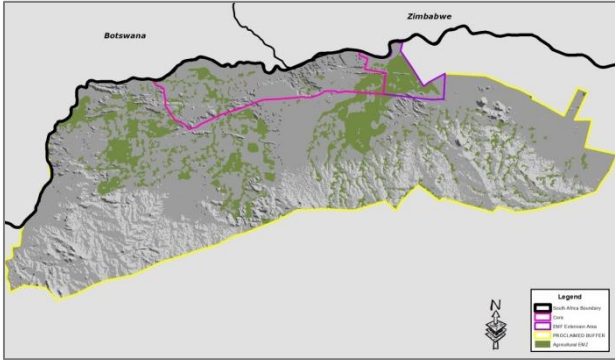
Policies	Strategies	Plans & Programmes	Implementation Mechanisms
<ul style="list-style-type: none"> ■ 	<ul style="list-style-type: none"> ■ National Water Resource Strategy ■ Internal Strategic Perspective ■ Catchment Management Strategy 	<ul style="list-style-type: none"> ■ Catchment Management Plan ■ Waste Discharge Charge System ■ Working for Water Programme 	<ul style="list-style-type: none"> ■ Groundwater Resource Directed Measures (GRDM) - clear objectives for the desired level of protection of the resource – Reserve, Classification System, and Resource Quality Objectives. ■ Source Directed Controls (SDCs) – measures to control water use, e.g. water quality standards for waste water, waste water discharges, pollution prevention, and waste minimisation technologies. ■ National monitoring and information systems – address the monitoring, recording, assessing and dissemination of information on water resources. ■ Catchment Management Forum. ■ Authorisation of related listed activities in terms of the EIA Regulations (2010).

Management Priorities	<ul style="list-style-type: none"> ■ Support and facilitate land planning and practices that are aligned with the following: <ul style="list-style-type: none"> ○ The Reserve and Resource Quality Objectives; ○ Attaining the Management Class for affected water resources; ○ Objectives of the GMTFCA. ■ Promote the restoration of groundwater attributes of the Limpopo / Shashe Rivers' system, its tributaries and groundwater dependant ecosystems, to deliver basic ecosystem functions to surrounding environments. ■ Encourage MCLWHS participation in relevant water use fora and to ensure that communication channels are established between the park and other stakeholders sharing groundwater resources. ■ Integrate MNP into regional water user community. ■ Regular feedback from De Beers and DWS regarding groundwater abstraction within the park. ■ Initiate a hydro-census (collect, review and archive baseline information on the existing groundwater resources and threats in the park). ■ Set up a groundwater monitoring programme. ■ Establish an understanding of the groundwater resources' vulnerability to pollution. ■ Institute adequate source-directed controls to manage potential impacts to groundwater resources, which could include: <ul style="list-style-type: none"> ○ Authorisations, licences and permits; ○ Standards to regulate quality of waste discharges; ○ Requirements for on-site management practices (e.g. to minimise waste at source and to control diffuse pollution);
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	<ul style="list-style-type: none"> ○ Requirements for clean-up and remediation of water resources that have already been polluted. ■ Ongoing engagement between De Beers and SANParks in terms of groundwater monitoring. ■ Venetia Mine's wells to form part of the groundwater monitoring programme 		
Management Guidelines	<ul style="list-style-type: none"> ■ Regulate and prohibit land-based activities which may affect the quantity and quality of groundwater once site specific studies have been conducted and the results known. ■ Prevent intrusion of polluted surface water. ■ Provision of adequate sanitation and waste management services. ■ Implement a groundwater monitoring programme. ■ The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist fields required (where relevant) – <i>Geohydrology</i>. 		
Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<ul style="list-style-type: none"> ■ <i>Compatibility of activities dependent on the nature of the possible impacts to the groundwater resources, and based on the findings of the relevant specialist studies.</i> 		Maintaining the Groundwater Reserve and Management Class	Groundwater Resource Quality Objectives



ENVIRONMENTAL MANAGEMENT ZONE: Agriculture

Mapped Management Zone	Authorities	Desired State
	<ul style="list-style-type: none"> ▪ Department of Agriculture, Forestry and Fisheries ▪ Department of Agriculture ▪ LEDET 	<ul style="list-style-type: none"> ▪ High potential, unique agricultural land and land under irrigation with approved water rights should be protected.

Policies	Strategies	Plans & Programmes	Implementation Mechanisms
<ul style="list-style-type: none"> ▪ 	<ul style="list-style-type: none"> ▪ Strategic Plan for South African Agriculture 	<ul style="list-style-type: none"> ▪ National Land Care Programme (1997) 	<ul style="list-style-type: none"> ▪ Authorisation of related listed activities in terms of the EIA Regulations (2010). ▪ Soil conservation measures. ▪ Land capability and suitability assessment. ▪ Pollution prevention and remediation measures.

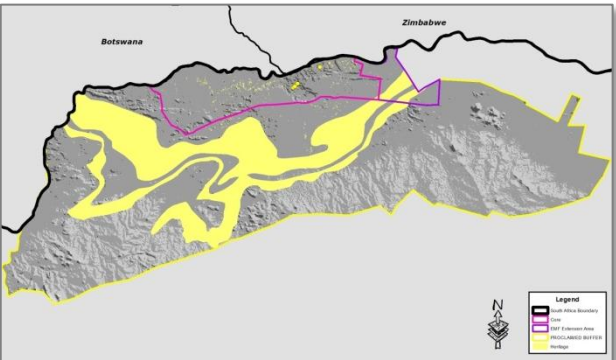
<p>Management Priorities</p>	<ul style="list-style-type: none"> ▪ Agricultural activities take place within the core of the WHS. If these activities are to remain they need to complement the conservation status of MNP via the Conservation of Agriculture Resources Act (Act No. 43 of 1983) and other pieces of relevant environmental legislation. ▪ Existing agricultural activities should be maintained, but where possible a transition to less intensive land uses or ecological restoration should be favoured. ▪ Areas affected by historical farming activities and that are no longer under cultivation along the Limpopo River need to be rehabilitated. ▪ Maintain veterinary fence along Limpopo River. ▪ Enforcement of livestock carrying capacity for the area. ▪ Settling of land claims as expeditiously as possible. ▪ Providing the necessary support to emerging farmers. ▪ Support development of game farms but ensure that game is not allowed to enter areas which will place the cultural and environmental resources at risk. Conservation should take priority over game farming as the comparative advantage of the area lies in the cultural resources of the area. ▪ Manage impacts from polluted (e.g. saline) return flows from agricultural activities. ▪ The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist fields required (where relevant) – <i>Agriculture and associated sub-disciplines</i>.
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<p>Management Guidelines</p>	<ul style="list-style-type: none"> ▪ Comply with legal requirements for an application for a change of land use from agriculture to any other land use. Adhere to this department’s specifications for a Natural Resources Survey report. ▪ Manage impacts from polluted (e.g. saline) return flows from agricultural activities. ▪ Invest in better agricultural education and land care programmes. Build capacity surrounding sustainable and environmentally-friendly farming methods, irrigation and grazing practises. ▪ Eradication of alien invasive species should be controlled under the Conservation of Agricultural Resources Act (Act 48 of 1983). ▪ Best practices to be employed, including contour farming, organic farming, use of fertilizer and pesticides, management of return flows, water conservation, soil preservation, stocking densities. ▪ The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist fields required (where relevant) – <i>Agriculture and associated sub-disciplines</i>.
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Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<ul style="list-style-type: none"> Activities that support primary agricultural production (including associated infrastructure). Tourism (regulated and agriculture-focused). 	<ul style="list-style-type: none"> Any activity which poses a threat to land with high agricultural potential. Poor farming practices, especially related to water conservation, soil degradation and water pollution. Mining. Dense settlements. 	Zero loss of high potential, unique agricultural land.	% loss high potential, unique agricultural land.



ENVIRONMENTAL MANAGEMENT ZONE: Heritage & Cultural Resources

Mapped Management Zone	Authorities	Desired State
	<ul style="list-style-type: none"> ■ SAHRA ■ Limpopo Provincial Heritage Resources Authority (LIHRA) 	<ul style="list-style-type: none"> ■ Protection of heritage and cultural resources.

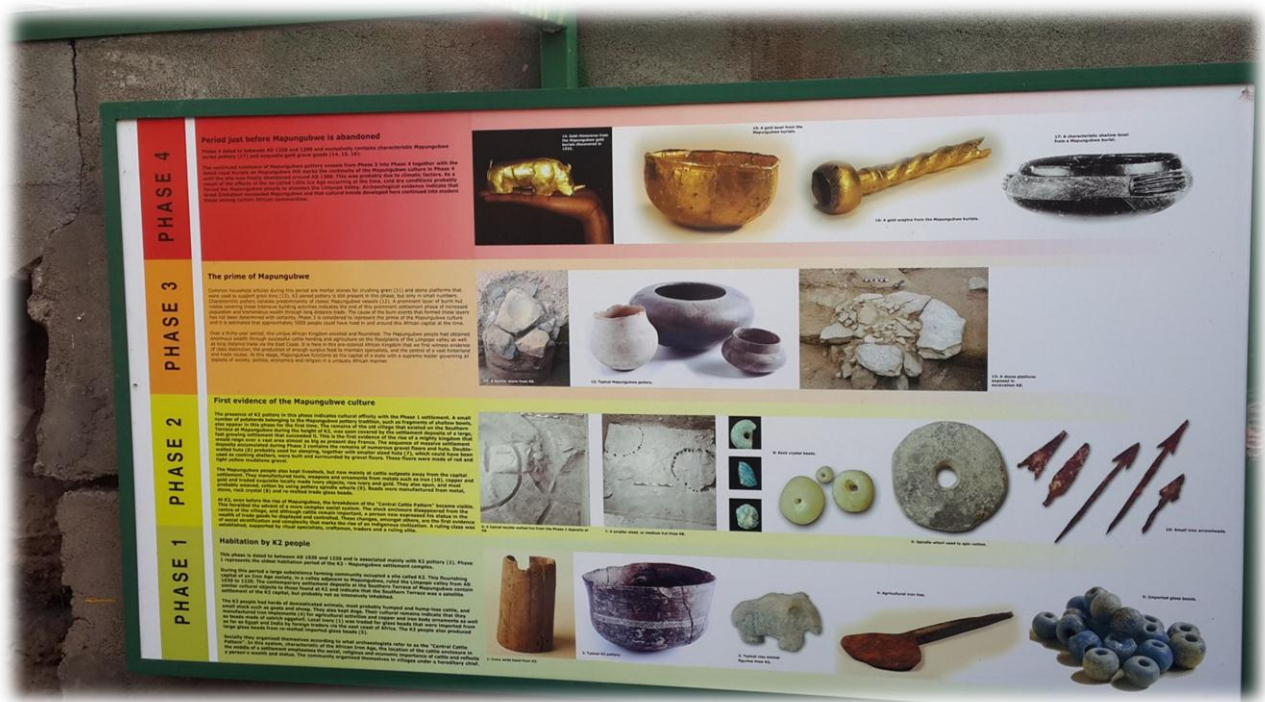
Policies	Strategies	Plans & Programmes	Implementation Mechanisms
<ul style="list-style-type: none"> ■ 	<ul style="list-style-type: none"> ■ 	<ul style="list-style-type: none"> ■ Management Plans (generic and site-specific) 	<ul style="list-style-type: none"> ■ Conservation, protection and administration of both the physical and the living or tangible heritage resources. ■ Issuing of permits for protection of heritage resources, graves, archaeological and paleontological sites. ■ Issuing of permits in terms of national heritage site status before any changes or development is contemplated ■ Conduct Heritage Impact Assessments in terms of Section 38 of the National Heritage Resources Act (Act No. 25 of 1999).

<p>Management Priorities</p>	<ul style="list-style-type: none"> ■ Execution and approval of Heritage Impact Assessments for activities listed in section 38 of the National Heritage Resources Act (Act No. 25 of 1999). ■ All the relevant protocols need to be abided by and permits will need to be obtained with regard to heritage and cultural resources (where necessary). ■ Optimise tourism potential offered by heritage and cultural resources. ■ Incorporate heritage considerations into development proposals. ■ Sense of place to be maintained. ■ Strict regulation of inappropriate development within footprint / 50m from the buffer zone of National, Provincial and Local Heritage Sites. ■ Strict regulation of any alterations, additions or new structures that are contradictory to protected buildings or the general character of area. ■ Develop and maintain a Geographical Information System (GIS) database of all cultural heritage features within the core and buffer of the WHS. ■ Optimise opportunities associated with tourism and job creation linked to the conservation of cultural and heritage resources. ■ Investigate areas that have not yet been surveyed. ■ Develop a cultural heritage resources programme, based on indigenous knowledge. ■ Specialist fields required (where relevant) – <i>Heritage and associated sub-disciplines</i>. ■ Alignment with the district’s approved Tourism Strategy and Plan.
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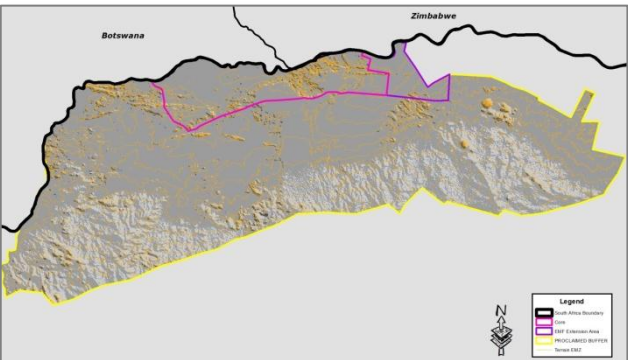
<p>Management Guidelines</p>	<ul style="list-style-type: none"> ■ Execution and approval of Heritage Impact Assessments (HIAs) for activities listed in section 38 of the National Heritage Resources Act (Act No. 25 of 1999). Assessments to conform to Guidance on HIAs for cultural world heritage properties (International Council of Monuments and Sites 2011). ■ Optimise tourism potential offered by heritage and cultural resources. ■ Incorporate heritage considerations into development proposals.
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- Sense of place to be maintained.
- Strict regulation of inappropriate development within footprint / 50m from the buffer zone of National, Provincial and Local Heritage Sites.
- Strict regulation of any alterations, additions or new structures that are contradictory to protected buildings or the general character of area.
- Optimise opportunities associated with tourism and job creation linked to the conservation of cultural and heritage resources.
- The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist fields required (where relevant) – *Heritage and associated sub-disciplines*.
- Alignment with the district’s approved Tourism Strategy and Plan.

Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<ul style="list-style-type: none"> ▪ Conservation. ▪ Tourism (regulated; low impact). ▪ Ecological Corridors. ▪ Open space (regulated; low impact; excluding any permanent structures). 	<ul style="list-style-type: none"> ▪ Any activity that poses a threat to cultural and heritage resources. ▪ Illegal activities (i.e. not authorised). 	No loss of heritage resources.	<ul style="list-style-type: none"> ▪ Inventory of heritage resource. ▪ Number of heritage resource sites damaged or vandalised.



ENVIRONMENTAL MANAGEMENT ZONE: Terrain

Mapped Management Zone	Authorities	Desired State
	<p><i>Various authorities with potential mandate – dependent on environmental features present</i></p>	<ul style="list-style-type: none"> ▪ Terrain characteristics are one of the primary factors contributing towards the MCLWHS. ▪ Terrain characteristics to be protected to ensure that the overall sense of place of the EMF study area is maintained.

Policies	Strategies	Plans & Programmes	Implementation Mechanisms
<p><i>Various – dependent on environmental features present in Terrain EMZ. Policies, strategies, plans, programmes and implementation mechanisms related to these features will apply (refer to those listed for other EMZs)</i></p>			

<p>Management Priorities</p>	<ul style="list-style-type: none"> ▪ Viewshed analysis to be incorporated into the Terrain EMZ. ▪ Maintain ecosystem functionality and connectivity associated with terrain. ▪ Prevent impacts to visual quality of EMZ study area. ▪ Protect sensitive vegetation and animal habitats associated with steep areas.
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<p>Management Guidelines</p>	<ul style="list-style-type: none"> ▪ Ensure water and soil resources are protected. ▪ Determine terrain vulnerability, based on the activities proposed. ▪ Evaluate visual impacts associated with proposed activity. ▪ Assess geotechnical conditions, based on proposed activity. ▪ Prevent loss of topsoil. ▪ Prevent clearing of vegetation or grading, including the addition of fill. ▪ Surface runoff of water will not create unstable conditions, including erosion, and appropriate stormwater management facilities will be constructed as necessary. ▪ The relevant specialist studies will need to be conducted to allow for informed and balanced decision-making. Specialist fields required (where relevant) – <i>Visual Impact Assessment, Geotechnical Study.</i>
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Compatible Developments	Incompatible Developments	Performance Management	
		Targets	Indicators
<ul style="list-style-type: none"> ▪ Conservation. ▪ Tourism (regulated; low impact). ▪ Ecological Corridors. ▪ Open space (regulated; low impact; excluding any permanent structures). ▪ Development design and overall development densities allow maintenance of ecological functioning 	<ul style="list-style-type: none"> ▪ Any activity that poses a threat to the visual quality of the MNP and WHS. ▪ Activities that cause fragmentation of natural landscape. ▪ Infrastructure (roads, power lines, pipelines). ▪ Extractive uses. 		<ul style="list-style-type: none"> ▪



EIA LISTINGS

3 EIA LISTINGS

Section 24 of NEMA gives the Minister and the provincial counter-part, the MEC, the power to regulate which activities need permission to proceed and to accept spatial plans to assist in the authorisation of new activities. The relevant paragraph states: “...prepare compilations of 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 organ of state charged by law with authorising, permitting or otherwise allowing the implementation of a new **activity**, or with considering, assessing and evaluating an existing activity”.

One of the primary purposes of the EMF is thus to function as a support mechanism in the EIA process in the evaluation and review of development applications. This is achieved in the following manner:

- ❖ Supporting the undertaking of an EIA in an area by indicating the scope of potential impacts and information requirements for executing the assessment (refer to Management Guidelines);
- ❖ Delineating geographical areas within which additional specified activities are to be identified in terms of NEMA;
- ❖ Delineating geographical areas within which activities listed in terms of NEMA may be excluded by identifying areas that are not sensitive to the potential impacts of such activities; and
- ❖ Delineating geographical areas within which activities listed in terms of the EIA Regulations are either escalated from Listing Notice 1 to 2 or *vice versa* (see **Box 1**).

The EMF informs EIAs through the environmental sensitivity depicted through the EMZs, linked to their Management Guidelines that need to be considered for undertaking developments within these zones. In this way, the Desired State is promoted by allowing compatible developments to proceed without undergoing protracted decision-making processes whilst subjecting potentially disparate development to an environmental assessment.

BOX 1

What is the difference between a Basic Assessment & Scoping and EIA Process?

A Basic Assessment is the environmental assessment applied to activities listed in Listing 1 and 3 (GN No. R544 and R546, respectively). These are smaller scale activities, the impacts of which are generally known and can be easily managed. Typically, these activities are of lower risk and are considered less likely to have significant impacts to the receiving environment.

Scoping and EIA requires a thorough and rigorous environmental assessment for activities contained in Listing 2 (GN No. R545). Due to their nature and/or extent, these activities are of higher risk and are likely to have significant impacts that cannot be easily predicted.

The relationship between the EMZs and the EIA Listing Notices were explored based on the following:

❖ **Activities - significant impact –**

Activities where the related impact(s) may have a high significance rating in terms of the environmental attributes in an EMZ. Only permissible through strict regulation, and impacts need to be adequately mitigated.

❖ **Activities – no significant impact –**

Activities that are more amenable to environmental attributes in an EMZ, and where a low significance rating applies. Although permissible, regulation is still a requirement.

The compatibility of the activities contained in the EIA Listing Notices (GN No. R544, R545 and R546) with regards to the EMZs are presented in **Appendix A**. The following conditions apply to the interpretation and application of the EMF's influence to the EIA activities:

1. As the GIS was compiled based largely of desktop spatial information, a certain level of ground-truthing that is appropriate to the type of activity and status of the receiving environment, will be required. Depending on the outcome, the requirements can be challenged.

2. While preferred activities within the EMZs are proposed, it does not preclude a developer/ planner from having to consider the underlying sensitive features or having to comply with relevant environmental legislation.
3. Exclusion must be considered following consultation with the competent environmental authority in terms of NEMA.
4. Where an exclusion is permitted, it is advocated that an Environmental Management Programme (EMPr) needs to be prepared in accordance with section 24N of NEMA and the associated regulation 33 of GN No. R. 543 (18 June 2010). The EMPr needs to be approved by the NEMA competent authority.
5. From the EMF's perspective, the following needs to be considered during the application stage of the EIA:
 - a. The competent authority must make the EMF available to the applicant / Environmental Assessment Practitioner (EAP);
 - b. The EAP must, in accordance with regulation 20 of GN No. R546, determine whether a Basic Assessment or Scoping should be applied to the application, taking into account the EMF's requirements;
 - c. If the EAP managing the application, following the review of the EMF, is for any reason of the view that the environmental assessment process recommended by the EMF is inappropriate (based on a sufficient understanding of the project and receiving environment), the applicant / EAP may provide sufficient motivation to the competent authority to deviate from the EMF.
6. Exclusions do not apply to other environmental legislation, where the relevant approvals will still need to be sought for various legal triggers. Examples of such key pieces of legislation include (list is not exhaustive):
 - ❖ World Heritage Convention Act (Act 49 of 1999);
 - ❖ National Water Act (Act No. 36 of 1998);
 - ❖ National Environmental Management Air Quality Act (Act No. 39 of 2004);
 - ❖ National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004);
 - ❖ National Environmental Management: Protected Areas Act (Act No. 57 of 2003);
 - ❖ National Environmental Management: Waste Act (Act No. 59 of 2008);
 - ❖ National Forests Act (No. 84 of 1998);
 - ❖ Minerals and Petroleum Resources Development Act (Act No. 28 of 2002); and
 - ❖ National Heritage Resources Act (Act No. 25 of 1999).

IMPLEMENTATION STRATEGY



4 IMPLEMENTATION STRATEGY

4.1 Cyclical Implementation Approach

A pragmatic approach to the implementation of the MCLWHS EMF is recommended, which is based on the commonly adopted management system of a Plan-Do-Check-Act cycle. This method acknowledges that it requires dedicated commitment to continual improvement to eventually achieve the desired management outcomes. The main steps in the cycle are presented in the table to follow.

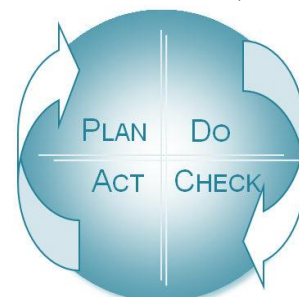


Table 2: MCLWHS EMF Implementation Cycle

1. <u>Plan</u>	<ul style="list-style-type: none"> ❖ Identify the EMF triggers. ❖ Define the scope of the EMF. ❖ Determine information requirements and key environmental features and attributes to be investigated. ❖ Develop and implement a public participation strategy. ❖ Determine context for environmental management, based on status quo, opportunities, constraints, issues, and desired state. ❖ Delineate management zones and assign management objectives and requirements. ❖ Develop implementation strategy. ❖ Seek formal adoption. ❖ Establish institutional arrangements.
2. <u>Do</u>	<ul style="list-style-type: none"> ❖ EMF training of stakeholders. Depending on the audience, training mechanisms can include manuals, tutored sessions, brochures, etc. ❖ Recruitment of EMF in appraisal of proposals / applications for activities or developments. ❖ Implementation of EMF management measures, including provisions and arrangements for accomplishing management objectives and desired state.
3. <u>Check</u>	<ul style="list-style-type: none"> • Monitoring of EMF performance and overall implementation. • Monitoring to be based on Management Framework for Strategic Issues & Priorities (see Section 4.5), and to focus on associated indicators.
4. <u>Act</u>	<p>Taking stock of the lessons learnt during the implementation of the EMF and the outcome of the review stage, management actions need to be taken to ensure that the EMF is revised as needed. New information must also be incorporated into the EMF, and the GIS must also be updated.</p>

4.2 Linkages with other Planning and Policy Instruments

The EMF attempts to be aligned with existing planning tools, in particular the MNP and WHS Management Plan (SANParks, 2013), GMTFCA Integrated Development Plan (GMTFCA TTC, 2010), as well as the municipal Spatial Development Framework (SDF) and Integrated Development Plan (IDP). Likewise, the EMF will feed environmental information into these planning tools. The environmental priorities emphasised in the EMF should serve as a thrust in formulating new plans and guide the decisions on existing planning arrangements.

On a spatial scale, the EMZs should form the environmental layer of the SDF for the Vhembe District Municipality and Musina Local Municipality. Any conflicts that exist between the EMF and SDF would need to be identified and ironed-out in a balanced manner with due consideration of the sustainability criteria contained in the EMF Desired State Report (Volume 2).

4.3 Striving towards the Desired State

Environmental Management Priorities (as discussed in the EMF Desired State Report) emanate from the issues, opportunities and constraints identified during the EMF status quo assessment, and through feedback received during Public Participation.

In terms of the EMF development process, Management Priorities were not necessarily all taken forward in the mapping component of the EMF, where some of the objectives could not be presented spatially. However, the Management Priorities promote attaining the desired state of the EMF study area by playing an important role in setting Management Guidelines for the respective EMZs.

Outside of the functions of the EMF, the Management Priorities need to be captured in future environmental management strategies for the area, which need to be championed by the responsible government bodies. Some of these priorities are addressed on a high level in the Management Framework for Strategic Issues & Priorities (see **Section 4.5**).

Mapping the path from the environmental vision to the realisation of the desired state relies on the disaggregation of the vision into management objectives. These objectives are best presented in a hierarchy, which begins at its coarsest level with the vision and ends in a series of management objectives of increasing focus, rigour and practical achievability (see example presented in **Figure 9**).

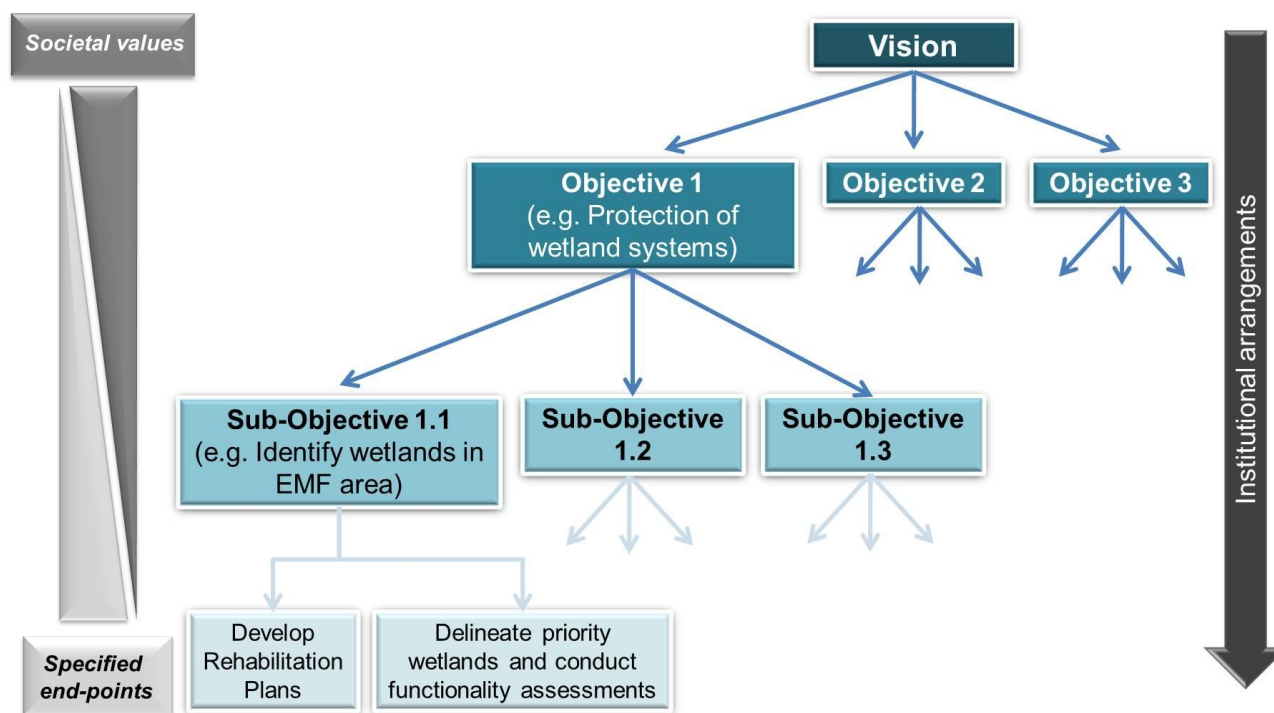


Figure 9: Objectives Hierarchy (adapted from DWAF, 2006), with example

The higher level vision and accompanying objectives (EMF Management Priorities) relate primarily to upper management and societal values with statements of strategic intent, while the lower level objectives provide more specified and operational-type objectives that can be linked to specific targets. The lower level objectives, which represent the most detailed and most technical level of objectives, are not necessarily contained in the EMF and need to be developed as part of the roll-out of the tool through appropriate strategies, plans and programmes by the relevant stakeholders.

The role of the EMF in endeavouring towards the desired state includes the following:

- ❖ Provide context and guidance to policies, strategies and plans, where the environmental management requirements need to be taken into consideration;
- ❖ Planning initiatives need to support the EMZs’ management objectives;

- ❖ Developers and professionals need to screen proposals against the the EMF and the appropriate EMZs to identify potential incompatibility. Should the activity not conform to the desired state established for the EMZ, the proponent may revise the proposal or undertake detailed investigations to verify the EMF findings; and
- ❖ National (i.e. DEA), provincial (LEDET) and local (Vhembe District Municipality and Musina Local Municipality) authorities should use the EMF to facilitate environmental decision-making.

4.4 Giving Effect to the EMF

Institutional arrangements are regarded as the overall framework for sustainable development planning and decision-making, including political, legal, regulatory, policy and organisational frameworks and processes.

The sub-sections to follow discuss some of the high-level provisions that need to be in place to successfully implement the MCLWHS EMF.

4.4.1 *EMF Enabling Institutional Arrangements*

As deduced in the EMF Status Quo Report (Volume 1), from an appraisal of the IDP and SDF it appears as if the Vhembe District Municipality and Musina Local Municipality have limited resources to ensure effective Integrated Environmental Management (IEM). In addition, limited environmental planning and management tools that are associated with various pieces of environmental legislation are in place.

The district municipality needs to ensure that the requisite enabling environment is created to facilitate the successful application of the EMF. **Table 3** lists the organisational arrangements required to give effect to MCLWHS EMF and IEM. The associated timeframes range from short-term (immediately to 1 year), medium-term (1 – 3 years) and long-term (3 – 5 years).

Table 3: Organisational arrangements for MCLWHS EMF implementation & IEM

Organisational Requirement	Timeframe		
	Short term	Medium term	Long Term
1. Conduct a training needs assessment and provide environmental training to municipal officials.	<input checked="" type="checkbox"/>		
2. Dedicated Environmental Managers for Vhembe District Municipality and Musina Local Municipality need to be appointed to oversee the following – a. Planning, coordinating, implementing and monitoring all aspects related to IEM; b. Coordinating environmental compliance (where the municipality acts as the developer or project proponent, fulfils functions or conducts activities) and governance (where the municipality acts as the commenting or regulatory authority); c. Creating environmental awareness within the municipality and ensuring task-specific environmental training is provided to municipal officials; d. Designing and managing pollution prevention, abatement, and control programmes; e. Applying legal and regulatory tools to achieve environmental sustainability; f. Mainstreaming environmental sustainability within the municipal structure and functions.		<input checked="" type="checkbox"/>	
3. Develop an internal system to screen all projects, functions and activities against environmental legislation and to initiate the relevant authorisations protocols.	<input checked="" type="checkbox"/>		
4. Conduct environmental compliance monitoring of municipal projects.	<input checked="" type="checkbox"/>		
5. Integrate EMF into the IDP, SDF and Land Use Management Schemes (LUMS) of the District and Local Municipality.		<input checked="" type="checkbox"/>	
6. Establish a co-operative environmental governance forum to engage with key environmental authorities from the various spheres of government.	<input checked="" type="checkbox"/>		
7. Dedicated environmental officers in the District and Local Municipality to support the Environmental Managers by undertaking executing the following functions: a. Environmental compliance monitoring; b. Responding to environmental complaints; c. Roll-out of environmental education; d. Review of Environmental Impact Assessments, Environmental Management Programmes, planning applications, etc.; e. Implementing environmental projects; f. Assist in compiling environmental management tools.		<input checked="" type="checkbox"/>	
8. Roll-out of projects to address environmental priorities identified through the EMF.		<input checked="" type="checkbox"/>	
9. Establish community environmental forums.		<input checked="" type="checkbox"/>	

On a larger scale, the management of the EMF area needs to be undertaken in a collaborative and coordinated fashion within the joint formalised structure of the GMTFCA.

4.4.2 EMF Implementation Duties

In accordance with the EMF Regulations (GN No. R547 of 18 June 2010), various role-players are involved with the conclusion of the EMF development process, its formal adoption and the ensuing implementation of the framework. The following key duties need to be performed for the implementation of the EMF:

Table 4: EMF Implementation Duties

EMF Implementation Duty	Roles & Responsibilities
Finalise EMF	<ul style="list-style-type: none"> • DEA
Endorse EMF	<ul style="list-style-type: none"> • Project Steering Committee (PSC)
Seek EMF approval	<ul style="list-style-type: none"> • DEA
Approve EMF	<ul style="list-style-type: none"> • DEA • Minister / MEC
Broadcast the EMF	<ul style="list-style-type: none"> ❖ DEA, LEDET, SANParks
Consideration of EMF during the review of activities / project proposals in terms of NEMA section 24(4)(b)(vi)	<ul style="list-style-type: none"> ❖ DEA ❖ LEDET ❖ Department of Mineral Resources (DMR) ❖ DWS ❖ Municipalities
Set operational objectives and implementation plans for desired state	<ul style="list-style-type: none"> ❖ DEA ❖ LEDET ❖ SANParks
Monitor the implementation of the EMF	<ul style="list-style-type: none"> ❖ PSC
Review the EMF	<ul style="list-style-type: none"> ❖ DEA ❖ PSC
Update the EMF	<ul style="list-style-type: none"> ❖ DEA

4.4.3 EMF Functionality

According to the EMF Regulations (GN No. R547 of 18 June 2010), once an EMF is adopted by the Minister or MEC it must be taken into account in the consideration of applications for environmental authorisation in or affecting the geographical area to which the framework applies. The primary purpose of an EMF is thus to function as a support mechanism in the EIA process in the evaluation and review of development applications, as well as making strategic informed decisions regarding land use planning applications.

The District Municipality and Local Municipality as well as key government departments (e.g. DEA, LEDET, SANParks, DWS, DMR, SAHRA, LIHRA, etc.) will use the EMF as a

tool for planning, environmental screening, regulatory functions and overall decision-making.

The MCLWHS EMF provides a compilation of information and maps illustrating attributes of the environment in the WHS and its 2009 proclaimed buffer zone. This provides valuable guidance in terms of planning processes in the region.

The EMF will provide applicants with an early indication of the areas in which it would be potentially appropriate to undertake an activity. If an area has been earmarked for a certain type of development where it will be incompatible with the desired state of the associated EMZ, the applicant will need to undergo a rigorous environmental assessment to determine the state of the receiving environment and the potential impacts to the features that contribute towards the sensitivity of the zone in question. As the GIS was compiled based largely of desktop spatial information, a certain level of ground-truthing that is suitable for the type of activity and status of the receiving environment, will be required. Refer to the Desired State Report for further elaboration on how to screen projects against the Environmental Constraint Zones (ECZs) and EMZs.

It is important to note that, while the SEMP outlines preferred activities within the EMZs, it does not preclude a developer/ planner from having to consider the underlying sensitive features or having to comply with relevant environmental legislation.

4.4.4 EMF Review

An EMF must be implemented and monitored on a regular basis to ensure that it achieves its purpose and goal. The MCLWHS EMF's intended use should be checked against the following performance indicators:

- ☑ Officials trained on the interpretation and application of the EMF;
- ☑ Appointment of dedicated Environmental Managers in the District Municipality and Local Municipality to oversee the implementation of the EMF;
- ☑ Outcomes of projects screened against EMF GIS;
- ☑ Manner in which projects were influenced by the EMZ requirements;
- ☑ Adherence to Management Guidelines; and
- ☑ Application of EMF guidance to EIA Listing Notices.

According to the EMF Regulations (GN No. R547 of 18 June 2010), an EMF may from time to time, on the initiative of the Minister or an MEC in concurrence with the Minister, or as specified in the revision schedule of the EMF, be revised, on condition that such revision is subject to a public participation process similar to that envisaged in the regulations. It is proposed that the review and revision cycle of the EMF be coupled to that of the other planning tools (i.e. SDF and IDP). Accordingly, **an overall update cycle of 5 years is recommended.**

With the review of the EMF it is recommended that the following elements be investigated in greater details for the next generation EMF for the MCLWHS:

1. Geohydrology –
 - ❖ Identification of vulnerable groundwater resources;
 - ❖ Specific management requirements;
2. Climate Change –
 - ❖ Investigation of climate change risks in the area;
 - ❖ Developing a climate change strategy for the area;
3. A dedicated EMZ needs to be considered for tourism, especially considering the tourism-related opportunities in the study area and the role that this industry plays in the local economy.
4. Further consideration needs to be given regarding inclusion of terrain and geotechnical conditions as an EMZ in the EMF.
5. Consideration of inclusions or exclusions in terms of the listed waste management activities under the National Environmental Management: Waste Act (NEM:WA) (Act No. 59 of 2008).
6. Investigate community conservation strategies for areas that are located alongside the MNP and WHS. Consider initiatives that will support the desired state of the protected areas and not jeopardise their ecosystem goods and services, while promoting socio-economic benefits to the local communities.

4.4.5 Managing Conflicts between Environmental Features

Where sensitive environmental attributes overlap and there is a possibility of conflict over the desired state (e.g. incompatible environmental potential such as intensive agriculture

versus protection of terrestrial biodiversity), preference may be afforded to a particular zone based on the following considerations (with prudent discretion):

- A feature with a 'Very High' rating trumps a feature with a 'High' rating;
- The ultimate vulnerability of a feature;
- The risks posed by one feature to another;
- Specialists' guidance;
- Contribution towards sustainable development principles;
- Where uncertainty existed, adopt a risk-averse and conservative approach; and
- As a general rule, the order of significance / prioritisation is as follows for the EMZ layers: **MNP & WHS → Formally Protected Areas → Surface Water → Groundwater → Terrestrial Biodiversity → Agriculture → Terrain → Buffer Zone.** The **Heritage & Cultural Resources** EMZ consists of sites as opposed to the other features that consist of polygons, and it is thus ranked highest within the context of other zones.

Although the abovementioned ranking of EMZs is suggested, it needs to be applied with due caution. A preferred approach for the application of the Management Guidelines of the EMZs is to consider the requirements under each zone when development is considered for a specific site. This implies that an area that falls within more than one zone can be assigned different desired states (except for the MNP & WHS EMZ), which leaves some flexibility in terms of future management options. It also prevents the exclusion or disregard of sensitive features that occur in a lower ranked EMZ at the expense of only those features that constitute the prioritised zone. This approach is favoured as it is more comprehensive in terms of regarding overall sensitivity and it is less rigid when considering the often dynamic nature of development planning. Note that detailed justification needs to be provided for the prioritisation of one EMZ above another.

To evaluate the environmental requirements for a particular area, one would need to firstly identify which EMZs are affected. Then it needs to be established whether the development is incompatible with the desired state of any of the affected EMZs. If, for example, the development entails cultivation, then it supports the Agriculture EMZ but may lead to the loss of sensitive ecological features. Detailed site investigations, specialist(s)

input and thorough motivation would be required to justify pursuing the development if it is contrary to the desired state of an EMZ. At a site appraisal level, the Management Guidelines associated with each affected EMZ need to be taken into consideration (e.g. specialist studies to be conducted).

If preference is afforded to a certain EMZ for conflict areas, certain of the overlain features are not exclusive in their management requirements where the desired states of these features are supportive of one another. For example, where an area is important from a biodiversity perspective (e.g. ecological connectivity) and it is also rated as significant under watercourses (e.g. riparian zone buffer), both features will benefit from future management efforts that promote the preservation of the area in question.

4.5 Management Framework for Strategic Issues & Priorities

Table 5 contains the environmental objectives, strategies and interventions to address certain of the Environmental Management Priorities in the EMF study area. Note that detailed strategies are not included in the EMF, and will need to be developed in consultation with the relevant stakeholders. Only certain Environmental Management Priorities have been selected from the list contained in the EMF Desired State Report (Volume 2). This is to prevent an unrealistic and over-ambitious attempt at dealing with all the management priorities and issues.

In addition, the following has not been considered further in **Table 5** as adequate provision has been made as part of other management structures:

- ❖ Management priorities that are addressed by the programmes of the MNP and WHS Management Plan (SANParks, 2013); and
- ❖ The Key Performance Areas that form part of the GMTFCA Integrated Development Plan (GMTFCA TTC, 2010).

The interventions set the high-level scope for conceptualising the projects deemed necessary to achieve the objectives. However, they do not define the details required for the implementation of actual projects. Once the interventions have been endorsed by the

relevant stakeholders, project plans will need to be developed to include information pertaining to the following:

1. Project description;
2. Budget and sources of finance;
3. Implementation time frames;
4. Activities and outputs; and
5. Performance indicators (aligned with sustainability criteria).

It is accepted that the interventions will go through a degree of refinement in the formulation of project plans or that alternatives may be identified, with contributions from the environmental authorities, multi-stakeholder workshops and through more in-depth public participation. Such modifications are supported, as long as the original motivations for the interventions are borne in mind and the alterations are orchestrated by the ultimate goals of attending to the environmental issues. The sustainability criteria (refer to the EMF Desired State Report, Volume 2) must also always guide the evolution of the projects towards realising the area's environmental vision.

The purpose of the **objectives** is to address the prioritised environmental issues and to manage the natural resources and environmental assets, whilst ensuring alignment with the vision. The objectives aim to be pragmatic in their scope to prevent unrealistic aspirations.

The **strategies** strive to attain the objectives set for addressing the environmental issues. They are intrinsically linked to the study area's environmental context and the realisation of the desired state. The **interventions**, which emanate from the strategies, present the measures and ventures at the coalface to practically bridge the gap between the current and desired state. Note that the timeframes are as follows: short- (immediately to 1 year), medium- (1 – 3 years) and long-term (3 – 5 years).

Table 5: Addressing Prioritised Environmental Issues (S = short term; M = medium term; L = long term)

Issues / Rationale	Objectives	Strategies	Interventions	Time-frames	Locations	Roles & Responsibilities
CLIMATE						
Risks posed by climate change	Ensure the EMF area's preparedness for climate change risks.	Develop Climate Change Strategy.	Climate Change Strategy to include Implementation Plan.	M	Municipal-wide	<ul style="list-style-type: none"> ❖ DEA ❖ LEDET ❖ DWS ❖ Department of Energy ❖ Relevant municipal units
BUFFER ZONE						
Lack of guidance for development and activities in the MCLWHS buffer zone.	<ul style="list-style-type: none"> ❖ Protect WHS Outstanding Universal Values. ❖ Manage edge-effects to WHS core. 	Formalise management requirements for MCLWH buffer zone.	Develop a policy for the MCLWHS buffer zone.	S	MCLWHS proclaimed buffer zone	<ul style="list-style-type: none"> ❖ DEA ❖ LEDET ❖ SANParks ❖ Relevant municipal units
		Facilitate collaboration with authorities, stakeholders and private landowners within buffer zone	<ul style="list-style-type: none"> ❖ Education programme on buffer zone policy for affected landowners. ❖ Establish MCLWHS Buffer Zone Committee. 			
		Employ best practices to safeguard the environment	Develop a generic Environmental Management Programme to protect the environment during the execution of activities that do not require authorisation	S		
Inadequate marketing of MCLWHS and its buffer zone	Realisation of the tourism potential of MCLWHS and its buffer zone	Combined marketing of MCLWHS and buffer zone	<ul style="list-style-type: none"> ❖ Tourism Strategy and Plan for MCLWHS and buffer zone ❖ Improve accessibility by improving signage and information boards throughout the destination 	S - M	MCLWHS & buffer zone	
BIODIVERSITY						
Require an understanding of all wetland systems	Protection of wetland systems.	Identify and protect all wetlands in the EMF area.	<ul style="list-style-type: none"> ❖ Develop wetland inventory for EMF area ❖ Delineate priority wetlands and conduct functionality assessments 	S	Major watercourses & Catchments feeding the WHS	<ul style="list-style-type: none"> ❖ DWS ❖ LEDET
Alien plant invasion	Eradication of alien vegetation	Remove and control invasive alien vegetation	Invasive alien vegetation eradication programme outside of MNP (existing provisions in park)	S - M	EMF area	<ul style="list-style-type: none"> ❖ DWS ❖ LEDET ❖ DAFF
Increase in incidents of roadkill	Reduce the incidents of roadkill in EMF area	Develop Roadkill Strategy	<ul style="list-style-type: none"> • Employ best practices to reduce roadkill, such as the use of signage and roadside fencing to direct wildlife to cross roads 	S - M	EMF area and surrounding road network	<ul style="list-style-type: none"> ❖ DEA ❖ LEDET ❖ SANParks

Issues / Rationale	Objectives	Strategies	Interventions	Time-frames	Locations	Roles & Responsibilities
			through existing culverts and clearing of road verges to improve visibility of animals and vehicles			
SURFACE WATER						
Lack of protection of watercourses and encroachment of development along rivers.	Protection of regulated areas for watercourses (i.e. 1:100 year floodline or delineated riparian habitat/ 500m radius of wetland habitat, whichever is greatest).	Control development alongside watercourses.	Adopt 32 metres buffer area from boundary of regulated area of major watercourses for strict regulation of development. Implementation through adequate provisions in the municipal LUMS.	S	Major watercourses	❖ LEDET ❖ DWS ❖ Relevant municipal units
The Limpopo River is severely stressed and overused. No in-stream flow requirements or Reserve determinations have been conducted.	Adequate protection of the ecological requirements of the major rivers in the EMF area.	Establish the Ecological Reserve of the major rivers in the EMF area and the catchments feeding the WHS.	Conduct a Reserve Determination at the appropriate level for the Limpopo River and other major watercourses in the EMF area and the catchments feeding the WHS.	M	Major watercourses & Catchments feeding the WHS	❖ DWS
			Implement a water quality monitoring programme	S - M		❖ DWS
Riparian areas affected by anthropogenic activities	Enhanced structure and function of degraded riparian areas	Rehabilitation of degraded riparian areas	Rehabilitation Plan for degraded riparian areas outside of MNP (existing provisions in park)	M	Major watercourses & Catchments feeding the WHS	❖ DWS ❖ LEDET
GROUNDWATER						
Contamination and unsustainable use of groundwater	Protection of vulnerable groundwater resources	Establish an understanding of the groundwater resources' vulnerability to pollution.	❖ Conduct geo-hydrological study – ○ Identify vulnerable groundwater resources ○ Verify groundwater conditions and water quality ○ Specific management requirements	M	EMF area and major aquifers	❖ DWS ❖ Relevant municipal units
			❖ Implement a groundwater monitoring programme	S - M		
AGRICULTURE						
Impacts from commercial farming	Minimise environmental	Promote sustainable and environmentally-friendly farming	Agricultural education and land care programme. Build capacity surrounding	S - M	EMF area & Catchments	❖ DAFF

Issues / Rationale	Objectives	Strategies	Interventions	Time-frames	Locations	Roles & Responsibilities
	impacts associated with agriculture	methods	sustainable and environmentally-friendly farming methods, irrigation and grazing practises		feeding the WHS	
HERITAGE AND CULTURAL RESOURCES						
Unidentified or unprotected heritage and cultural resources located outside of WHS	All heritage and cultural resources to be adequately safeguarded	Identify heritage and cultural resources located outside of WHS	<ul style="list-style-type: none"> ❖ Investigate areas that have not yet been surveyed and record all heritage and cultural resources ❖ Develop and maintain a GIS-based database of all cultural heritage features within the core and buffer of the WHS. 	S - M	EMF area	<ul style="list-style-type: none"> ❖ SAHRA ❖ DEA ❖ LEDET
INSTITUTIONAL ENVIRONMENT						
Institutional problems associated with environmental management within the municipality	Alignment of municipal functions with requirements for Integrated Environmental Management (IEM).	Provide enabling environment to municipal officials to adopt and implement IEM.	<ul style="list-style-type: none"> ❖ Develop IEM Implementation Plan, with provisions for institutional arrangements and implementation of environmental management tools. ❖ Conduct environmental training and create environmental awareness amongst municipal officials. ❖ EMF to be incorporated in the review of the municipal IDP and SDF. ❖ Evaluate municipal project and programmes against the EMF, environmental vision and sustainability criteria. ❖ Establish a co-operative environmental governance forum to engage with key environmental authorities. ❖ Establish communication channels with civil society for environmental matters. 	S - M	Municipal-wide	<ul style="list-style-type: none"> ❖ Relevant municipal units ❖ LEDET

4.6 Monitoring, Evaluation & Review

The MCLWHS EMF needs to be monitored and reviewed in order to:

- ❖ Measure the performance of the EMF's success against sustainability principles;
- ❖ Measure the performance of the EMF in attaining the desired state for each EMZ and addressing Management Priorities;
- ❖ Evaluate adherence to Management Guidelines;
- ❖ Provide an evaluation process to review and improve the EMF;
- ❖ Build on the lessons of good practice;
- ❖ Address identified shortcomings; and
- ❖ Create an opportunity to continuously improve the quality and accuracy of the EMF.

Some tools that can be used to monitor, evaluate and review the EMF include:

1. Key Performance Indicators (KPIs);
2. Sustainability Indicators;
3. Environmental audits;
4. Environmental monitoring;
5. Community-based monitoring;
6. Interviews and workshops with stakeholder reference groups; and
7. State of Environment Reporting (SoER).

Key Performance Indicators (KPIs) were established for the prioritised environmental issues identified in the EMF study area, and they are contained in **Table 6**. These KPIs serve to gauge the EMF's performance in addressing the environmental issues and in satisfying the related objectives and strategies listed in **Table 5**.

Over and above these issue- and project-specific KPIs, the following indicators need to be incorporated into the EMF reporting structure:

- ❖ Indicators contained in the MNP and WHS Strategic Plan (SANParks, 2013);
- ❖ Indicators contained in the GMTFCA Integrated Development Plan (GMTFCA TTC, 2010); and
- ❖ DEA's core set of environmental performance indicators for local level reporting (DEAT, 2004) contained in **Appendix B**, with specific reference to the EMF study area.

Table 6: KPIs for Prioritised Environmental Issues

Objectives	Strategies	KPIs
CLIMATE		
Ensure the EMF area's preparedness for climate change risks.	Develop Climate Change Strategy.	<input checked="" type="checkbox"/> % implementation of Climate Change Strategy
BUFFER ZONE		
<ul style="list-style-type: none"> ❖ Protect WHS Outstanding Universal Values. ❖ Manage edge-effects to WHS core. 	Formalise management requirements for MCLWH buffer zone.	<input checked="" type="checkbox"/> Approved policy for the MCLWHS buffer zone <input checked="" type="checkbox"/> % implementation of education programme on buffer zone policy for affected landowners.
	Facilitate collaboration with authorities, stakeholders and private landowners within buffer zone	<input checked="" type="checkbox"/> Minutes of meetings of MCLWHS Buffer Zone Committee.
	Employ best practices to safeguard the environment	<input checked="" type="checkbox"/> Adopted Environmental Management Programme
Realisation of the tourism potential of MCLWHS and its buffer zone	Combined marketing of MCLWHS and buffer zone	<input checked="" type="checkbox"/> Approved Tourism Strategy and Plan for MCLWHS and buffer zone and % implementation <input checked="" type="checkbox"/> Displayed signage for MCLWHS and buffer zone
BIODIVERSITY		
Protection of wetland systems.	Identify and protect all wetlands in the EMF area.	<input checked="" type="checkbox"/> Wetland inventory developed <input checked="" type="checkbox"/> % priority wetlands delineated and assessed
Eradication of alien vegetation	Remove and control invasive alien vegetation	<input checked="" type="checkbox"/> Invasive alien vegetation eradication programme and % implementation <input checked="" type="checkbox"/> Total of area where eradication has taken place
Reduce the incidents of roadkill in EMF area	Develop Roadkill Strategy	<input checked="" type="checkbox"/> Approved Roadkill Strategy and % implementation
SURFACE WATER		
Protection of regulated areas for watercourses (i.e. 1:100 year floodline or delineated riparian habitat/ 500m radius of wetland habitat, whichever is greatest).	Control development alongside watercourses.	<input checked="" type="checkbox"/> Number of encroachments <input checked="" type="checkbox"/> Specific provision in LUMS
Adequate protection of the ecological requirements of the major rivers in the EMF area.	Establish the Ecological Reserve of the major rivers in the EMF area and the catchments feeding the WHS.	<input checked="" type="checkbox"/> % completion of Reserve study
		<input checked="" type="checkbox"/> Surface water quality monitoring conducted in accordance with a programme
Enhanced structure and function of degraded riparian areas	Rehabilitation of degraded riparian areas	<input checked="" type="checkbox"/> Approved Rehabilitation Plan for degraded riparian areas and % implementation
GROUNDWATER		
Protection of vulnerable groundwater resources	Establish an understanding of the groundwater resources' vulnerability to pollution.	<input checked="" type="checkbox"/> Completed geo-hydrological study <input checked="" type="checkbox"/> Groundwater monitoring conducted in accordance with a programme
AGRICULTURE		
Minimise environmental impacts associated with agriculture	Promote sustainable and environmentally-friendly farming methods	<input checked="" type="checkbox"/> Approved agricultural education and land care programme and % implementation

Objectives	Strategies	KPIs
HERITAGE AND CULTURAL RESOURCES		
All heritage and cultural resources to be adequately safeguarded	Identify heritage and cultural resources located outside of WHS	<input checked="" type="checkbox"/> % of area surveyed and recoded <input checked="" type="checkbox"/> Functional GIS database
INSTITUTIONAL ENVIRONMENT		
Alignment of municipal functions with requirements for IEM	Provide enabling environment to municipal officials to adopt and implement IEM.	<input checked="" type="checkbox"/> IEM Implementation Plan developed <input checked="" type="checkbox"/> Training needs assessment conducted <input checked="" type="checkbox"/> Number of municipal officials that have undergone environmental training <input checked="" type="checkbox"/> Environmental Awareness Programme developed <input checked="" type="checkbox"/> % implementation of Environmental Awareness Training <input checked="" type="checkbox"/> EMF incorporated into IDP and SDF <input checked="" type="checkbox"/> Number of municipal projects that have been screened against the sustainability criteria <input checked="" type="checkbox"/> Co-operative environmental governance forum established <input checked="" type="checkbox"/> Public communication channels established

5 REFERENCES

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DEA. 2013. Audit of Land Use Activities Report. The Audit of Land Use Activities in and around Mapungubwe Cultural Landscape World Heritage Site and to facilitate negotiations for the Review of the Mapungubwe Buffer Zone. Department of Environmental Affairs and Tourism, Pretoria.

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SANParks, 2013. Mapungubwe National Park and World Heritage Site Management Plan. For the period 2013-2018. South African National Parks.

APPENDIX A

COMPATIBILITY OF EIA ACTIVITIES WITH GEOGRAPHIC AREAS



MCLWHS EMF

COMPATIBILITY OF EIA ACTIVITIES WITH GEOGRAPHIC AREAS

Notes:




- *Appropriate discretion needs to be applied when interpreting the tables to follow, within the context of the EMF. The conditions associated with the use of these tables, as contained in the EMF’s SEMP, need to be taken into consideration at the onset of the legal screening process.*
- *The Minister of Water and Environmental Affairs is the competent authority in respect of the activities listed in Listing Notices 1, 2 and 3, published in Government Gazette numbers R544, R545, and R546 respectively, in terms of NEMA if the activity -*
 - (a) Has implications for international environmental commitments or relations;*
 - (b) Will take place within an area protected by means of an international environmental instrument, other than-*
 - (i) Any area falling within the sea-shore or within 150 meters seawards from the high-water mark, whichever is the greater;*
 - (ii) A conservancy;*
 - (iii) A protected natural environment;*
 - (iv) A proclaimed private nature reserve;*
 - (v) A natural heritage site; and*
 - (vi) The buffer zone or transitional area of a world heritage site;*
 - (c) Has a development footprint that falls within the boundaries of more than one province or traverses international boundaries;*
 - (d) Is undertaken, or is to be undertaken by-*
 - (i) A national department;*
 - (ii) A provincial department responsible for environmental affairs or any other organ of state performing a regulatory function and reporting to the MEC; or*
 - (iii) A statutory body, excluding any municipality, performing an exclusive competence of the national sphere of government; or*
 - (e) Will take place within a national proclaimed protected area or other conservation area under control of a national authority.*

Legend:

	High risk activity in the context of the EMZ - based on associated impacts, sensitivity of receiving environment and desired state. Activity potentially not supported.
BA	Activity can only be undertaken if authorised following the undertaking of at least a Basic Assessment and the requisite specialist studies that are relevant to the EMZ. Compliance with EMZs’ Management Guidelines.
S&EIA	Activity can only be undertaken if authorised following the undertaking of a Scoping and EIA process as well as the requisite specialist studies that are relevant to the EMZ. Compliance with EMZs’ Management Guidelines.
	Consider for exclusion from authorisation, with suitable motivation and site-specific appraisal of receiving environment. Subject to a separate legal process.
Acronyms:	<ul style="list-style-type: none"> • MNP – Mapungubwe National Park • WHS – World Heritage Site • BZ – Buffer Zone • TB – Terrestrial Biodiversity • SF – Surface Water • GW – Groundwater • A – Agriculture • HC – Heritage and Culture

LISTING NOTICE 1 (GN NO. R544)

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
1.	The construction of facilities or infrastructure for the generation of electricity where: i. the electricity output is more than 10 megawatts but less than 20 megawatts; or ii. the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare.			BA		BA		BA
2.	The construction of facilities or infrastructure for the storage of ore or coal that requires an atmospheric emissions license in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004).		S&EIA	S&EIA		BA		S&EIA
3.	The construction of facilities or infrastructure for the slaughter of animals with a product throughput of: (i) poultry exceeding 50 poultry per day; or (ii) game and red meat exceeding 6 units per day.		BA	BA		BA		BA
4.	The construction of facilities or infrastructure for the concentration of animals for the purpose of commercial production in densities that exceed— (i) 20 square metres per large stock unit and more than 500 units, per facility; (ii) 8 square meters per small stock unit and; a. more than 1 000 units per facility excluding pigs where (b) will apply; b. more than 250 pigs per facility excluding piglets that are not yet weaned; (iii) 30 square metres per crocodile at any level of production, excluding crocodiles younger than 6 months; (iv) 3 square metre per rabbit and more than 500 rabbits per facility; or (v) 250 square metres per ostrich or emu and more than 50 ostriches or emus per facility; or 2500 square metres per breeding pair.		S&EIA	S&EIA		BA		BA
5.	The construction of facilities or infrastructure for the concentration of: (i) more than 1 000 poultry per facility situated within an urban area, excluding chicks younger than 20 days (ii) more than 5 000 poultry per facility situated outside an urban area, excluding chicks younger than 20 days,			S&EIA		BA		BA
6.	The construction of facilities, infrastructure or structures for aquaculture of: (i) finfish, crustaceans, reptiles or amphibians where such facility, infrastructure or structures will have a production output exceeding 20 000 kg but less than 200 000 kg per annum (wet weight); (ii) molluscs where such facility, infrastructure or structures will have a production output exceeding 30 000 kg but not exceeding 150 000 kg per annum (wet weight); (iii) aquatic plants where such facility, infrastructure or structures will have a production output exceeding 60 000 kg but not exceeding 200 000 kg per annum (wet weight); excluding where the construction of facilities, infrastructure or structures is for purposes of offshore cage culture in which case activity 7 in this Notice will apply.		S&EIA	BA		BA		BA
7.	The construction of facilities, infrastructure or structures for aquaculture of offshore cage culture of finfish, crustaceans, reptiles, amphibians, molluscs and aquatic plants where the facility, infrastructure or structures will have a production output exceeding 50 000 kg but not exceeding 100 000 kg per annum (wet weight).	N/A						
8.	The construction of a hatchery or agri-industrial infrastructure outside industrial complexes where the development footprint covers an area of 2 000 square metres or more.			BA		BA		BA
9.	The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water - (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more, excluding where: a. such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b. where such construction will occur within urban areas but further than 32 metres from a watercourse,	S&EIA	S&EIA	BA	BA	BA	BA	BA





Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
	measured from the edge of the watercourse.							
10.	The construction of facilities or infrastructure for the transmission and distribution of electricity - (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.	S&EIA	S&EIA	BA	BA	BA	BA	BA
11.	The construction of: (i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (vii) marinas; (viii) jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	S&EIA	BA	BA	BA	BA	BA	BA
12.	The construction of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50000 cubic metres or more, unless such storage falls within the ambit of activity 19 of Notice 545 of 2010.		S&EIA	BA	S&EIA	BA	BA	BA
13.	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;	S&EIA	S&EIA	BA		BA		S&EIA
14.	The construction of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding (i) the construction of structures within existing ports or harbours that will not increase the development footprint or throughput capacity of the port or harbour; (ii) the construction of a port or harbour, in which case activity 24 of Notice 545 of 2010 applies; (iii) the construction of temporary structures within the beach zone where such structures will be demolished or disassembled after a period not exceeding 6 weeks.	N/A						
15.	The construction of facilities for the desalination of sea water with a design capacity to produce more than 100 cubic metres of treated water per day.	N/A						
16.	Construction or earth moving activities in the sea, an estuary, or within the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater, in respect of – (i) fixed or floating jetties and slipways; (ii) tidal pools; (iii) embankments; (iv) rock revetments or stabilising structures including stabilising walls; (v) buildings of 50 square metres or more; or (vi) infrastructure covering 50 square metres or more – but excluding (a) if such construction or earth moving activities will occur behind a development setback line; or (b) where such construction or earth moving activities will occur within existing ports or harbours and the construction or earth moving activities will not increase the development footprint or throughput capacity of the port or harbour;	N/A						

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
	(c) where such construction or earth moving activities is undertaken for purposes of maintenance of the facilities mentioned in (i)-(vi) above; or (d) where such construction or earth moving activities is related to the construction of a port or harbour, in which case activity 24 of Notice 545 of 2010 applies.							
17.	The planting of vegetation or placing of any material on dunes and exposed sand surfaces, within the littoral active zone for the purpose of preventing the free movement of sand, erosion or accretion, excluding where the planting of vegetation or placement of material relates to restoration and maintenance of indigenous coastal vegetation or where such planting of vegetation or placing of material will occur behind a development setback line.	N/A						
18.	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from (i) a watercourse; (ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater- but excluding where such infilling, depositing, dredging, excavation, removal or moving (i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (ii) occurs behind the development setback line.	S&EIA	BA	BA	S&EIA	BA	BA	BA
19.	Any activity which requires a prospecting right or renewal thereof in terms of section 16 and 18 respectively of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	<i>Activity not in effect yet</i>						
20.	Any activity requiring a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) or renewal thereof.	<i>Activity not in effect yet</i>						
21.	The establishment of cemeteries of 2500 square metres or more in size.	👎	👎	S&EIA	👎	👎	BA	👎
22.	The construction of a road, outside urban areas, (i) with a reserve wider than 13,5 meters or, (ii) where no reserve exists where the road is wider than 8 metres, or (iii) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010.	S&EIA	BA	BA	BA	BA	BA	BA
23.	The transformation of undeveloped, vacant or derelict land to – (i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; - except where such transformation takes place - (i) for linear activities; or (ii) for purposes of agriculture or afforestation, in which case Activity 16 of Notice No.R. 545 applies.	S&EIA [comply with MNP Zoning Plan]	S&EIA	BA	👎	BA	BA	BA
24.	The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming into effect of this Schedule or thereafter such land was zoned open space, conservation or had an equivalent zoning.	S&EIA [comply with MNP Zoning Plan]	S&EIA	BA	👎	BA	BA	BA
25.	The release of genetically modified organisms into the environment, where assessment for such release is required by the Genetically Modified Organisms Act, 1997 (Act No. 15 of 1997) or the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	<i>Activity not in effect yet</i>						

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
26.	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	S&EIA	BA	BA	BA	BA	BA	BA
27.	The decommissioning of existing facilities or infrastructure, for - (i) electricity generation with a threshold of more than 10MW; (ii) electricity transmission and distribution with a threshold of more than 132kV; (iii) nuclear reactors and storage of nuclear fuel; (iv) activities, where the facility or the land on which it is located is contaminated ; (v) storage, or storage and handling, of dangerous goods of more than 80 cubic metres; but excluding any facilities or infrastructure that commenced under an environmental authorisation issued in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006, or Notice No. 543 of 2010.	S&EIA	BA	BA	BA	BA	BA	BA
28.	The expansion of or changes to existing facilities for any process or activity where such expansion or changes to will result in the need for a permit or license in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	S&EIA	S&EIA	BA	👎	BA	BA	BA
29.	The expansion of facilities for the generation of electricity where: (i) the electricity output will be increased by 10 megawatts or more, excluding where such expansion takes place on the original development footprint; or (ii) regardless the increased output of the facility, the development footprint will be expanded by 1 hectare or more;	S&EIA	BA	BA	👎	BA	BA	BA
30.	The expansion of facilities for the slaughter of animals where the daily product throughput will be increased by more than: (i) 50 poultry or (ii) 6 units of red meat and game.	BA	BA	BA	👎	BA	BA	BA
31.	The expansion of facilities for the concentration of animals for the purpose of commercial production in densities that will exceed— (i) 20 square metres per large stock unit, where the expansion will constitute more than 500 additional units; (ii) 8 square meters per small stock unit, where the expansion will constitute more than: a. 1 000 additional units per facility or more excluding pigs where (b) will apply; b. 250 additional pigs, excluding piglets that are not yet weaned; (iii) 30 square metres per crocodile at any level of production where the expansion will constitute an increase in the level of production, excluding crocodiles younger than 6 months; (iv) 3 square metre per rabbit where the expansion will constitute more than 500 additional rabbits; or (v) 250 square metres per ostrich or emu where the expansion will constitute more than 50 additional ostriches or emus; and (vi) 2500 square metres per breeding pair, where the facility will be increased by 2500 square metres or more.	👎	S&EIA	BA	👎	BA	BA	BA
32.	The expansion of facilities for the concentration of poultry, excluding chicks younger than 20 days, where the capacity of the facility will be increased by: (i) more than 1 000 poultry where the facility is situated within an urban area; or (ii) more than 5 000 poultry per facility situated outside an urban area.	👎	S&EIA	BA	👎	BA	BA	BA
33.	The expansion of facilities, infrastructure or structures for aquaculture of - (i) finfish, crustaceans, reptiles or amphibians, where the production output of such facility, infrastructure or structures will be increased by 20 000 kg (wet weight) or more; (ii) molluscs where the production output of such facility, infrastructure or structures will be increased by 30 000 (wet weight) or more;	👎	BA	BA	BA	BA	BA	BA

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
	(iii) aquatic plants where the production output of such facility, infrastructure or structures will be increased by 60 000 kg (wet weight) or more.							
34.	The expansion of facilities, infrastructure or structures for aquaculture of offshore cage culture of finfish, crustaceans, reptiles, amphibians, molluscs and aquatic plants where the production output of such facility, infrastructure or structures will be increased by 50 000 kg (wet weight) or more.	👎	BA	BA	BA	BA	BA	BA
35.	The expansion of facilities for agri-industrial purposes outside industrial complexes, where the development footprint of the facility will be increased by a 1 000 square metres or more, with the exception of hatcheries, where activity 36 in this Notice applies.	👎	S&EIA	BA	👎	BA	BA	BA
36.	The expansion of hatcheries, outside industrial complexes, where the development footprint of the hatchery will be increased by 2 000 square metres or more.	👎	S&EIA	BA	👎	BA	BA	BA
37.	The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water where: (a) the facility or infrastructure is expanded by more than 1000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more—excluding where such expansion: (i) relates to transportation of water, sewage or storm water within a road reserve; or (ii) where such expansion will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.	S&EIA	BA	BA	BA	BA	BA	BA
38.	The expansion of facilities for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.	S&EIA	S&EIA	BA	BA	BA	BA	BA
39.	The expansion of (i) canals; (ii) channels; (iii) bridges; (iv) weirs; (v) bulk storm water outlet structures; (vi) marinas; within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.	BA	BA	BA	BA	BA	BA	BA
40.	The expansion of (i) jetties by more than 50 square metres; (ii) slipways by more than 50 square metres; (iii) buildings by more than 50 square metres; or (iv) infrastructure by more than 50 square metres within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, but excluding where such expansion will occur behind the development setback line.	BA	BA	BA	BA	BA	BA	BA
41.	The expansion of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, where the combined capacity will be increased by 50000 cubic metres or more.	👎	S&EIA	BA	S&EIA	BA	BA	BA
42.	The expansion of facilities for the storage, or storage and handling, of a dangerous good, where the capacity of such storage facility will be expanded by 80 cubic metres or more.	S&EIA	S&EIA	BA	👎	BA	BA	S&EIA

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
43.	The expansion of structures in the coastal public property where the development footprint will be increased by more than 50 square metres, excluding such expansions within existing ports or harbours where there would be no increase in the development footprint or throughput capacity of the port or harbour.	N/A						
44.	The expansion of facilities for the desalination of sea water where the design capacity will be expanded to produce an additional 100 cubic metres or more of treated water per day.	N/A						
45.	The expansion of facilities in the sea, an estuary, or within the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater, for – (i) fixed or floating jetties and slipways; (ii) tidal pools; (iii) embankments; (iv) rock revetments or stabilising structures including stabilising walls; (v) buildings by more than 50 square metres; (vi) infrastructure by more than 50 square metres; (vii) facilities associated with the arrival and departure of vessels and the handling of cargo; (viii) piers; (ix) inter- and sub-tidal structures for entrapment of sand; (x) breakwater structures; (xi) coastal marinas; (xii) coastal harbours or ports; (xiii) structures for draining parts of the sea or estuary; (xiv) tunnels; or (xv) underwater channels – where such expansion will result in an increase in the development footprint of such facilities but excluding where such expansion occurs: (a) behind a development setback line; or (b) within existing ports or harbours where there will be no increase in the development footprint or throughput capacity of the port or harbour.	N/A						
46.	The expansion of cemeteries by an additional 2500 square metres or more.			BA			BA	BA
47.	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre - (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres – excluding widening or lengthening occurring inside urban areas.	S&EIA	BA	BA	BA	BA	BA	BA
48.	The expansion of facilities for the refining, extraction or processing of gas, oil or petroleum products where the installed capacity of the facility will be increased by 50 cubic metres or more per day, excluding facilities for the refining, extraction or processing of gas from landfill sites.			BA		S&EIA	BA	BA
49.	The expansion of facilities or infrastructure for the bulk transportation of dangerous goods: (i) in gas form, outside an industrial complex, by an increased throughput capacity of 700 tons or more per day; (ii) in liquid form, outside an industrial complex or zone, by an increased throughput capacity of 50 cubic metres or more per day; or (iii) in solid form, outside an industrial complex or zone, by an increased throughput capacity of 50 tons or more per day.			BA	BA	BA	BA	BA
50.	The expansion of airports where the development footprint will be increased.	S&EIA	S&EIA	BA		BA	BA	BA

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
51.	The expansion of facilities or infrastructure for marine telecommunication where there will be an increased development footprint.	N/A						
52.	The expansion of facilities or infrastructure for the transfer of water from and to or between any combination of the following: (i) water catchments; (ii) water treatment works; or (iii) impoundments; where the capacity will be increased by 50 000 cubic metres or more per day, but excluding water treatment works where water is treated for drinking purposes.			BA	S&EIA	BA	BA	BA
53.	The expansion of railway lines, stations or shunting yards where there will be an increased development footprint – excluding: (i) railway lines, shunting yards and railway stations in industrial complexes or zones; (ii) underground railway lines in mines; and (iii) additional railway lines within the reserve of an existing railway line.	S&EIA	S&EIA	BA	BA	BA	BA	BA
54.	The expansion of an island, anchored platform or any other permanent structure on or along the sea bed, where the expansion will constitute an increased development footprint.							
55.	The expansion of a dam where: (i) the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher and where the height of the wall is increased by 2,5 metres or more; or (ii) where the high-water mark of the dam will be increased with 10 hectares or more.			BA	S&EIA	BA	BA	BA
56.	Phased activities for all activities listed in this Schedule, which commenced on or after the effective date of this Schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold; - excluding the following activities listed in this Schedule: 2; 11(i)-(vii); 16(i)-(iv); 17; 19; 20; 22(i) & 22(iii); 25; 26; 27(iii) & (iv); 28; 39; 45(i)-(iv) & (vii)-(xv); 50; 51; 53; and 54.	BA	BA	BA	BA	BA	BA	BA

LISTING NOTICE 2 (GN NO. R545)

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
1.	The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.	👎	👎	S&EIA	👎	S&EIA	👎	S&EIA
2.	The construction of facilities or infrastructure for nuclear reaction including energy generation, the production, enrichment, processing, reprocessing, storage or disposal of nuclear fuels, radioactive products and nuclear and radioactive waste.	👎	👎	S&EIA	👎	👎	👎	S&EIA
3.	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	👎	👎	S&EIA	👎	S&EIA	👎	👎
4.	The construction of facilities or infrastructure for the refining, extraction or processing of gas, oil or petroleum products with an installed capacity of 50 cubic metres or more per day, excluding facilities for the refining, extraction or processing of gas from landfill sites.	👎	👎	S&EIA	👎	S&EIA	S&EIA	S&EIA
5.	The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	👎	👎	S&EIA	👎	S&EIA	S&EIA	S&EIA
6.	The construction of facilities or infrastructure for the bulk transportation of dangerous goods - (i) in gas form, outside an industrial complex, using pipelines, exceeding 1000 metres in length, with a throughput capacity of more than 700 tons per day; (ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1000 metres in length, with a throughput capacity more than 50 cubic metres per day; or (iii) in solid form, outside an industrial complex, using funiculars or conveyors with a throughput capacity of more than 50 tons day.	👎	👎	S&EIA	S&EIA	S&EIA	S&EIA	S&EIA
7.	The construction of (i) airports, or (ii) runways or aircraft landing strips longer than 1,4 kilometres.	👎	👎	S&EIA	👎	S&EIA	S&EIA	S&EIA
8.	The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	👎	👎	S&EIA	S&EIA	S&EIA	👎	S&EIA
9.	The construction of facilities or infrastructure for marine telecommunication.	N/A						
10.	The construction of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day, from and to or between any combination of the following: (i) water catchments, (ii) water treatment works; or (iii) impoundments, excluding treatment works where water is to be treated for drinking purposes.	<div style="text-align: center;">👎</div> <p>[Activity not supported if it entails transferring water from the EMF area]</p>						
11.	The construction of railway lines, stations or shunting yards, excluding - (i) railway lines, shunting yards and railway stations in industrial complexes or zones; (ii) underground railway lines in a mining area; and (iii) additional railway lines within the reserve of an existing railway line;	👎	👎	S&EIA	S&EIA	S&EIA	S&EIA	S&EIA
12.	The construction of facilities, infrastructure or structures for aquaculture of - (i) finfish, crustaceans, reptiles or amphibians where the facility, infrastructure or structures will have a production output of 200 000 or more kg per annum (live round weight); (ii) molluscs where the facility, infrastructure or structures will have a production output of 150000 or more kg per annum (live round weight); (iii) aquatic plants where the facility, infrastructure or structures will have a production output of 200 000 or more kg per	👎	👎	S&EIA	👎	S&EIA	S&EIA	S&EIA

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
	annum (live round weight); excluding where the construction of facilities, infrastructure or structures is for purposes of offshore cage culture in which case activity 13 in this Notice will apply.							
13.	The construction of facilities, infrastructure or structures for aquaculture of offshore cage culture of finfish, crustaceans, reptiles, amphibians, molluscs and aquatic plants where the facility, infrastructure or structures will have a production output of 100 000 or more kg per annum (live round weight).	N/A						
14.	The construction of an island, anchored platform or any other permanent structure on or along the sea bed excluding construction of facilities, infrastructure or structures for aquaculture purposes.	N/A						
15.	Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for: (i) linear development activities; or (ii) agriculture or afforestation where activity 16 in this Schedule will apply.	👎	👎	S&EIA	👎	S&EIA	S&EIA	S&EIA
16.	The physical alteration of virgin soil to agriculture, or afforestation for the purposes of commercial tree, timber or wood production of 100 hectares or more.	👎	👎	S&EIA	👎	S&EIA	S&EIA	S&EIA
17.	The extraction or removal of peat or peat soils, including the disturbance of vegetation or soils in anticipation of the extraction or removal of peat or peat soils.	👎	👎	S&EIA	👎	S&EIA	S&EIA	S&EIA
18.	The route determination of roads and design of associated physical infrastructure, including roads that have not yet been built for which routes have been determined before 03 July 2006 and which have not been authorised by a competent authority in terms of the Environmental Impact Assessment Regulations, 2006 or 2009, made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006,— (i) it is a national road as defined in section 40 of the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998); (ii) it is a road administered by a provincial authority; (iii) the road reserve is wider than 30 metres; or (iv) the road will cater for more than one lane of traffic in both directions.	👎	👎	S&EIA	S&EIA	S&EIA	S&EIA	S&EIA
19.	The construction of a dam, where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.	👎	👎	S&EIA	👎	S&EIA	S&EIA	S&EIA
20.	Any activity which requires a mining right or renewal thereof as contemplated in sections 22 and 24 respectively of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	<i>Activity not in effect yet</i>						
21.	Any activity which requires an exploration right or renewal thereof as contemplated in sections 79 and 81 respectively of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).							
22.	Any activity which requires a production right or renewal thereof as contemplated in sections 83 and 85 respectively of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).							
23.	Any activity which requires a reconnaissance permit as contemplated in section 74 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), excluding where such reconnaissance is conducted by means of a fly over.							
24.	Construction or earth moving activities in the sea, an estuary, or within the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater, in respect of: (i) facilities associated with the arrival and departure of vessels and the handling of cargo; (ii) piers; (iii) inter- and sub-tidal structures for entrapment of sand; (iv) breakwater structures; (v) coastal marinas;	N/A						

Activity no.	Activity description	Environmental Management Zones						
		MNP & WHS	BZ	TB	SW	A	HC	GW
	(vi) coastal harbours or ports; (vii) structures for reclaiming parts of the sea; (viii) tunnels; or (ix) underwater channels; but excluding — (a) activities listed in activity 16 in Notice 544 of 2010, (b) construction or earth moving activities if such construction or earth moving activities will occur behind a development setback line; (c) where such construction or earth moving activities will occur in existing ports or harbours where there will be no increase of the development footprint or throughput capacity of the port or harbour; or (d) where such construction or earth moving activities takes place for maintenance purposes.							
25.	The expansion of facilities for nuclear reaction including energy generation, the production, enrichment, processing, reprocessing, storage or disposal of nuclear fuels, radioactive products and nuclear and radioactive waste.			S&EIA			S&EIA	S&EIA
26.	Commencing of an activity, which requires an atmospheric emission license in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), except where such commencement requires a basic assessment in terms of Notice of No. R544 of 2010			S&EIA		S&EIA	S&EIA	S&EIA

LISTING NOTICE 3 (GN NO. R546)

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
1.	The construction of billboards exceeding 18 square metres in size outside urban or mining areas or outside industrial complexes.	<ul style="list-style-type: none"> i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas; iii. World Heritage Sites; iv. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; v. Sites or areas identified in terms of an International Convention; vi. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; vii. Core areas in biosphere reserves; viii. Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; ix. Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; x. In an estuary. 	BA – also for: <ul style="list-style-type: none"> ▪ Surface Water EMZ
2.	The construction of reservoirs for bulk water supply with a capacity of more than 250 cubic metres.	<ul style="list-style-type: none"> i. In an estuary; ii. In a protected area identified in terms of NEMPAA, excluding conservancies; iii. Outside urban areas, in: <ul style="list-style-type: none"> (aa) National Protected Area Expansion Strategy Focus areas; (bb) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (cc) Sites or areas identified in terms of an International Convention; (dd) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ee) Core areas in biosphere reserves; (ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (gg) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined. iv. In urban areas: <ul style="list-style-type: none"> (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose; (cc) Areas seawards of the development setback line or within urban protected areas. 	BA – also for: <ul style="list-style-type: none"> ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)
3.	The construction of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes where the mast: <ul style="list-style-type: none"> (a) is to be placed on a site not previously used for this purpose, and (b) will exceed 15 metres in height, but excluding attachments to existing buildings and masts on rooftops. 	<ul style="list-style-type: none"> i. In an estuary; ii. Outside urban areas, <ul style="list-style-type: none"> (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; 	BA – also for: <ul style="list-style-type: none"> ▪ Surface Water EMZ

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
		(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined. iii. Inside urban areas; in: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	
4.	The construction of a road wider than 4 metres with a reserve less than 13,5 metres.	i. In an estuary; ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined. iii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; (cc) seawards of the development setback line or within urban protected areas.	BA – also for: ■ Agriculture EMZ (if earmarked area is not transformed)
5.	The construction of resorts, lodges or other tourism accommodation facilities that sleep less than 15 people.	(a) A protected area identified in terms of the NEMPAA. (b) In an estuary. (c) Outside urban areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve. i. Outside urban areas, in: (aa) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (cc) Areas within 100 metres of a watercourse or wetland. ii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	Unchanged Unchanged Unchanged
6.	The construction of resorts, lodges or other tourism accommodation facilities that sleep 15 people or more.	i. In an estuary; ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention;	Unchanged

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
		<ul style="list-style-type: none"> (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined. iii. In urban areas, the following: <ul style="list-style-type: none"> (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose. 	
7.	The conversion of existing structures to resorts, lodges or tourism accommodation facilities that sleep 15 people or more.	<ul style="list-style-type: none"> i. In an estuary; ii. Outside urban areas, in: <ul style="list-style-type: none"> (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an International Convention; (ff) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; (ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; iii. In urban areas: <ul style="list-style-type: none"> (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose. 	Unchanged
8.	The construction of aircraft landing strips and runways 1.4 kilometres and shorter.	<ul style="list-style-type: none"> i. In an estuary; ii. Outside urban areas, in: <ul style="list-style-type: none"> (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an International Convention; (ff) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core of a biosphere reserve; (ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (jj) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse 	BA – also for: <ul style="list-style-type: none"> ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
		where no such setback line has been determined. iii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	
9.	The construction of above ground cableways and funiculars.	i. In an estuary; ii. Areas outside urban areas; iii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; (cc) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined. (dd) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined	Unchanged
10.	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.	i. In an estuary; ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; (jj) Within 500 metres of an estuary. iii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; (cc) Within 500 metres of an estuary.	BA – also for: ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)
11.	The construction of tracks or routes for the testing, recreational use or outdoor racing of motor powered vehicles excluding conversion of existing tracks or routes for the testing, recreational use or outdoor racing of motor powered vehicles.	i. In an estuary; ii. In areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; iii. Within areas of indigenous vegetation outside urban areas.	BA – also for: ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
12.	The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.	(a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (b) Within critical biodiversity areas identified in bioregional plans; (c) Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuary, whichever distance is the greater, excluding where such removal will occur behind the development setback line on even in urban areas.	BA – also for: ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)
13.	The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list. (2) the undertaking of a linear activity falling below the thresholds entioned in Listing Notice 1	(a) Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority. (b) National Protected Area Expansion Strategy Focus areas. i. In an estuary; ii. Outside urban areas, the following: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Core areas in biosphere reserves; (ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (gg) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined. iii. In urban areas, the following: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; (cc) Areas seawards of the development setback line; (dd) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.	BA – also for: ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)
14.	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) purposes of agriculture or afforestation inside areas identified in spatial instruments adopted by the competent authority for agriculture or afforestation purposes; (2) the undertaking of a process or activity	i. All areas outside urban areas.	BA – also for: ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
	<p>included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the activity is regarded to be excluded from this list;</p> <p>(3) the undertaking of a linear activity falling below the thresholds in Listing Notice 1.</p>		<p>S&EIA – for:</p> <ul style="list-style-type: none"> ▪ World Heritage Site EMZ ▪ Formally Protected Areas EMZ
15.	<p>The construction of facilities, infrastructure or structures of any size for any form of aquaculture.</p>	<p>(a) In an estuary;</p> <p>(b) In a Protected Area identified in the NEMPAA;</p> <p>(c) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.</p>	<p>BA – also for:</p> <ul style="list-style-type: none"> ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)
16.	<p>The construction of:</p> <p>(i) jetties exceeding 10 square metres in size;</p> <p>(ii) slipways exceeding 10 square metres in size;</p> <p>(iii) buildings with a footprint exceeding 10 square metres in size; or</p> <p>(iv) infrastructure covering 10 square metres or more</p> <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	<p>i. In an estuary;</p> <p>ii. Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) World Heritage Sites;</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ee) Sites or areas identified in terms of an International Convention;</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(gg) Core areas in biosphere reserves;</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p> <p>(ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.</p> <p>iii. In urban areas:</p> <p>(aa) Areas zoned for use as public open space;</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or</p> <p>(cc) Areas seawards of the development setback line.</p>	<p>Unchanged</p>
17.	<p>The expansion of reservoirs for bulk water supply where the capacity will be increased by more than 250 cubic metres.</p>	<p>i. Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) World Heritage Sites;</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ee) Sites or areas identified in terms of an International Convention;</p> <p>(ff) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(gg) Core areas in biosphere reserves;</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area</p>	<p>BA – also for:</p> <ul style="list-style-type: none"> ▪ Surface Water EMZ ▪ Agriculture EMZ (if earmarked area is not transformed)

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
		identified in terms of NEMPAA or from the core area of a biosphere reserve; (ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined. ii. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose; (cc) Areas seawards of development setback line or within 100 metres of the high water mark of the sea where the development setback line has not been determined.	
18.	The expansion of a resort, lodge, hotel and tourism or hospitality facilities where the development footprint will be expanded.	i. In an estuary; ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined. iii. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation; (cc) Areas seawards of the development set back line or within 100 metres from the high-water mark of the sea if no such development setback line is determined.	Unchanged
19.	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.	i. In an estuary; ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined. iii. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or	BA – also for: ■ Agriculture EMZ (if earmarked area is not transformed)

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
		zoned for a conservation purpose.	
20.	The expansion of runways or aircraft landing strips where the expanded runways or aircraft landing strips will be longer than 1,4 kilometres in length.	<ul style="list-style-type: none"> i. In an estuary; ii. Outside urban areas, in: <ul style="list-style-type: none"> (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks and world heritage sites and 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined. iii. Inside urban areas: <ul style="list-style-type: none"> (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose. 	Unchanged
21.	The expansion of above ground cableways and funiculars where the development footprint will be increased.	<ul style="list-style-type: none"> i. In an estuary; ii. All areas outside urban areas; iii. In urban areas: <ul style="list-style-type: none"> (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; (cc) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined. (dd) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined 	Unchanged
22.	The expansion of tracks or routes for the testing, recreational use or outdoor racing of motor powered vehicles excluding conversion of existing tracks or routes for the testing, recreational use or outdoor racing of motor powered vehicles, where the development footprint will be expanded.	<ul style="list-style-type: none"> i. In an estuary; ii. Within areas seaward of the development setback line or within 1 kilometre of the high-water mark if no setback line is determined; iii. Within areas of indigenous vegetation outside and inside urban areas. 	Unchanged
23.	The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage facilities will be expanded by 30 cubic metres or more but less than 80 cubic metres.	<ul style="list-style-type: none"> i. In an estuary; ii. Outside urban areas, in: <ul style="list-style-type: none"> (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in 	Unchanged

Activity no.	Activity description	Geographical areas based on environmental attributes	MCLWHS EMF Requirements
		bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; (jj) Within 500 metres of an estuary. iii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; (cc) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; (dd) Within 500 metres of an estuary.	
24.	The expansion of (a) jetties where the jetty will be expanded by 10 square metres in size or more; (b) slipways where the slipway will be expanded by 10 square metres or more; (c) buildings where the buildings will be expanded by 10 square metres or more in size; or (d) infrastructure where the infrastructure will be expanded by 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	i. In an estuary; ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined. iii. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	Unchanged
25.	The expansion of facilities, infrastructure or structures of any size for any form of aquaculture.	(a) In an estuary; (b) In a Protected Area identified in the NEMPAA; (c) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.	Unchanged
26.	Phased activities for all activities listed in this Schedule and as it applies to a specific geographical area, which commenced on or after the effective date of this Schedule, where any phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.	All the areas as identified for the specific activities listed in this schedule.	Unchanged

APPENDIX B

ENVIRONMENTAL PERFORMANCE INDICATORS

MCLWHS EMF

ENVIRONMENTAL PERFORMANCE INDICATORS

Extracted from Development of a Core Set of Environmental Performance Indicators (DEAT, 2004)

Note that these indicators may be adopted for reporting by the municipality in the EMF area.

CATEGORIES

Types of Indicators

- **Core indicators** = indicators which are relevant to all municipalities and are also of interest at the national level (in other words, they can be aggregated up to provincial and then national level and will help DEA achieve a country-wide picture of performance).
- **Peripheral indicators** – or non-core set = indicators which are not relevant to every municipality – but may be more suitable for use by municipalities with particular characteristics. It also contains those indicators which were not felt to be of relevance at the national level (i.e. will tell local government about its performance against local bylaws, responsibilities and so on, but which have little impact at a national level). Where possible and obvious, the ‘peripheral’ set also notes those indicators that apply only to certain tiers of local government, but not to all of them.

Practicality

- **Pragmatic indicators** = those for which information can be collated by all municipalities at the present time.
- **Ideal indicators** = those for which information cannot be collated at the present time as additional resources and/or capacity are required to enable this to happen.

SUMMARY LIST OF INDICATORS

Note: These are all ‘pragmatic’ indicators – unless otherwise marked (shaded box = ideal indicators) and are all relevant to local authorities unless otherwise marked with a P* (provincial responsibility) or DWS* (DWS regional responsibility)

CORE INDICATORS

Air/Climate

Is there an adopted Air Quality Management Plan?

% of licensed industries with did not comply with license conditions

% of these for which there was an enforcement response by the authority

% of key pollutants monitored according to the specifications in the National Air Quality Framework

Ambient Concentrations of Key Pollutants

Degree of exceedence of national standards for ambient concentrations of key pollutants

Number of air quality related complaints received by the local authority (no. /year)

% of these for which there was an enforcement action

Number of staff (FTEs) responsible for monitoring air quality in the municipality

Waste Management

General waste produced per capita per year

Hazardous waste produced per sector per year

Number of incidents of illegal dumping

% of these incidents for which enforcement action was taken

Amount (tonnes) of illegal dumping cleared by the local authority

% of general waste recycled on an annual basis

% municipal landfill sites licensed
Available landfill lifespan
% of licensed landfill sites that are being monitored for compliance (according to specification in license)
Water, Sanitation & water quality
% exceedence of DWS guidelines for selected groundwater quality variables (DWS)
% exceedence of DWS guidelines for selected surface water quality variables (DWS)
Protected Areas
% of local protected areas with a current/adopted management plan and authorised budget
Invasive Alien Species
Area (hectares) of municipal land currently invaded by alien species
% of municipal land currently invaded by alien species
Area of IAS cleared from municipal land (this reporting year)
% of municipal land currently invaded by alien species which has been cleared (this reporting year)
Is there an adopted Invasive Species Monitoring, Control and Eradication Plan that is integrated and aligned to the IDP?
Species and Ecosystem Management and Change
Threatened and extinct species per taxonomic group P*
Endemic Species per taxonomic group P*
Population trends of selected species P*
Area (hectares) of sensitive, vulnerable, highly dynamic and stressed ecosystems in the municipal area (by ecosystem type) P*
% of each of the above which is degraded or transformed on an annual basis P*
Environmental Governance
Has the municipality audited its plans, policies and programmes for adherence to the NEMA principles?
Has a strategic environmental assessment of the impact of the Spatial Development Framework for the municipality been carried out?
For each of the following, is there a current, adopted plan that is integrated and aligned to the IDP?: Air Quality Plan, Integrated Waste Management Plan; Oil Spill Contingency Plan; Water Services Development Plan; Plan to provide access to basic water services; Invasive Species monitoring, control and eradication plan
Is the IDP aligned to the National Biodiversity Strategy and the Bioregional Plan?
Has the municipality officially adopted the Agenda 21 process?
Is there an approved implementation plan for Agenda 21?

PERIPHERAL INDICATORS

Noise Pollution
Number of noise pollution related complaints received by the local authority
% of these complaints for which there was enforcement action
Storm Water Management
% of storm water drains that are maintained annually
No. dwellings within the 50 year flood line
Protected Areas
Level of user satisfaction with access to and quality of local protected areas

* Note that no KPIs related to Climate Change/Greenhouse Gases were included in DEA's list of environmental performance indicators